Details of the revised Curricula/Syllabi

Name of Program: B. Tech

Name of Course & Code: Engineering Mathematics-I & CBTE-101

Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	**Differential Calculus:** Expansion of functions by Maclaurin's and Taylor's theorem, Partial differentiation, Euler's theorem, Maxima and minima for one and two variable.	**14**
II	**Integral Calculus:** Definite Integrals : Definite Integrals as a limit of a sum , Its application in Summation of series, Beta and Gamma Functions , Double and Triple Integrals, Change of Order of Integration**.**	**14**
III	**Ordinary Differential Equations:** Differential Equations of First Order and First Degree (Leibnitz linear, Bernoulli's, and Exact), Differential Equations of First Order and Higher Degree, Higher order differential equations with constants coefficients, Homogeneous Linear Differential equations, Simultaneous Differential Equations.	**14**
IV	**Matrices:** Rank of a Matrix, Solution of Simultaneous linear equations by elementary transformation, Consistency of Equation, Eigen Values and Eigen Vectors, Diagonalization of Matrices, Cayley-Hamilton theorem and its applications to find inverse.	**14**
V	**Numerical Analysis:** Difference operators, Interpolation, Inverse interpolation, Numerical integration by using Simpson's method, Weddle's rule and Trapezoidal rule. **Solutions of Ordinary Differential Equations**: Taylor's Series, Picard's Method, Euler's Method, Modified Euler's method, Runge-Kutta Method.	**14**

Syllabus prior and post revision of the courses.

Name of Program: B. Tech

Name of Course & Code: Engineering Mathematics-I & CBTE-101

Prior Revision	Post Revision
Differential Calculus: Successive Differentiation and Leibnitz's Theorem. Expansion of functions by Maclaurin's and Taylor's theorem. Partial differentiation. Euler's theorem. Maxima and Minima for one and two variable. Curvature: Radius of Curvature, centre of curvature.	**Differential Calculus:** Expansion of functions by Maclaurin's and Taylor's theorem, Partial differentiation, Euler's theorem, Maxima and minima for one and two variable.
Integral Calculus : Definite Integrals : Definite Integrals as a limit of a sum , its application in Summation of series, Beta and Gamma Functions , Double and Triple Integrals, Change of Order of Integration.	
Differential Equations: Solution of Ordinary Differential Equation of first order and first degree (Equation in which variable are separable, Homogeneous Equation. Non homogeneous equation, Linear equation) Equation of first order and higher degree (Solvable for p, x and y, Clairaut's Equation), Linear Differential Equations of higher order with Constant Coefficients, Cauchy's, Homogeneous differential Equation, Simultaneous differential Equations.	**Ordinary Differential Equations:** Differential Equations of First Order and First Degree (Leibnitz linear, Bernoulli's, and Exact), Differential Equations of First Order and Higher Degree, Higher order differential equations with constants coefficients, Homogeneous Linear Differential equations, Simultaneous Differential Equations.
Matrices: Rank by Normal and Echelon form, Solution of Simultaneous linear equation of elementary transformation, Consistency of System of Simultaneous Linear Equation, Eigen Values and Eigen Vectors, Cayley-Hamilton theorem and its Application to find the inverse	**Matrices:** Diagonalization of Matrices.
Vector Space: Vector Space, Vector Sub Space, Linear Combination of Vectors, Linearly Dependent, Linearly Independent, Basis of a Vector Space, Linear Transformations.	**Numerical Analysis:** Difference operators, Interpolation, Inverse interpolation, Numerical integration by using Simpson's method, Weddle's rule and Trapezoidal rule. **Solutions of Ordinary Differential Equations**: Taylor's Series, Picard's Method, Euler's Method, Modified Euler's method, Runge-Kutta Method.

Details of the revised Curricula/Syllabi

Name of Program: B. Tech
Name of Course & Code: Engineering Physics & CBTE-102
Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	Laser and Fiber Optics: Introduction, Interaction of radiation with matter, Conditions for light amplification, population inversion, active medium, pumping, Optical resonators, characteristics of laser beam, applications of laser, Types of lasers: Ruby & He- Ne. Introduction of optical fiber, applications & types of optical fiber, Propagation of light through a cladded fiber, acceptance angle, numerical aperture, V Number, attenuation.	14
II	Quantum and Nanophysics: De Broglie Hypothesis, Group and particle velocities & their relationship, Uncertainty principle, Compton Effect, Wave function, time dependent and time independent Schrödinger wave equation, Application of time independent Schrödinger wave equation for a particle trapped in a one-dimensional square potential well. Introduction of nanophysics, concept of nanostructures and materials, characterization, applications and future of nanotechnology.	14
III	Nuclear Physics: Atomic Nucleus, Nuclear density, Atomic mass unit, Mass defect, Binding energy, Nuclear Models: liquid drop model, shell model, Accelerators: Drift tube LINAC, Cyclotron, Betatron, Nuclear Fission, Nuclear Fusion, Chain Reaction Nuclear Reactor and Geiger - Muller Counter.	14
IV	Wave Optics: Interference: Principle of superposition, Condition for interference, coherence, Young's double slit experiment, Interference in thin films, Newton's rings and their applications. Diffraction: Definition and condition for Diffraction, kinds of diffraction, diffraction grating single slit and grating, Resolving Power, Resolving Power of telescope and grating.	14
V	Solid State Physics and Superconductivity: Free electron model theory, Band theory for solids, Fermi Dirac distribution function, Fermi level of intrinsic and extrinsic semiconductor, photodiode, solar cell, Hall effect. Superconductivity: Introduction, Meissner effect, Type I and Type II superconductors, BCS theory, Josephson Effect, applications of superconductors.	14

Syllabus prior and post revision of the courses.

Name of Program: B. Tech

Name of Course & Code: Engineering Physics & CBTE-102

Prior Revision	Post Revision
Laser and Fiber Optics: Introduction, Interaction of radiation with matter, Conditions for light amplification, population inversion, active medium, pumping, Optical resonators, pumping schemes, characteristics of laser beam, applications of laser, Types of lasers: Ruby & He- Ne. Introduction of optical fiber, applications & types of optical fiber, Propagation of light through a cladded fiber, acceptance angle, cone, numerical aperture, V Number, attenuation and fiber losses.	**Laser and Fiber Optics**: characteristics of laser beam.
Wave Optics: Interference: Condition for interference, coherence, Young's double slit experiment, Interference in parallel thin films, Newton's rings and their applications. Fraunhofer Diffraction: single slit and grating, Resolving Power, Resolving Power of telescope and grating, polarization of light, Production of plane polarized light by reflection, Brewster law, Production of elliptically and circularly polarized light.	**Wave Optics**: Interference: Principle of superposition, Definition and condition for Diffraction, kinds of diffraction, diffraction grating
Nuclear Physics: Atomic Nucleus, Nuclear density, Atomic mass unit, mass defect, Binding energy, Nuclear Models: liquid drop model, shell model, Accelerators: Drift tube LINAC, Cyclotron, Synchrotron, Synchrocyclotron & Betatron, Nuclear Fission, Chain Reaction, Q- Value, Nuclear Fusion, Nuclear Reactor, Geiger - Muller Counter, Bainbridge Mass Spectrograph	
Quantum and Nano Physics: De Broglie Hypothesis, Group and particle velocities & their relationship. Uncertainty principle and its application,Compton Effect, Wave function, Quantum operators, time dependent and time independent Schrödinger wave equation, Application of time independent Schrödinger wave equation for a particle trapped in a one dimensional	

square potential well. Introduction of nanophysics, concept of nanostructures and materials, characterization, applications and future of nanotechnology Unit-V **Solid State Physics and Superconductivity**: Free electron model theory, Band theory for solids, Fermi Dirac distribution function, Fermi level of intrinsic and extrinsic semiconductor, photodiode, solar cell, Hall effect. Superconductivity: Introduction, Meissner effect, Type I and Type II superconductors, BCS theory, Josephson Effect, applications of superconductors.	

Details of the revised Curricula/Syllabi

Name of Program: B. Tech
Name of Course & Code: Basic Electrical and Electronics Engineering & CBTE-103
Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	**D.C. Networks:** Introduction, Classification of elements – Active, Passive, Unilateral, Bilateral, linear, Nonlinear, Lumped and Distributed; Electric circuit, Ohm's law, Kirchhoff's laws, Mesh and Nodal analysis, Delta-Star and Star-Delta Transformations, Superposition theorem, Thevenin's and Norton's theorems, Maximum power transfer theorem (Only independent sources).	**14**
II	**Single Phase A.C. Circuits:** Production of AC voltage, Waveforms and basic definitions, Root mean square and average values of alternating currents and voltage, Form factor and peak factor, Phasor representation of alternating quantities, The j operator and phasor algebra, analysis of circuits, Series circuits, Parallel circuits, Series parallel circuits, Power in A.C. circuits.	**14**
III	**Three Phase A.C. circuits:** Introduction, Generation of Three-phase EMF, Phase sequence, Connection of Three-phase Windings - Delta and Star connection: Line and Phase quantities, Phasor diagrams, Power equations in balanced conditions. **Magnetic Circuits:** Introduction, Magneto motive force (MMF), Magnetic field strength, Reluctance, B-H curve, Comparison of the Electric and Magnetic Circuits, Series-Parallel Magnetic Circuit, Leakage flux and fringing, Magnetic Hysteresis, Eddy currents.	**14**
IV	**Single phase Transformers:** Introduction, Principles of operation, Constructional details, Ideal Transformer and Practical Transformer, EMF equation, Rating, Phasor diagram on no load, Losses, Efficiency calculations. **Direct Current Machines:** Constructional details, Principle of operation of DC machines, e.m.f. equation, Torque production, Classification of DC machines, Starting of DC motors. (Only elementary treatment with simple problems on all the topics in this unit).	**14**
V	**Diodes:** PN junction diode. Biasing of PN junction diode. V-I characteristics of diode. Effect of temperature on the V-I characteristics. Diode as a rectifier. **Special Diodes:** Zener diode, Tunnel diode, PIN diode, LED & photodiode. **Digital Electronics:** Introduction to Number Systems, Types-Decimal, Binary, Octal, Hexadecimal; Conversion from one number system to other. Basic logic gates, Universal gates, De-Morgon's Theorem.	**14**

Syllabus prior and post revision of the courses.

Name of Program: B. Tech

Name of Course & Code: Basic Electrical and Electronics Engineering & CBTE-103

Prior Revision	Post Revision
Electrical Circuit Analysis: Voltage and current sources, dependent and independent sources, sources conversion, Kirchhoff's law (KVL & KCL) ,Ohms law DC circuit analysis using Mesh & Nodal Method, Thevenin's & superposition theorem, Maximum Power transfer theorem for dc source, star-delta Transformation. Introduction of single & Three Phase AC circuit, properties Resistor inductor and capacitor and its characteristics, active, reactive & apparent Power and power factor and its importance, 3- phase balanced and unbalanced supply in star delta connection, measurement of power by two and three wattmeter method.	**D.C. Networks:** Introduction, Classification of elements – Active, Passive, Unilateral, Bilateral, linear, Nonlinear, Lumped and Distributed; Electric circuit, Ohm's law, Kirchhoff's laws, Mesh and Nodal analysis, Delta-Star and Star-Delta Transformations, Superposition theorem, Thevenin's and Norton's theorems, Maximum power transfer theorem (Only independent sources).
Transformer: Review of laws of electromagnetism, mmf , flux , and their relation , analysis of magnetic circuits, Single phase transformer, basic concepts and construction features, voltage, current and impedance transformation, equivalent circuit, phasor diagram, voltage regulation, losses and efficiency, OC and SC Test ,Autotransformer.	**Single Phase A.C. Circuits:** Production of AC voltage, Waveforms and basic definitions, Root mean square and average values of alternating currents and voltage, Form factor and peak factor, Phasor representation of alternating quantities, The j operator and phasor algebra, analysis of circuits, Series circuits, Parallel circuits, Series parallel circuits, Power in A.C. circuits.
Rotating Electric Machines: Constructional details of DC machine, type of dc machine EMF equation of DC machine, Constructional details of Induction Machine and Synchronous machine working principle of 3-phase induction motor Torque equation of 3-phase induction motor, concept of slip in 3-phase induction motor, Explanation of Torque-slip characteristics of 3-phase induction motor. Working principle Synchronous machine.	**Three Phase A.C. circuits:** Introduction, Generation of Three-phase EMF, Phase sequence, Connection of Three-phase Windings - Delta and Star connection: Line and Phase quantities, Phasor diagrams, Power equations in balanced conditions. **Magnetic Circuits:** Introduction, Magneto motive force (MMF), Magnetic field strength, Reluctance, B-H curve, Comparison of the Electric and Magnetic Circuits, Series-Parallel Magnetic Circuit, Leakage flux and fringing, Magnetic Hysteresis, Eddy currents.
Semiconductor Materials: Classification of solid materials. Insulators, metal and semiconductor on the basis of band gap. Comparison of conductors, insulators and semiconductors. Classification of	**Single phase Transformers:** Introduction, Principles of operation, Constructional details, Ideal Transformer and Practical Transformer, EMF equation, Rating, Phasor diagram on no load,

semiconductors: Intrinsic and Extrinsic. N-type and P-type semiconductors. Effect of temperature on extrinsic semiconductors .PN junction diode. Biasing of PN junction diode. V-I characteristics of diode. Effect of temperature on the V-I characteristics. diode as a rectifier.	Losses, Efficiency calculations. **Direct Current Machines:** Constructional details, Principle of operation of DC machines, e.m.f. equation, Torque production, Classification of DC machines, Starting of DC motors. (Only elementary treatment with simple problems on all the topics in this unit).
Special diodes and Transistor: Zener diode, Tunnel diode, PIN diode, LED & photodiode. Transistor: Transistor symbols, types of transistor and their working. Modes of operation o transistor. Transistor configurations, relation between current gains of different configuration Comparison of three transistor configuration. Transistor as an Amplifier. Digital Electronics Number systems, Gates, Universal gates, Demorgan's Theorem , SOP and POS.	**Diodes:** PN junction diode. Biasing of PN junction diode. V-I characteristics of diode. Effect of temperature on the V-I characteristics. Diode as a rectifier. **Special Diodes:** Zener diode, Tunnel diode, PIN diode, LED & photodiode. **Digital Electronics:** Introduction to Number Systems, Types-Decimal, Binary, Octal, Hexadecimal; Conversion from one number system to other. Basic logic gates, Universal gates, De-Morgon's Theorem.

Details of the revised Curricula/Syllabi

Name of Program: B. Tech
Name of Course & Code: Engineering Graphics & Design CBTE-104

Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	Introduction: Principle of Engineering Graphics & their Significance, Conventions in Drawing, Dimensioning Rules. Scales: Concept of Reduced, Enlarged &Full Size Scale. Classification of Scales-Plain Scales, Diagonal Scales, Scales of Chords. Conic Sections: Construction of Ellipse General Method, Concentric Circle Method. Parabola: General Method, Tangential Method, Rectangle Method. Hyperbola: General Method, Intersecting Arcs Method, Normal and Tangent of Conic Section, Special Curves: Cycloid, Epicycloids, Hypocycloid, Involutes, Archimedean spiral.	14
II	Projection: Types of projections, Orthographic projection, First and third angle projection, Projections of points & Straight lines, Line inclined to one plane, Inclined with both the planes, True length and true inclination and traces of straight lines.	14
III	Projections of Planes and Solids: Projections of planes like circle and polygons in different Positions, Projection of polyhedrons like prisms, Pyramids and solid of revolutions like Cylinder, Cone in different positions.	14
IV	Section of Solids: Section of Right Solid by Normal and Inclined Planes. Development of Surfaces: Parallel Line and Radial Line Method for Right Solid-Prisms, Pyramids and Cone. Isometric Projection: Principles of Isometric Projections-Isometric Scale, Isometric Axes, Isometric Projection from Orthographic Drawing.	14
V	Introduction of Engineering Drawing Software's: Introduction to Computer Aided Drafting (CAD) Software for 2D and 3D Modeling, Benefits and limitations, Software's Basic Commands of Drafting Entities like Line, Circle, Polygon, Polyhedron, Cylinders. Transformations and Editing Commands like Move, Rotate, Mirror, Array.	14

Syllabus prior and post revision of the courses.

Name of Program: B. Tech
Name of Course & Code: Engineering Graphics & Design CBTE-104

Prior Revision	Post Revision
Basic Geometrical Construction : Scales: Representative factor, plain scales, diagonal scales, scale of chords. Conic Sections: Construction of ellipse – General method, Arc of circle method. Parabola: General method, Tangential method, Rectangle Method. Hyperbola: General method, Intersecting arcs method, Normal and Tangent of conic section. Special Curves : Cycloid, Epicycloids, Hypocycloid, Involutes, Archimedean spiral **Projection**: Types of Projections, Orthographic Projection, First and Third angle Projection.	**Introduction**: Principle of Engineering Graphics & their Significance, Conventions in Drawing, Dimensioning Rules. Scales: Concept of Reduced, Enlarged &Full Size Scale. Classification of Scales-Plain Scales, Diagonal Scales, Scales of Chords. Conic Sections: Construction of Ellipse General Method, Concentric Circle Method. Parabola: General Method, Tangential Method, Rectangle Method. Hyperbola: General Method, Intersecting Arcs Method, Normal and Tangent of Conic Section, Special Curves: Cycloid, Epicycloids, Hypocycloid, Involutes, Archimedean spiral.

Projections of Points & straight Lines, Line inclined to one plane, Inclined with both the planes, True length and True inclination and Traces of straight lines. **Projections of Planes and solids**: Projections of planes like circle and polygons in different positions, Projection of Polyhedrons like Prisms, Pyramids and Solid of revolutions like Cylinder, Cone in different positions. **Section of Solids**: Section of right solid by normal and inclined planes. Development of surfaces: Parallel line and Radial line method for Right solid-prisms, Pyramids and Cone. Isometric projection: Isometric scale, Isometric axes, Isometric projection from Orthographic drawing. **Introduction of Engineering Drawing Softwares** -Computer Aided Drafting (CAD): Introduction to Computer Aided Drafting software for 2D and 3D Modeling, Benefits, software's basic commands of drafting entities like Line, Circle, Polygon, Polyhedron, Cylinders. Transformations and Editing commands like Move, Rotate, Mirror, Array. Introduction of Pro-E and CATIA.	**Section of Solids**: Principles of Isometric Projections **Introduction of Engineering Drawing Software's**: Introduction to Computer Aided Drafting (CAD) Software for 2D and 3D Modeling, Benefits and limitations, Software's Basic Commands of Drafting Entities like Line, Circle, Polygon, Polyhedron, Cylinders. Transformations and Editing Commands like Move, Rotate, Mirror, Array

Details of the revised Curricula/Syllabi

Name of Program: B. Tech
Name of Course & Code: Workshop Practice CBTE-109

Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	**Study of Mechanical Tools and Components and their Application:** Measurement, Vernier Caliper, Micrometer, Dial Gauge, Slip Gauge, Sine-Bar, Combination set.	**14**
II	**Carpentry Shop:** Name and use of raw materials used in Carpentry Shop: Wood & Alternative Materials, Names, Uses, Care and Maintenance of Hand Tools such as different types of Saws, 'G'- Clamp Chisels, Mallets, Carpenter's Vices, Marking Gauges, Try-Squares, Rulers and other commonly used Tools and Materials used in Carpentry Shop.	**14**
III	**Smithy/ Forging shop:** Purpose of Smithy / Forging Shop, different types of Hearth's used in Smithy / Forging Shop. Purpose, Specifications, Uses, Care and Maintenance of various tools and equipments used in Hand Forging. Types of raw materials used in Smithy / Forging Shop.	**14**
IV	**Welding Shop:** Purpose of Welding, Brazing and Soldering. Purpose, Specifications, Uses, Care and maintenance of various Welding Machines, Cables, Tools and equipments used for Welding, Brazing and Soldering. Purpose of Fluxes, Electrodes, Filler Rods, Safety Equipments used in Welding Shop. **Bench Work & Fitting Shop:** Purpose of Bench Work and Fitting Shop, Study of different types of Hand Tools & their Uses, Care and maintenance of Tools e.g. Files, Chisels, Hammers, Hack-saw with Frames, Fitting Bench Vice, Different other Vices, Divider, Tri-Square, Drill-taps, Dies, V-blocks, Bevel Protector, Scribers, Surface plates, Types of Calipers, Types of Drill Bits etc.	**14**
V	**Machine:** Demonstrations and application of Drilling Machine, Grinding Machine, Shaping Machine, Milling Machine, and Lathe Machine etc.	**14**

Syllabus prior and post revision of the courses.

Name of Program: B. Tech

Name of Course & Code: Workshop Practice CBTE-109

Prior Revision	Post Revision
Study of Mechanical tools and components and their Application Measurement: Vernier caliper Micrometer Dial gauge Slip gauge Sine-bar Combination set.	
Carpentry Shop General Shop Talk Name and use of raw materials used in carpentry shop: wood & alternative materials Names, uses, care and maintenance of hand tools such as different types of Saws, 'G'- Clamp Chisels, Mallets, Carpenter's vices, Marking gauges, Try-squares, Rulers and other commonly used tools and materials used in carpentry shop by segregating as cutting tools, supporting tools, holding tools , measuring tools etc	**Carpentry Shop**: Name and use of raw materials used in Carpentry Shop: Wood & Alternative Materials, Names, Uses, Care and Maintenance of Hand Tools such as different types of Saws, 'G'- Clamp Chisels, Mallets, Carpenter's Vices, Marking Gauges, Try-Squares, Rulers and other commonly used Tools and Materials used in Carpentry Shop.
Smithy/ Forging Shop General Shop Talk Purpose of Smithy / Forging Shop Different types of Hearths used in Smithy / Forging shop Purpose specifications uses, care and maintenance of various tools and equipments used in hand forging by segregating as cutting tools, supporting tools, holding tools etc. Types of fuel used and maximum temperature obtained Types of raw materials used in Smithy / Forging shop Uses of Fire Bricks & Clays in Forging Work Shop	**Smithy/ Forging shop**: Purpose of Smithy / Forging Shop, different types of Hearth's used in Smithy / Forging Shop. Purpose, Specifications, Uses, Care and Maintenance of various tools and equipments used in Hand Forging. Types of raw materials used in Smithy / Forging Shop.

Welding Shop 4.1General Shop Talk Purpose of Welding, Brazing and Soldering Purpose, specifications, uses, care and maintenance of various Welding machines, Cables, tools and equipments used for welding, brazing and soldering (soft and hard) Purpose of fluxes, electrodes, filler rods Safety equipments used in Welding Shop Bench Work & Fitting Shop 5. General Shop Talk Purpose of Bench Work and Fitting Shop: (a) Study of different types of hand tools & their uses, care and maintenance of tools e.g. Files, Chisels, Hammers, Hack-saw with frames, Fitting Bench Vice, Different other Vices, Divider, Trysquare, Drill-taps, Dies, V-blocks, Bevel protector, Scribers, Surface plates, Types of Callipers Types of Drill bits etc. **Machine:** Demonstrations and application of drilling machine, Grinding Machine, Shapping Machine, Milling Machine, and lathe Machine etc.	

Details of the revised Curricula/Syllabi

Name of Program: B. Tech
Name of Course & Code: Engineering Chemistry CBTE-202

Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	**Water – Analysis, Treatments and Industrial Applications** Sources, Impurities, Hardness & its units, Determination of hardness by EDTA method, Alkalinity & It's determination and related numerical problems. Boiler troubles (Sludge &Scale, Priming & Foaming, Boiler Corrosion, Caustic Embrittlement),Softening methods (Lime-Soda, Zeolite and Ion Exchange Methods)	**14**
II	**Lubricants and Lubrication** Introduction, Mechanism of lubrication, Classification of lubricants, significance & determination of Viscosity and Viscosity Index, Flash & Fire Points, Cloud & Pour Points, Aniline Point, Saponification Number, Steam Emulsification Number and related numerical problems.	**14**
III	**Fuels & Combustion:** Fossil fuels & classification, Calorific value, Determination of calorific value by Bomb calorimeter Proximate and Ultimate analysis of coal, calorific value Computation based on ultimate analysis data, Carbonization. Cracking of higher Hydrocarbons & mechanism of cracking, Knocking, relationship between' knocking & structure of hydrocarbon, improvement of anti-knocking characteristics of IC engine fuels, Diesel engine fuels, Cetane number	**14**
IV	**Polymer & polymerization:** Introduction, types of polymerization, Classification, mechanism of polymerization (Free radical & Ionic polymerization). Thermoplastic & Thermosetting polymers Elementary idea of Biodegradable polymers, preparation, properties & uses of the following polymers- PVC,PMMA, Teflon, Nylon 6, Nylon 6:6, Polyester phenol formaldehyde, Urea- Formaldehyde, Buna N, Buna S, Vulcanization of Rubber.	**14**
V	**Spectroscopic Techniques and Applications:** Principle, Instrumentation & Applications, electronics spectroscopy, Vibrational & Rotational Spectroscopy of diatomic molecules. Chromatography, Lambert's and Beer's Law.	**14**

Syllabus prior and post revision of the courses.

Name of Program: B. Tech

Name of Course & Code: Engineering Chemistry CBTE-202

Prior Revision	Post Revision
Lubricants: Introduction, Mechanism of lubrication, Classification of lubricants, Properties and Testing of lubricating oils, Numerical problems based on testing methods. Cement & Refractory: Manufacture, IS-code, Setting and hardening of cement, Refractory : Introduction, classification and properties of refractory. **Water And Its Industrial Applications**: Sources, Impurities, Hardness & its units, Industrial water characteristics, softening of water by various methods (External & Internal treatment), Boiler trouble causes, effect & remedies, Characteristics of municipal water & its treatment, Numerical problems based on softening methods. **Water Analysis Techniques**:- Alkalinity, Hardness (complex metric), Chloride, Free Chlorine, DO, BOD and COD, Numerical problems based on above techniques. Instrumental techniques in Chemical Analysis: Introduction, Principle, Instrumentation and applications of IR, UV, Gas, Chromatography, Lambert's and Beer's Law. **Fuels & Combustion:** Fossil fuels & classification, Calorific value, Determination of calorific value by Bomb calorimeter Proximate and Ultimate analysis of coal and their significance, calorific value Computation based on ultimate analysis data, Carbonization, Manufacturing of coke & recovery of by products. Cracking of higher Hydrocarbons & mechanism of cracking, Knocking, relationship between' knocking & structure of hydrocarbon, improvement • of anti knocking characteristics of IC engine fuels, Diesel engine fuels, Cetane number, combustion and it related numerical problems. **High-Polymer** : Introduction, types and	**Water – Analysis, Treatments and Industrial Applications** Determination of hardness by EDTA method, Alkalinity & It's determination and related numerical problems. Priming & Foaming, Boiler Corrosion, Caustic Embrittlement),Softening methods (Lime-Soda, Zeolite and Ion Exchange Methods) **Lubricants and Lubrication** significance & determination of Viscosity and Viscosity Index, Flash & Fire Points, Cloud & Pour Points, Aniline Point, Saponification Number, Steam Emulsification Number and related numerical problems. **Polymer & polymerization:** Thermoplastic & Thermosetting polymers Elementary idea of Biodegradable polymers. **Spectroscopic Techniques and Applications:**

classification of polymerization, Reaction Mechanism, Natural & Synthetic Rubber; Vulcanization of Rubber, Preparation, Properties & uses of the following- Polythene, PVC, PMA, PMMA, Teflon, Polyacrylonitrile, PVA, Nylon, Nylon 6:6, Terylene, Phenol formaldehyde, Urea - Formaldehyde Resin, Glyptal, Polyurethanes; Butyl Rubber, Neoprene, Buna N, Buna S. Flow sheet manufacturing diagram of Nylon 6:6 &Decoran.	Principle, Instrumentation & Applications, electronics spectroscopy, Vibrational & Rotational Spectroscopy of diatomic molecules. Chromatography, Lambert's and Beer's Law.

Details of the revised Curricula/Syllabi

Name of Program: B. Tech
Name of Course & Code: Basic Civil & Mechanical Engineering CBTE-206
Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	**Engineering Material:** Introduction, Classification, and Application of Engineering materials, Mechanical Properties- Strength, Elasticity, Ductility, Malleability, Plasticity, Toughness, Hardness, Brittleness, Fatigue, Characteristics and Applications of Ferrous and Non-Ferrous Metals, Hook's Law, Stress-Stain diagram for Ductile and Brittle Materials.	**14**
II	**Fluids:** Fluid Properties- Pressure, Density, Viscosity, Bernoulli's Equation. Types of Fluid Flow, Basic introduction of Turbines, Classifications and their Working, Pumps-Types and their uses, Compressors-Types and its uses.	**14**
III	**I.C. Engines:** Working of Two Stroke Petrol Engine, Working of Two Stroke Diesel Engine. Working of Four Stroke Diesel Engine, Working of Four Stroke Petrol Engine.	**14**
IV	**Building Materials:** Stones, Bricks, Cement, Timber, Mortar and Concrete- types, Basic Properties, Tests & Uses. **Building Construction:** Sub and Super Structure of a Building, Types of Foundations, Types of Brick and Stone Masonry, Plastering and Pointing.	**14**
V	**Surveying & Positioning:** Introduction to Surveying- Classification, Fundamental Principles, & Instrument Used, Angular measurement by Compass Survey, Measurement of elevation by leveling. **Remote Sensing & GIS:** Introduction of Remote Sensing & its applications in Civil Engineering, GIS, GPS, its application in Civil Engineering.	**14**

Syllabus prior and post revision of the courses.

Name of Program: B. Tech

Name of Course & Code: Basic Civil & Mechanical Engineering CBTE-206

Prior Revision	Post Revision
Engineering Materials: Stones, Bricks, Cement, Lime, Timber, Mortar and Concrete- types, basic properties, tests & uses.	**Engineering Material:** Introduction, Classification, and Application of Engineering materials, Mechanical Properties- Strength, Elasticity, Ductility, Malleability, Plasticity, Toughness, Hardness, Brittleness, Fatigue, Characteristics and Applications of Ferrous and Non-Ferrous Metals, Hook's Law, Stress-Stain diagram for Ductile and Brittle Materials.
Building construction: Sub and super structure of a building, Types of Foundations, Types of Brick and Stone masonry, Planning & Orientation of building, Plastering and Pointing, Concept of Green Building.	**Fluids**: Fluid Properties- Pressure, Density, Viscosity, Bernoulli's Equation. Types of Fluid Flow, Basic introduction of Turbines, Classifications and their Working, Pumps-Types and their uses, Compressors-Types and its uses.
Surveying & Positioning: Introduction to Surveying- Classification, Fundamental Principles, & Instrument Used, Linear measurement by Chain survey, Angular measurement by Compass survey, Measurement of elevation by levelling,	**I.C. Engines**: Working of Two Stroke Petrol Engine, Working of Two Stroke Diesel Engine. Working of Four Stroke Diesel Engine, Working of Four Stroke Petrol Engine.
Remote Sensing & GIS: Introduction of Remote sensing & its applications in civil Engineering, GIS , GPS, its application in Civil Engineering	**Building Construction**: Sub and Super Structure of a Building, Types of Foundations, Types of Brick and Stone Masonry, Plastering and Pointing.
Mapping: Mapping details and contouring, Profile cross sectioning and measurement of area Volume, numerical problems. Application of measurements in quantity computations,	**Surveying & Positioning**: Angular measurement by Compass Survey.

Details of the revised Curricula/Syllabi

Name of Program: B. Tech
Name of Course & Code: Disaster Management and Safety CBTE-210

Revised Syllabi:

Unit	Contents (Theory)	Marks Weightage
I	**Introduction, Definition and Types of Disaster:** Hazards and Disasters, Risk and Vulnerability in Disasters, Natural and Man-made disasters, earthquakes, floods drought, landslide, cyclones, volcanoes, tsunami, global climate extremes.	**05**
II	**Study of Important Disasters:** Earthquakes and its types, magnitude and intensity, seismic zones of India, major geological areas of India, flood types and its management, drought types and its management, landside and its managements.	**05**
III	**Disaster Management Policies:** Basic principles of disasters management, Disaster Management cycle, Disaster management policy, National and State Bodies for Disaster Management.	**05**
IV	**Applications of Science and Technology for Disaster Management:** Geo-informatics in Disaster Management (RS; GIS; GPS and RS) Disaster Communication System (Early Warning and Its Dissemination).	**05**
V	**Disaster Management in India:** Disaster Profile of India – Mega Disasters of India and Lessons Learnt Disaster Management Act 2005 – Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management.	**05**

Syllabus prior and post revision of the courses.

Name of Program: B. Tech
Name of Course & Code: Disaster Management and Safety CBTE-210

Prior Revision	Post Revision
Introduction Disasters: Understanding the Concepts and definitions of Disaster; Hazard; Vulnerability; Risk and Capacity – Disaster and Development; and disaster management.	**Introduction**, Types of Disaster: Hazards and Disasters, Natural and Man-made disasters, earthquakes, floods drought, landslide, cyclones, volcanoes, tsunami, global climate extremes.
Types, Trends, Causes, Consequences and Control of Disasters: Geological Disasters (earthquakes; landslides; tsunami; mining); Hydro-Meteorological Disasters (floods; cyclones; lightning; thunder-storms; hail storms; avalanches; droughts; cold and heat waves) Biological Disasters (epidemics; pest attacks; forest fire); Technological Disasters (chemical; industrial; radiological; nuclear) and Manmade Disasters (building collapse; rural and urban fire; road and rail accidents; nuclear; radiological; chemicals and biological disasters) Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters.	**Study of Important Disasters**: Earthquakes and its types, magnitude and intensity, seismic zones of India, major geological areas of India, flood types and its management, drought types and its management, landside and its managements.
Disaster Management Cycle and Framework 8 Disaster Management Cycle – Paradigm Shift in Disaster Management Pre-Disaster – Risk Assessment and Analysis; Risk Mapping; zonation and Microzonation; Prevention and Mitigation of Disasters; Early Warning System; Preparedness; Capacity Development; Awareness During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment; Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment.	**Disaster Management Policies**: Basic principles of disasters management, Disaster Management cycle, Disaster management policy, National and State Bodies for Disaster Management.
Disaster Management in India: Disaster Profile of India – Mega Disasters of India and Lessons Learnt Disaster Management Act 2005 – Institutional and Financial Mechanism National Policy on Disaster Management; National Guidelines and Plans on Disaster Management;	

Role of Government (local; state and national);Non-Government and Intergovernmental Agencies. **Applications of Science and Technology for Disaster Management** : Geo-informatics in Disaster Management (RS; GIS; GPS and RS) Disaster Communication System (Early Warning and Its Dissemination) Land Use Planning and Development Regulations Disaster Safe Designs and Constructions Structural and Non Structural Mitigation of Disasters S&T Institutions for Disaster Management in India; Role of Engineers in Disaster Management	

People's University, Bhopal

Program: Master of Physiotherapy **Year- II**

ADVANCED PHYSIOTHERAPY IN ORTHOPAEDICS – *Question paper will consist of Section 'A' of 20 marks and Section 'B' should be of 48 marks & Section C of 32 marks*

Paper Code	Paper Name	Duration	Theory	Practical
MPT-204	**ADVANCED PHYSIOTHERAPY IN ORTHOPAEDICS**	3 Hrs	Maximum Marks 100	NIL

S. No.	Content
1.	Embryology and anatomy of musculoskeletal system. Evaluation of muscle and joints, assessment of the arches of the foot, podimetry, Apparent neurobiology of joint, arthrokinematics and osteokinematics of musculoskeletal system, muscles of the trunk and their dysfunctions. Arthroplasty of hip, management of sports injuries.
2.	Manual therapy, mobilization skills, manipulation therapy, principles and techniques of therapy and factors considered in therapy.
3.	**Amputations:** Pre and post prosthesis fitting assessment and management (Checkout of prosthesis training etc.).
4.	**Nervous system:** a) Evaluation of function and measurement in general and with reference to UMN and LMN lesion. b) Muscle tone, Voluntary movements and voluntary control tests (isolated & skills). c) Abnormal movements – Clonus, Tremor, Chorea, Athetosis, etc. d).Reflexes (Superficial & deep reflexes, primitive reflexes etc.)
5.	**Musculoskeletol system** a) Goniometry, Manual muscle assessment. b) Posture and postural disorder evaluation. c) Physical evaluation of joints in normal and pathomechanical conditions. d) Muscle strength and endurance. e) Range of motion at joint and endurance.

Dean Faculty, Paramedical ,PU

Chairman Board of Studies Paramedical, PU

	f) Measurement of muscle girth, leg-length, pelvic inclination, segmental measurement of body parts (femur, tibia etc), angle of scoliotic curve g) Gait analysis in normal and pathological conditions, measurement of gait parameters. h) Assessment of pelvic floor muscle strength and function • Digital evaluation of vagina. • Perineometry. • Pad test.
6.	**Disability Evaluation** Gait & Gait parameters percentage of disability and evaluation, temporary or permanent, ICF (International classification of functions).
7.	**Functional Evaluation** a. Mobility in bed, Transfer, Ambulation. b. Personal Care – Eating, dressing, washing, bathing etc. c. House hold jobs d. Work and recreation.
8.	**Cryotherapy:** Introduction, Acute phase rehabilitation plan, preventive use, methods of application, indications and contra indications
9.	**Advanced Musculoskeletal Physiotherapy Management-** **To be implemented as external seminar, internal group discussion, case presentation etc.**
10.	**Dissertation.** **Guidelines:** ➢ Three copies of synopsis shall be submitted before three months of the first year university examination. ➢ After the final approval of synopsis by the university committees and the approval of guide, the students need to go through the course work as directed by the institute. ➢ The students need to report the concerned guide periodically for any development in the research activities. ➢ For experimental studies, clearance from the Institutional Research Committee & Ethical Committee need to be ensured. ➢ Before the final submission of research, a presentation on the entire research work need to be conducted before Institutional Research Committee for the final approval. ➢ All the practices and/or procedures need to be as per the guidelines of the university &

Dean Faculty, Paramedical ... PU

Board ... udies Paramedical, PU

	the council. ➢ Six Hard copies of the thesis and the soft copy had to be submitted to the university. forwarded by the Head of the Institute before three months of the final university examination. ➢ The Dissertation need to be approved by the external committees constituted by the University, for the student to be eligible for the final University Examination.

Books Recommended:

1. Cash' s TB for Ortho and rheumatology for physiotherapist by Downie
2. Advanced soft tissue techniques muscle energy techniques, Leon chaitow
3. Joint mobilization/Manipulation, Edmond susan L
4. Clincial orthopaedic rehabilitation, Giangarra
5. Orthoses prostheses & assistive devices for physiotherapy, Sinha akhoury gourgng

Dean Faculty, Paramedical
PU

Chairman
Board of Studies
Paramedical, PU

People's University, Bhopal

Program: Master of Physiotherapy **Year- II**

ADVANCE PHYSIOTHERAPY IN NEUROLOGY – *Question paper will consist of Section 'A' of 20 marks and Section 'B' should be of 48 marks & Section C of 32 marks*

Paper Code	Paper Name	Duration	Theory	Practical
MPT-208	ADVANCE PHYSIOTHERAPY IN NEUROLOGY	3 Hrs	Maximum Marks 100	NIL

S. No.	Content
1.	Evaluation of the neurologic patient.
2.	Investigation in a neurological patient.
3.	Development of the child with emphasis on genetic, embryological and ontological aspects.
4.	Motion control and theories of learning.
5.	Developmental disorders and diagnosis.
6.	Dominance, Lateralization and cognitive disorders.
7.	Physiotherapy in peripheral nerve lesions.
8.	Physiotherapy in cerebro vascular disorders.
9.	Physiotherapy in Cerebral palsy and poliomyelitis.
10.	Physiotherapy in demyelinating disorders.
11.	Physiotherapy in degenerative disorders of Central Nervous System.
12.	Physiotherapy following medical and neuro surgical management of brain and spinal cord tumors
13.	Physiotherapy in isolated cranial nerve disorders such as trigeminal neuralgia and Bells Palsy. Physiotherapy in hereditary neurological disorders such as Fredrick's Ataxia and H.S.M.N.
14.	Physiotherapy in Muscular Dystrophy.
15.	Physiotherapy in extra pyramidal disorder with emphasis on Parkinson's and Chorea.

Dean Faculty, Paramedical
PU

Chairman
Board of Studies
Paramedical, PU

16.	**Various therapeutic techniques including Bio-Feed Back, Yoga,**
17.	**CLINICAL NEUROLOGY** • Neurological evaluation. • Investigation methods-CVA. • Outline of infections of CNS. • Degenerating and demyelinating disorders. • Outline of effects of CNS disorders. • Diseases of peripheral nerves. • Diseases of cranial nerves. • Diseases of the muscles.
18.	**Current trends in Neuro-physiotherapy: To be implemented as external seminar, internal group discussion, case presentation etc.**
19.	**Dissertation:** **Guidelines:** ➢ Three copies of synopsis shall be submitted before three months of the first year university examination. ➢ After the final approval of synopsis by the university committees and the approval of guide, the students need to go through the course work as directed by the institute. ➢ The students need to report the concerned guide periodically for any development in the research activities. ➢ For experimental studies, clearance from the Institutional Research Committee & Ethical Committee need to be ensured. ➢ Before the final submission of research, a presentation on the entire research work need to be conducted before Institutional Research Committee for the final approval. ➢ All the practices and/or procedures need to be as per the guidelines of the university & the council. ➢ Six Hard copies of the thesis and the soft copy had to be submitted to the university, forwarded by the Head of the Institute before three months of the final university examination. ➢ The Dissertation need to be approved by the external committees constituted by the University, for the student to be eligible for the final University Examination.

Dean Faculty, Paramedical, PU

Chairman Board of Studies Paramedical, PU

People's University, Bhopal

Program: Master of Physiotherapy **Year- II**

ADVANCED PHYSIOTHERAPY IN CARDIORESPIRATORY – *Question paper will consist of Section A of 20 marks and Section 'B' should be of 48 marks & Section C of 32 marks*

Paper Code	Paper Name	Duration	Theory	Practical
MPT-211	**ADVANCED PHYSIOTHERAPY IN CARDIORESPIRATORY**	3 Hrs	Maximum Marks 100	NIL

S.NO	CONTENT
1.	*DEFINITION, ETIOPATHOGENESIS, CLINAL FEATURES, X-RAY, ECG FINDINGS, MEDICAL & SURGICAL MANAGEMENT OF* • **CONGENITAL HEART DISEASES:** TOF, ASD, VSD, PDA, TAPVC, PAPVC Single atrium, TGA Coarctation of Aorta Tricuspid and Pulmonary Atresia Aortic Atresia • **TUMORS OF THE HEART.** • **TRAUMA TO THE CHEST.** • **DISEASES OF MYOCARDIUM**
2.	**PERIPHERAL VASCULAR DISEASES** • Flow controls • Winsor & Weyman scale • Burger's exercise • Hyperbaric oxygen • Cold laser • Venous treatment, Electrical Stimulation • Lymphatic treatment – intermittent compression
3.	**DIAGNOSIS IN CV DISEASES:** • Colour Doppler • ECG, PFT • Cardiac catheterization • Radioactive isotope scanning • Echocardiography • Stress testing

Dean Faculty, Paramedical ..PU

Chairman Board of Studies Paramedical, PU

	• Coronary angiography • Lung scintigraphy • Acid base gases • Lipid profile • CT scan, MRI • Exercise tolerance test
4.	**THORACIC SURGERY** OUTLINE OF SITE OF INCISION, INDICATIONS, CONTRA INDICATIONS, PRE AND POST OPERATIVE MANAGEMENT AND COMPLICATIONS OF: • Lobectomy, Pneumonectomy, Segmentectomy • Pleuro-Pneumonectomy, Thorocoplasty • Decortication, Tracheostomy
5.	**DETAILING OF:** • Management of endotracheal tubes, Tracheal suction • Weaning the patient from ventilator • Extubation and post extubation care
6.	**Current trends in cardiopulmonary Rehabilitation** **To be implemented as external seminar, internal group discussion, case presentation etc.**
7.	**Dissertation:** **Guidelines:** ➢ Three copies of synopsis shall be submitted before three months of the first year university examination. ➢ After the final approval of synopsis by the university committees and the approval of guide, the students need to go through the course work as directed by the institute. ➢ The students need to report the concerned guide periodically for any development in the research activities. ➢ For experimental studies, clearance from the Institutional Research Committee & Ethical Committee need to be ensured. ➢ Before the final submission of research, a presentation on the entire research work need to be conducted before Institutional Research Committee for the final approval. ➢ All the practices and/or procedures need to be as per the guidelines of the university & the council. ➢ Six Hard copies of the thesis and the soft copy had to be submitted to the university, forwarded by the Head of the Institute before three months of the final university examination. ➢ The Dissertation need to be approved by the external committees constituted by the University, for the student to be eligible for the final University Examination.

Dean Faculty, Paramedical
PU

Chairman
Board of Studies
Paramedical, PU

People's University, Bhopal

Program: Master of Physiotherapy **Year- II**

ADVANCED PHYSIOTHERAPY IN SPORTS – *Question paper will consist of Section 'A' of 20 marks and Section 'B' should be of 48 marks & Section C of 32 marks*

Paper Code	Paper Name	Duration	Theory	Practical
MPT-215	**ADVANCED PHYSIOTHERAPY IN SPORTS**	3 Hrs	Maximum Marks 100	NIL

S. No.	Content
1.	**UNIT – I Sports Specific Injuries** Sports Specific Injuries with special emphasis on the specific risk factor, nature of Sports, kind of Medical Intervention Anticipated and Prevention with respect to individual sports a. Individual events: Field & Track b. Team events: Hockey, Cricket, Football c. Contact and Non-contact sports d. Water Sports Pharmacology and Nutrition in Sports
2.	**Unit- II Manual Therapy Techniques** Introduction to Manual Therapy Techniques, Traction ,Neural Mobilization, Trigger Point Therapy and Muscle Energy Techniques, Sports Massage, Taping, Pilates. Principles of Manipulation of Intervertebral Joint & Peripheral Joints
3.	**Unit- III Medical Emergencies in Sports** Emergency Situations, Primary and Secondary Emergency Assessment, Emergency Plan, Moving the Injured Participant.
4.	**Unit- IV Cardio-pulmonary fitness training in Sports** Body Composition Cardiovascular Endurance Flexibility Strength Agility

Dean Faculty, Paramedical, PU

Chairman
Board of Studies
Paramedical, PU

5.	**Unit- V Specific problems in Sports** Female specific problems. 7. Sports Amenorrhea. 8. Injury to Female Reproductive Tract 9. Menstrual Synchrony. 10 Sex Determination Common diseases: Common Cold, Diarrhea, Dysentery, Amoebiasis, Tuberculosis, etc.. Age Specific Sports Physiotherapy: Sports Injuries in young athletes and their Physiotherapy Management, Sports Injuries in elder athletes and their Physiotherapy Management. Diagnosis and Management of skin conditions of athletes. Fungal Infection, Viral Infections, Boils and Cellulitis.
6.	**Current Trends in Sports Rehabilitation** To be implemented as external seminar, internal group discussion, case presentation etc.
7.	**Dissertation Guidelines:** ➢ Three copies of synopsis shall be submitted before three months of the first year university examination. ➢ After the final approval of synopsis by the university committees and the approval of guide, the students need to go through the course work as directed by the institute. ➢ The students need to report the concerned guide periodically for any development in the research activities. ➢ For experimental studies, clearance from the Institutional Research Committee & Ethical Committee need to be ensured. ➢ Before the final submission of research, a presentation on the entire research work need to be conducted before Institutional Research Committee for the final approval. ➢ All the practices and/or procedures need to be as per the guidelines of the university & the council. ➢ Six Hard copies of the thesis and the soft copy had to be submitted to the university, forwarded by the Head of the Institute before three months of the final university examination ➢ The Dissertation need to be approved by the external committees constituted by the University, for the student to be eligible for the final University Examination.

Practicals :

Dean Faculty, Paramedical ,PU

Chairman
Board of Studies
Paramedical, P.U

People's University, Bhopal

Program: Master of Physiotherapy **Year- II**

ADVANCED PHYSIOTHERAPY IN ORTHOPAEDICS – *Question paper will consist of Section 'A' of 20 marks and Section 'B' should be of 48 marks & Section C of 32 marks*

Paper Code	Paper Name	Duration	Theory	Practical
MPT-204	**ADVANCED PHYSIOTHERAPY IN ORTHOPAEDICS**	3 Hrs	Maximum Marks 100	NIL

S. No.	Content
1.	Embryology and anatomy of musculoskeletal system. Evaluation of muscle and joints, assessment of the arches of the foot, podimetry, Apparent neurobiology of joint, arthrokinematics and osteokinematics of musculoskeletal system, muscles of the trunk and their dysfunctions. Arthroplasty of hip, management of sports injuries.
2.	Manual therapy, mobilization skills, manipulation therapy, principles and techniques of therapy and factors considered in therapy.
3.	**Amputations:** Pre and post prosthesis fitting assessment and management (Checkout of prosthesis training etc.).
4.	**Nervous system:** a) Evaluation of function and measurement in general and with reference to UMN and LMN lesion. b) Muscle tone, Voluntary movements and voluntary control tests (isolated & skills). c) Abnormal movements – Clonus, Tremor, Chorea, Athetosis, etc. d).Reflexes (Superficial & deep reflexes, primitive reflexes etc.)
5.	**Musculoskeletol system** a) Goniometry, Manual muscle assessment. b) Posture and postural disorder evaluation. c) Physical evaluation of joints in normal and pathomechanical conditions. d) Muscle strength and endurance. e) Range of motion at joint and endurance.

Dean Faculty, Paramedical ,PU

Chairman Board of Studies Paramedical, PU

f) Measurement of muscle girth, leg-length, pelvic inclination, segmental measurement of body parts (femur, tibia etc.), angle of scoliotic curve.

g) Gait analysis in normal and pathological conditions, measurement of gait parameters.

h) Assessment of pelvic floor muscle strength and function

- Digital evaluation of vagina
- Perineometry.
- Pad test

6. Disability Evaluation

Gait & Gait parameters percentage of disability and evaluation, temporary or permanent, ICF (International classification of functions).

7. Functional Evaluation

a. Mobility in bed, Transfer, Ambulation.

b. Personal Care – Eating, dressing, washing, bathing etc.

c. House hold jobs.

d. Work and recreation.

8. Cryotherapy: Introduction, Acute phase rehabilitation plan, preventive use, methods of application, indications and contra indications.

9. Advanced Musculoskeletal Physiotherapy Management-
To be implemented as external seminar, internal group discussion, case presentation etc.

10. Dissertation.

Guidelines:

- Three copies of synopsis shall be submitted before three months of the first year university examination.
- After the final approval of synopsis by the university committees and the approval of guide, the students need to go through the course work as directed by the institute.
- The students need to report the concerned guide periodically for any development in the research activities.
- For experimental studies, clearance from the Institutional Research Committee & Ethical Committee need to be ensured.
- Before the final submission of research, a presentation on the entire research work need to be conducted before Institutional Research Committee for the final approval.
- All the practices and or procedures need to be as per the guidelines of the university &

Dean Faculty, Paramedi... PU

Board of Studies Paramedical, PU

Syllabus of Otorhinolaryngology:

SYLLABUS FOR THEORY CLASSES

EAR				
S. No.	Topic	Integration	Teaching Method	Assessment Method
1	Anatomy of External and Middle Ear (EN 1.1)	Anatomy	Interactive Lecture	Written/Viva
2	Anatomy of Internal Ear (EN 1.1)	Anatomy	Interactive Lecture	Written/Viva
3	Physiology of Auditory and Vestibular Systems (EN 1.1)		Interactive Lecture	Written/Viva
4	Disorder of External Ear (EN 4.2)		Interactive Lecture	Written/Viva
5	ASOM + OME (EN 4.3; EN 4.5)		Interactive Lecture	Written/Viva
6	CSOM - Tubotympanic & Atticoantral (EN 4.7; EN 4.8)		Interactive Lecture	Written/Viva
7	Complications of Suppurative Otitis Media-1 (EN 4.8)		Interactive Lecture	Written/Viva
8	Complications of Suppurative Otitis Media- 2(EN 4.8)		Interactive Lecture	Written/Viva
9	Otosclerosis (EN 4.13)		Tutorial	Written/Viva
10	Meniere's Disease (EN 4.20)		Tutorial	Written/Viva
11	Facial Nerve and its Disorders (EN 4.18)		Tutorial	Written/Viva
12	Hearing Impairment and Rehabilitation (EN 4.12)		**SDL**	Written/Viva
13	Sudden Sensori-neural Hearing Loss+ Noise Induced Hearing Loss (EN 4.14; EN 4.15)		**SDL**	Written/Viva
14	Vertigo & Its Assessment (EN 4.19)		Demonstration	Written/Viva
15	Tinnitus & Its Assessment (Acoustic Neuroma- EN4.21)		Tutorial	Written/Viva
NOSE & PARA NASAL SINUSES				
S. No.	Topic	Integration	Teaching Method	Assessment Method
16	Anatomy of Nose & PNS (EN 1.1)	Anatomy	Interactive Lecture	Written/Viva
17	Physiology of Nose & PNS (EN 1.1)		Interactive Lecture	Written/Viva
18	Nasal Septum and its Diseases (DNS- EN 4.23)		Interactive Lecture	Written/Viva
19	Acute & Chronic Rhinitis (EN 4.29)		Interactive Lecture	Written/Viva
20	Granulomatous Diseases of Nose and miscellaneous		Tutorial	Written/Viva
21	Allergic and Vasomotor Rhinitis (EN 4.27; 4.28)		Interactive Lecture	Written/Viva
22	Nasal Polyp (EN 4.25)		Tutorial	Written/Viva
23	Epistaxis		Interactive Lecture	Written/Viva
24	Acute & Chronic Sinusitis (EN 4.33)		Interactive Lecture	Written/Viva
25	Complications of Sinusitis(EN 4.33)		Interactive Lecture	Written/Viva
26	Diseases of External Nose & Visibilities		Tutorial	Written/Viva
27	Neoplasm of Nose & Para Nasal Sinuses (Maxila- EN 4.34)		Tutorial	Written/Viva
ORAL CAVITY & PHARYNX				
S. No.	Topic	Integration	Teaching Method	Assessment Method
28	Anatomy & Physiology of Oral Cavity (EN 1.1)	Anatomy	Interactive Lecture	Written/Viva
29	Common Disorders of Oral Cavity [Tumours of Oral Cavity (Malignant & Premalignant – EN2.11)]		Interactive Lecture	Written/Viva
30	Anatomy & Physiology of Pharynx (Pharyngeal Pouches- EN 1.1)	Anatomy	Interactive Lecture	Written/Viva
31	Adenoids (EN 4.26)		Interactive Lecture	Written/Viva
32	Acute & Chronic Tonsillitis (EN 4.39)			
33	Diseases of Salivary Glands (EN 4.36)		Tutorial	Written/Viva
34	Acute & Chronic Infections & Abscess in Relation to Pharynx (Ludwig's Angina + Deep Neck Infection- EN 4.41; 4.37)		Tutorial	Written/Viva
35	Tumours of Nasopharynx (JNA- EN 4.32; EN 4.35)		Interactive Lecture	Written/Viva

LARYNX				
S. No.	Topic	Integration	Teaching Method	Assessment Method
36	Anatomy of Larynx (EN 1.1)	Anatomy	Interactive Lecture	Written/Viva
37	Physiology of Larynx (EN 1.1)		Interactive Lecture	Written/Viva
38	Acute & Chronic Infections of Larynx (EN 4.43)		Interactive Lecture	Written/Viva
39	Congenital & Benign lesions of Larynx (EN 4.44)		Tutorial	Written/Viva
40	Stridor (EN 4.47)		Tutorial	Written/Viva
41	Laryngeal Paralysis (EN 4.45)		Tutorial	Written/Viva
42	Tumors of Larynx & Hypopharynx (EN 4.46)		Tutorial	Written/Viva
OESOPHAGUS				
S. No.	Topic	Integration	Teaching Method	Assessment Method
43	Anatomy and Physiology Oesophagus (EN 1.1)	Anatomy	Interactive Lecture	Written/Viva
44	Dysphagia (EN 4.38)		Tutorial	Written/Viva
45	Oesophageal Disorders (EN 4.52)		Tutorial	Written/Viva
46	Foeign Bodies of Upper Aero-Digestive Tract (EN 2.13; EN 4.9; EN 4.49)			Written/Viva/Skill Assesment
MISCELLENEOUS				
S. No.	Topic	Integration	Teaching Method	Assessment Method
47	Trauma to Face & Neck (EN 4.31)		**SDL**	Written/Viva
48	National Programmes (Prevention of Deafness; Cancer; Noise & Environment Pollution- EN 2.15)		**SDL**	Written/Viva
49	ENT manifestations of HIV Infections (EN 4.53)	Medicine	**SDL**	Written/Viva
AETCOM				
S. No.	Topic	Integration	Teaching Method	Assessment Method
50	The foundations of communication – 4 (Module 3.3; Informed Consent - EN 2.12)	Ophthalmology	1 Lecture 2 SGT 2 Skill Lab	Written/Viva
51	Case studies in bioethics – Fiduciary duty (Module 3.5)	Forensic Medicine	2 Lecture 2 SDL	Written/Viva

SYLLABUS FOR CLINICAL POSTINGS

MBBS II Prof.		
S. No.	Topic	Teaching Method
1	Introduction	DOAP
2	History (EN 2.1)	DOAP/ Bedside
3	Examination of ENT (EN 2.2)	DOAP/ Bedside
4	Examination of Ear (EN 2.3)	DOAP/ Bedside
5	Examination of Nose (EN 2.5)	DOAP/ Bedside
6	Examination of Throat (EN 2.6)	DOAP/ Bedside
7	Examination of Neck (EN 2.7)	DOAP/ Bedside
8	Case of Otalgia (EN 4.1; 4.2; 4.3; 4.5)	Bedside
9	Case of Ear Discharge (EN 4.6; 4.7; 4.8)	Bedside
10	Case of Hearing Loss (EN 4.12)	Bedside
11	Case of Nasal Obstruction (EN 4.22; 4.25)	Bedside
12	Case of Adenoids & Tonsils(EN 4.26; 4.39)	Bedside
13	Case of Rhino-sinusitis (EN 4.27; 4.28; 4.29; 4.33)	Bedside
14	Case of Dysphagia (EN 4.38)	Bedside
15	Case of Hoarseness of Voice (EN 4.42)	Bedside
16	Investigations in ENT (EN 2.9)	DOAP/ Bedside
EOP-1		

Table 5a: Clinical Teaching syllabus of Department of Otorhinolaryngology

MBBS III Prof. (Part I)		
S. No.	Topic	Teaching Method
1	History (EN 2.1)	DOAP/ Bedside
2	Examination of ENT(EN 2.2; EN 2.3; EN 2.5; EN 2.6; EN 2.7)	DOAP/ Bedside
3	Case of Otalgia (EN 4.1; 4.2; 4.3; 4.5)	DOAP/ Bedside
4	Case of Ear Discharge (EN 4.6; 4.7; 4.8)	DOAP/ Bedside
5	Case of Hearing Loss (EN 4.12)	DOAP/ Bedside
6	Case of Nasal Obstruction (EN 4.22; 4.25)	DOAP/ Bedside
7	Case of Adenoids & Tonsils(EN 4.26; 4.39)	DOAP/ Bedside
8	Case of Rhino-sinusitis (EN 4.27; 4.28; 4.29; 4.33)	DOAP/ Bedside
9	Case of Dysphagia (EN 4.38)	DOAP/ Bedside
10	Case of Hoarseness of Voice (EN 4.42)	DOAP/ Bedside
11	Investigations in ENT(Radiological+Microbiological+Histological-EN 2.9)	DOAP/ Bedside
12	Audiology -1 (Tuning Fork Test + Seigalization- EN 2.4; EN 4.4)	DOAP/ Bedside
13	Audiology -2 (Audiometry + Impedance- EN 2.8; EN 4.16; EN4.17)	DOAP/ Bedside
14	Skill Lab-1 (Epistaxis + Nose Packing- EN 2.13; EN 3.6; EN 4.30)	DOAP/ Bedside
15	Skill Lab-2 (Foreign Body Ear Nose+ Syringing- EN 2.13; EN 3.4; EN 4.9)	DOAP/ Bedside
16	Skill Lab-3 (Foreign Body Upper Aero digestive Tract- Esophagoscopy + Bronchoscopy + Heimlich's Maneuver- EN 2.13; EN 4.9; EN 4.49)	DOAP/ Bedside
17	Skill Lab-4 (Tracheostomy- EN 2.13; EN 4.48; EN 4.50; EN 4.51)	DOAP/ Bedside
18	Skill Lab-5 (Drop Instillation in Ear & Nose- EN 2.14)	DOAP/ Bedside
19	Surgeries (Instruments + Surgeries- EN 2.10; 3.5; 4.10; 4.11; 4.24; 4.40)	DOAP/ Bedside
20	Endoscopies (Otomicroscopy + Nasal Endoscopy + Rigid/Flexible Laryngoscopy- EN 3.1; EN 3.2; EN 3.3)	DOAP/ Bedside
EOP-2		

DEPARTMENT OF OPHTHALMOLOGY

SYLLABUS FOR THEORY CLASSES

S. No.	Topic	Integration	Teaching Method	Assessment Method
	ANATOMY AND PHYSIOLOGY OF EYE & VISION			
1	**AN41.1**- Describe & demonstrate parts and layers of eyeball.	Anatomy	Lecture	Written /Viva
2	**AN41.2**- Describe the anatomical aspects of central retinal artery occlusion, Cataract, Glaucoma	Anatomy	Lecture	Written /Viva
3	**AN41.3**- Describe the position, nerve supply and actions of intraocular muscles	Anatomy	Lecture	Written /Viva
4	**OP1.1**- Describe the physiology of vision (including brief discussion on anatomy of eye)	Physiology	Lecture	Written /Viva
	OPTICS AND REFRACTION			
5	**PY 10.17-** Describe and discuss functional anatomy of eye, physiologyof image formation, physiology of vision including colour vision, Refractive errors, colourblindness, Physiology of pupil and light reflex	Physiology	SGD	Written /Viva
6	**OP1.2**- Define, classify and describe the types and methods of correcting refractive errors		Lecture	Written /Viva
7	**OP1.4**- Enumerate the indications and describe the principles of refractive surgery		Lecture	Written /Viva
8	OP 1.5- Define, enumerate the types and the mechanism by which strabismus leads to amblyopia		Lecture	Written /Viva
	DISEASES OF CONJUNCTIVA AND OCULAR MANIFESTATION OF VIT.A DEFICIENCY.			
9	**OP 3.3-** Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications. And management of various causes of conjunctivitis		Lecture	Written /Viva
10	**OP 3.4-** Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of trachoma		SGD	Written /Viva
11	**OP 3.5-** Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh.		SGD	Written /Viva
12	**OP 3.6-** Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium		SGD	Written /Viva
13	**OP 3.7-** Describe the aetiology, pathophysiology,ocular features, differential diagnosis, complications and management of symblepharon		SGD	Written /Viva
14	OP 4.4 – Enumerate the causes and discuss the management of dry eye		Lecture	Written /Viva
	DISEASES OF CORNEA AND SCLERA			
15	**OP 4.1-** Enumerate, describe and discuss the types and causes of corneal ulceration	Anatomy	Lecture Lecture	Written /Viva
16	**OP 4.2-** Enumerate and discuss the differential diagnosis of infective keratitis		SGD	Written /Viva
17	**OP 4.3-** Enumerate the causes of corneal edema		SGD	Written /Viva
18	**OP 4.6-** Enumerate the indications and the types of keratoplasty		SGD	Written /Viva
19	**OP 5.1-** Define, enumerate and describe the aetiology associated systemic conditions, clinical features complications, indications for referral and management of episcleritis.		SGD	Written /Viva
20	**OP 5.2-** Define, enumerate and describe the aetiology associated systemic conditions clinical features,	Medicine	SGD	Written /Viva

DEPARTMENT OF OPHTHALMOLOGY

	complications, indications for referral and management of scleritis.			
	DISEASES OF EYE LIDS & ORBIT			
21	**OP 2.1-**Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma,dermoid, ptosis, entropion, lid lag, lagopthalmos	Anatomy	Lecture	Written /Viva
22	OP 2.3-Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion, perform the regurgitation test of lacrimal sac. massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation.		SGD	Written /Viva
23	**OP 3.7-** Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon,		SGD	Written /Viva
24	**OP 4.7-** Enumerate the indications and describe the methods of tarsorraphy		SGD	Written /Viva
25	**OP 2.4-** Describe the aetiology, clinical presentation. Discuss the complications andmanagement of orbital cellulitis,		SGD	Written /Viva
26	**OP 2.5-** Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis		SGD	Written /Viva
27	**OP 2.6-** Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis		SGD	Written /Viva
28	**OP 2.7-** Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumors		SGD	Written /Viva
29	**OP 2.8-** List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications for appropriate referral			Written /Viva
	DISEASES OF CRYSTALLINE LENS			
30	**AN 41.2-** Describe the anatomical aspects of ***cataract***, glaucoma & central retinal artery occlusion,	Anatomy	SGD	Written /Viva
31	**OP 7.1-** Describe the surgical anatomy and the metabolism of the lens	Anatomy Biochemistry		Written /Viva
32	**OP 7.2-** Describe and discuss the aetio-pathogenesis stages of maturation and complications of cataract	Pathology	Lecture SGD	Written /Viva
33	**OP 7.4-** Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction		SGD	Written /Viva
34	**IM 24.15-** Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	Medicine	SGD	Written /Viva
	GLAUCOMA			
35	**AN 41.2-** Describe the anatomical aspects of cataract, ***glaucoma*** & central retinal artery occlusion		SGD	Written /Viva
36	**OP 6.5-** Describe and discuss the angle of the anterior chamber and its clinical correlates			Written /Viva
37	**OP 6.7-** Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with	Anatomy	SGD Lecture	Written /Viva

DEPARTMENT OF OPHTHALMOLOGY

	above conditions.			
38	**OP 6.9-** Choose the correct local and systemic therapy for conditions of the anterior chamber and enumerate their indications, adverse events and interactions		SGD	Written /Viva
DISEASES OF UVEAL TISSUE				
	OP 6.1- Describe clinical signs of intraocular inflammation and enumerate the features that distinguish granulomatous from non-granulomatous inflammation. Identify acute iridocyclitis from chronic condition		Lecture	Written /Viva
39	**OP 6.2-** Identify and distinguish acute iridocyclitis from chronic iridocyclitis		SGD	Written /Viva
40	**OP 6.3-** Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations		SGD	Written /Viva
41	**OP 6.8-** Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea Tumors of Uveal Tissue		SGD	Written /Viva
DISEASES OF VITREOUS & RETINA				
42	**AN 41.2-** Describe the anatomical aspects of cataract, glaucoma & *central retinal artery occlusion*	Anatomy	SGD	Written /Viva
43	**OP 8.1-** Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina		Lecture	Written /Viva
44	**OP 8.2-** Enumerate the indications for laser therapy in the treatment of retinal diseases (including retinal detachment, retinal degenerations, diabetic retinopathy & hypertensive retinopathy)		SGD	Written /Viva
45	**OP 8.3-** Demonstrate the correct technique of a fundus examination and describe and distinguish the funduscopic features in a normal condition and in conditions causing an abnormal retinal exam		SGD	Written /Viva
46	**OP 8.4-** Enumerate and discuss treatment modalities in management of diseases of the retina		Lecture SGD	Written /Viva
47	**PA 36.1-** Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	Pathology	SGD	Written /Viva
DISEASES OF THE LACRIMAL APPARATUS				
48	**OP 2.1-**Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis entropion, lid lag, lagopthalmos		Lecture SGD	Written /Viva
49	**OP 2.3-**Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion perform the regurgitation test of lacrimal sac. Massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation		SGD	Written /Viva
50	**OP 4.4-** Enumerate the causes and discuss the management of dry eye			Written /Viva
DISEASES OF OCULAR MOTILITY AND NYSTAGMUS				
51	**AN 31.5-** Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus		SGD	Written /Viva

DEPARTMENT OF OPHTHALMOLOGY

52	**OP 9.2-** Classify, enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus		SGD	Written /Viva
53	**OP 1.5-** Define, enumerate the types and the mechanism by which strabismus leads to amblyopia		SGD	Written /Viva
NEURO-OPHTHALMOLOGY AND OCULAR INVOLVEMENT IN SYSTEMIC DISEASES				
54	**OP 8.5-** Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway		Lecture	
55	**PY 10.18-** Describe and discuss the physiological basis of lesion in visual pathway	Physiology	SGD	Written /Viva
56	**OP 9.3-** Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral		SGD	Written /Viva
57	**AN 30.5-** Explain effect of pituitary tumours on visual Pathway	Anatomy	SGD	Written /Viva
58	**AN 31.3-** Describe anatomical basis of Horner's syndrome, **PY10.19-** Describe and discuss auditory & visual evoke potentials	Anatomy	SGD	Written /Viva
OCULAR INJURIES				
59	**OP 9.5-** Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury		SGD	Written /Viva
60	**OP 6.4-** Describe and distinguish hyphema and hypopyon		SGD	Written /Viva
COMMUNITY OPHTHALMOLOGY BLINDNESS- MAGNITUDE, CAUSES AND PREVENTION;				
61	**OP 9.4-** Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)		SGD	Written /Viva
62	**OP 4.5-** Enumerate the causes of corneal blindness		SGD	Written /Viva
63	**OP 4.9-** Describe and discuss the importance and protocols involved in eye donation and eye banking		Lecture	Written /Viva

Table 4: Theory Teaching syllabus of Department of Ophthalmology

DEPARTMENT OF OPHTHALMOLOGY

SYLLABUS FOR CLINICAL POSTINGS
MBBS II PROF

SL. NO.	COMPETENCY	TOPIC	Teaching Method
1		History Taking	
2		Examination of Eye	
3	OP1.3	Skill Lab- Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision,the pin hole test and the menace and blink reflexes .	
4	OP2.3	Skill Lab- Demonstrate under supervision clinical procedures performed in the lid including :bells phenomenon, assessment of entropion/ectropion, perform the regurgitation test of lacrimal sac , massage technique in cong. Dacryocystitis, and trichiatic cilia removal by epilation.	
5	OP3.1	Elicit document and present an appropriate history in a patient presenting with a "Red Eye" including congestion , discharge , pain.	
7	OP7.2 OP7.4	Case of Cataract	
8	O.P.6.6 O.P. 6.7.1	Skill Lab- Observe and document Schiotz tonometry &applanation tonometry, Digital Tonometry	
9	O.P.9.2 O.P. 9.2	Observe and document Hirschberg light reflex test, Observe & document Krimsky test	
10	OP3.9 9.5.1	Skill Lab- Demonstrate the correct technique of installation of eye drop in a simulated environment . Observe and document pad and bandage of eye	
11	O.P.8.3.1 O.P.8.3.2 O.P.8.3.3	Skill Lab- Observe and document direct ophthalmoscopy Observe and document indirect ophthalmoscopy with 20 D Observe and document fundus examination with 90 D lens.	
12		Assessment	

Table 5a: Clinical Teaching syllabus of Department of Ophthalmology

DEPARTMENT OF OPHTHALMOLOGY

SYLLABUS FOR CLINICAL POSTINGS
MBBS III PROF (PART I)

SL. NO.	COMPETENCY	TOPIC	Teaching Method
1		History Taking	
2		Examination of Eye	
3	OP9.3, O.P.1.2	Identify convex, concave and cylindrical Lenses, Demonstrate how to differentiate convex lens from concave lens	
4	OP2.3	Skill Lab- Demonstrate under supervision clinical procedures performed in the lid including :bells phenomenon, assessment of entropion/ectropion, perform the regurgitation test of lacrimal sac , massage technique in cong. Dacryocystitis, and trichiatic cilia removal by epilation.	
5	O.P.4.8 O.P.3.8	Skill Lab- Observe and document the technique of removal of corneal foreign body, Observe & document removal of foreign body from tarsal conjunctiva.	
6	O.P.4.10	Demonstrate how to motivate patients & family about eye donation	
7	O.P.7.5	Participate in the team for cataract surgery	
8	OP8.3	Skill Lab- Demonstrate the correct technique of a fundus examination and describe and distinguish the funduscopic features in a normal condition and in conditions causing an abnormal retinal exam	
9	Op9.1	Skill Lab- Demonstrate the correct technique to examine extra ocular movements (Uniocular & Binocular)	
10	Op9.1	Case of Squint	
11	OP 7.2 OP 7.4	Case of Cataract	
12	OP3.3	Case of Conjunctiva	
13	OP4.2	Case of Cornea	
14	OP 6.7	Case of Glaucoma	
15	OP6.1	Case of Uvea	
16	OP8.1	Case of Retina	
17	OP2.3	Case of Dacrycystitis	
18		Assessment	

Table 5b: Clinical Teaching syllabus of Department of Ophthalmology

Course Content
II MBBS (from October 2020)
Subject: Forensic Medicine & Toxicology

Competency Nos.	Topics & Subtopics-	
	Term I	
1.1	General Information-knowledge of forensic medicine, clinical forensic medicine, ethics	
1.2	General Information- history of forensic medicine	
1.3	General Information-legal procedure, criminal procedure, IPC, CRPC, IEA	
1.4	General Information- various courts in India	
1.5	General Information-summons, witness, cross examination	
1.6	General Information-perjury, court stricture	
2.1	Forensic Pathology- death, brain stem death	
2.2	Forensic Pathology-natural and unnatural death	
2.3	Forensic Pathology-sudden natural death	
2.5	Forensic Pathology- moment of death, coma and asphyxia	
2.6	Forensic Pathology- presumption of death and survivorship	
2.7	Forensic Pathology- Describe and discuss suspended animation	
2.8	Forensic Pathology- changes after death	
2.9	Forensic Pathology- putrifaction, adipocere, mummification	
2.10	Forensic Pathology- Time since death	
2.12	Forensic Pathology- legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	
2.13	Forensic Pathology-obscure autopsy	
2.29	Forensic Pathology- Demonstrate respect to the directions of courts, while appearing as witness for recording of evidence under oath	
2.30	Forensic Pathology- Have knowledge/awareness of latest decisions/notifications/resolutions/circulars/standing or	
2.35	Forensic Pathology-Preservation sample in autopsy	

Competency Nos.	Topics & Subtopics-	
2.32	Forensic Pathology - ability to exchange information by verbal, or nonverbal communication to the peers, family members, law enforcing agency and judiciary	
3.1	Clinical Forensic Medicine-Identification	
3.2	Clinical Forensic Medicine-Identification	
3.27	Clinical Forensic Medicine-Abortion and MTP act	
3.28	Clinical Forensic Medicine-criminal abortion	
3.32	Clinical Forensic Medicine- Demonstrate the professionalism while preparing reports in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	
4.1	Medical Jurisprudence (Medical Law and ethics)- intro	
4.2	Medical Jurisprudence (Medical Law and ethics)- Code of Medical Ethics 2002 conduct	
4.3	Medical Jurisprudence (Medical Law and ethics)- functions and role of Medical Council of India and State Medical Councils	
4.4	Medical Jurisprudence (Medical Law and ethics)-medical register	
4.5	Medical Jurisprudence (Medical Law and ethics)- Rights/privileges of a medical practitioner, penal erasure, infamous conduct, disciplinary Committee, disciplinary procedures, warning notice and penal erasure	
4.6	Medical Jurisprudence (Medical Law and ethics)- Laws in Relation to medical practice and the duties of a medical practitioner towards patients and society	
4.7	Medical Jurisprudence (Medical Law and ethics)-HIV	
4.8	Medical Jurisprudence (Medical Law and ethics)-CPA	
4.9	Medical Jurisprudence (Medical Law and ethics)-NHRC	
4.10	Medical Jurisprudence (Medical Law and ethics)- communication between doctors, public and media	
4.11	Medical Jurisprudence (Medical Law and ethics)-Euthansia	
4.12	Medical Jurisprudence (Medical Law and ethics)-stem cell research	
4.17	Medical Jurisprudence (Medical Law and ethics)- thical Principles: Respect for autonomy, nonmalfeasance, beneficence & justice	
4.22	Medical Jurisprudence (Medical Law and ethics)Hippocratic oath	
4.23	Medical Jurisprudence (Medical Law and ethics)- modified Declaration of Geneva	
4.25	Medical Jurisprudence (Medical Law and ethics)-clinical research	
4.26	Medical Jurisprudence (Medical Law and ethics)-ethical committee	
4.27	Medical Jurisprudence (Medical Law and ethics)-ethical guidelines	
6.1	Forensic Laboratory investigation in medical legal practice	

Competency Nos.	Topics & Subtopics-	
	Term –II	
8.1	Toxicology: General Toxicology-History	
8.2	Toxicology: General Toxicology-various definition	
8.3	Toxicology: General Toxicology-types of poisons and diagnosis in livings and dead	
8.4	Toxicology: General Toxicology-NDPS act	
8.5	Toxicology: General Toxicology-autopsy in poisoning and sample preservation	
8.6	Toxicology: General Toxicology-common poison encounter in India	
8.7	Toxicology: General Toxicology-bed side test	
8.8	Toxicology: General Toxicology-general treatment of poisoning	
8.9	Toxicology: General Toxicology- procedure of intimation of suspicious cases or actual cases of foul play to the police	
8.10	Toxicology: General Toxicology- general principles of Analytical Toxicology	
9.1	Toxicology : Chemical Toxicology-caustic inorganic and organic	
9.2	Toxicology : Chemical Toxicology-phosphorus iodine and barium	
9.3	Toxicology : Chemical Toxicology-Heavy metals	
9.4	Toxicology : Chemical Toxicology—ethanol	
9.5	Toxicology : Chemical Toxicology- agricultural poison	
9.6	Toxicology : Chemical Toxicology-amonnia, CO, HCN, MIC and tear gas	
10.1	Toxicology : Pharmaceutical Toxicology-CNS depressants, cardiovascular poisons	
11.1	Toxicology-Snake Bite	
12.1	Toxicology-management of drug abuse	
13.2	Toxicology-Workman compensation in Poisoning.	
14.7	Skills in Forensic Medicine & Toxicology- Demonstrate & identify that a particular stain is blood and identify the species of its origin	
14.8	Skills in Forensic Medicine & Toxicology- Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	

Course Content
III/I MBBS (from October 2021)
Subject: Forensic Medicine & Toxicology

Term I/II

Competency Nos.	Topics & Subtopics	
1.8	General Information Describe the latest Decisions/notifications/resolutions/ circulars/ standing orders related to medico-legal practice issued by Courts/Government authorities	
1.9	General Information- Medical documentation	
1.10	General information-Cause of Death as per ICD 10	
1.11	General Information-write correct cause of death as per ICD 10	
4.19	MEDIAL JURISPRUDENCE- (Medical Law and ethics)-Consent	
4.18	Medical Jurisprudence (Medical Law and ethics-Negligence	
4.13	Medical Jurisprudence - social aspect of assault, rape, suicide and homicide	
4.14	Medical Jurisprudence challenges in managing Med-leg cases	
4.15	Medical Jurisprudence (principle in handling pressure in MLC)	
4.16	Medical Jurisprudence – Bioethics	
4.20	Medical Jurisprudence (Mallingering, Therapeutic misadventure, human experiment.	
4.21	Medical Jurisprudence (product liability and Indemity insurance	
4.24	Medical Jurisprudence (Medical Law and ethics-Rights of RMP	
4.28	Medical Jurisprudence (Medical Law and ethics-laws related to medical practice	
4.29	Medical Jurisprudence (Medical Law and ethics- ability to communicate with media public and doctors	
4.30	Medical Jurisprudence (Medical Law and ethics- ability to conduct research	
3.3	Clinical forensic medicine-Mechanical Injuries	
3.4	Clinical forensic medicine-Mechanical Injuries	
3.5	Clinical forensic medicine-Mechanical Injuries	
3.6	Clinical forensic medicine-Mechanical Injuries	
3.7	Clinical forensic medicine-Mechanical Injuries	
3.8	Clinical forensic medicine-Mechanical Injuries	
3.9	Clinical forensic medicine-Mechanical Injuries- firearm	
3.10	Clinical forensic medicine-Mechanical Injuries-firearm	

Competency Nos.	Topics & Subtopics	
3.11	Clinical forensic medicine-Mechanical Injuries-regional injuries	
3.12	Clinical forensic medicine-Mechanical Injuries-regional injuries	
2.25	Forensic pathology-types of injuries and medicolegal aspect of injuries.	
2.14	Forensic pathology-examination of clothing, preservation of viscera on post-mortem examination for chemical	
2.15	Forensic pathology- Special protocol in custodial death	
2.16	Forensic pathology- Mutilated charred bones	
2.17	Forensic pathology-exhumation	
2.18	Forensic pathology=CSI	
2.19	Forensic pathology-Anaesthetic death	
2.21	Forensic Pathology-Mechanical asphyxia	
2.22	Forensic Pathology-Mechanical asphyxia	
2.23	Forensic Pathology-Mechanical asphyxia	
2.24	Forensic Pathology-Mechanical asphyxia	
2.26	Forensic Pathology-starvation	
2.31	Forensic Pathology- autopsy in custody, med negligence NHRC	
2.33	Forensic Pathology-Mass disaster	
3.13	Clinical forensic medicine-Sexual offences	
3.14	Clinical forensic medicine-Sexual offences	
3.15	Clinical forensic medicine-Sexual offences	
3.16	Clinical forensic medicine-Sexual offences	
3.17	Clinical forensic medicine-sexual perversion	
3.18	Clinical forensic medicine-Hymen, virginity, legitimacy	
3.19	Clinical forensic medicine-pregnancy	
3.20	Clinical forensic medicine-disputed paternity	
3.21	Clinical forensic medicine-Impotence and sterlity	
3.22	Clinical forensic medicine-Sexual offences	
2.27	Forensic pathology- infanticide	
2.28	Forensic pathology- IUD, Still birth Hydrostatic test,	
3.23	Clinical forensic medicine-AI, Sterilization	
3.24	Clinical forensic medicine-vasectomy and tubectomy	
3.25	Clinical forensic medicine-national family health survey	
3.26	Clinical forensic medicine-ART	
3.29	Clinical forensic medicine-Battered baby	
3.30	Clinical forensic medicine-torture and injuries	
3.31	Clinical forensic medicine- human rights	
3.33	Clinical forensic medicine-dealing with Victims of torture	
5.1	Forensic psychiatry	
5.2	Forensic psychiatry	
5.3	Forensic psychiatry	
5.4	Forensic psychiatry	
5.5	Forensic psychiatry	

Competency Nos.	Topics & Subtopics	
5.6	Forensic psychiatry	
6.2	Forensic science lab	
6.3	Forensic science lab	
7.1	Emerging technologies such as DNA brain mapping, polygraph, facial reconstruction etc	
14.1	Skills in Forensic Medicine & Toxicology-Injury report	
14.2	Skills in Forensic Medicine & Toxicology-clinical examination in poisoning	
14.3	Skills in Forensic Medicine & Toxicology-collection and despatch of samples in poisoning	
14.4	Skills in Forensic Medicine & Toxicology-age estimation	
14.5	Skills in Forensic Medicine & Toxicology- conduct PM examination and prepare PM report	
14.6	Skills in Forensic Medicine & Toxicology-demostrate stain hair,semen	
14.9	Skills in Forensic Medicine & Toxicology-skeletal remains	
14.10	Skills in Forensic Medicine & Toxicology-demostrate specimen of injury	
14.11	Skills in Forensic Medicine & Toxicology- weapon report	
14.12	Skills in Forensic Medicine & Toxicology- Bullet and cartridge	
14.13	Skills in Forensic Medicine & Toxicology-estimate age of foetus	
14.14	Skills in Forensic Medicine & Toxicology-accused of rape	
14.15	Skills in Forensic Medicine & Toxicology-medicolegal report of victim of sexual assault	
14.16	Skills in Forensic Medicine & Toxicology- Drunkeness report	
14.17	Skills in Forensic Medicine & Toxicology-identify common poison	
14.18	Skills in Forensic Medicine & Toxicology- medicolegal report of person in judicial custody,	
14.19	Skills in Forensic Medicine & Toxicology- identify Histopathology common slide such as MI Pnemonnia	
14.20	Skills in Forensic Medicine & Toxicology-To record and certify Dying declaration	
14.21	Skills in Forensic Medicine & Toxicology- To preserved DNA sample	
14.22	Skills in Forensic Medicine & Toxicology- To give expert evidence in court of law	

Course Content

Subject: Community Medicine **Year: First MBBS**

Competency No. CM	Topics & subtopics
17.1 to 17.5	**Health care of the community**
5.1 to 5.8	**Nutrition**
1.1 to 1.10	**Concept of Health and Disease**
4.1 to 4.3	**Principles of health promotion and education**

Course Content
Second Professional
Subject: Community Medicine Theory

Competency Nos.	Topics Subtopics
3.1 to 3.8	**Environmental Health Problems**
8.1 to 8.7	**Epidemiology of communicable diseases**
13.1 to 13.4	**Disaster Management**
14.1 to 14.3	**Hospital waste management**
19.1 to 19.3	**Essential Medicine**
2.1 to 2.5	**Relationship of social and behavioural to health and disease**

Course Content

Third Professional Part I (from _____)

Subject: Community Medicine Theory

Competency Nos.	Topics & Subtopics
7.1 to 7.9	**Epidemiology**
6.1 to 6.4	**Basic statistics and its applications**
8.1 to 8.7	**Epidemiology of non- communicable diseases**
9.1 to 9.7	**Demography and vital statistics**
10.1 to 10.9	**Reproductive maternal and child health**
11.1 to 11.5	**Occupational Health**
12.1 to 12.4	**Geriatric services**
15.1 to 15.3	**Mental Health**
16.1 to 16.4	**Health planning and management**
18.1 to 18.2	**International Health**
20.1 to 20.4	**Recent advances in Community Medicine**

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology)
Scheme of Examination
w.e.f Academic Section 2020-2021

SEMESTER I

Paper code	Subject	T/P	Credit Points	Theory		Practical		Total	Min Marks for passing
				External Assessment	Internal Assessment	External Assessment	Internal Assessment		
BBT-101	Botany I	T	4	70	30	-	-	100	40
BBT-102	Zoology I	T	4	70	30	-	-	100	40
BBT-103	Basics of Inorganic and Physical Chemistry	T	4	70	30	-	-	100	40
BBT-104	Cell biology	T	4	70	30	-	-	100	40
FC-101	English Language	T	4	70	30	-	-	100	40
FC-102	Introduction to computers	T	4	70	30	-	-	100	40
BBT-105	Practical I (Based on BBT-101and BBT-102)	P	2	-	-	70	30	100	40
BBT-106	Practical II (Based on BBT-103 and BBT-104)	P	2	-	-	70	30	100	40
Total			**28**	**420**	**180**	**140**	**60**	**800**	**320**

Note:

1. Internal assessment marks will be based on written test, seminar/assignment & attendance in theory paper and practical record & attendance in practical papers respectively.
2. Passing criteria will be 40% of marks (External and Internal) together.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (MP)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology)
Scheme of Examination
w.e.f Academic Section 2020-2021

SEMESTER II

Paper code	Subject	T/P	Credit Points	Theory		Practical		Total	Min Marks for passing
				External Assessment	Internal Assessment	External Assessment	Internal Assessment		
BBT-201	Botany II	T	4	70	30	-	-	100	40
BBT-202	Zoology II	T	4	70	30	-	-	100	40
BBT-203	Basics of Organic Chemistry	T	4	70	30	-	-	100	40
FC- 201	Environmental Studies	T	4	70	30	-	-	100	40
FC- 205	Communication Skill	T	4	70	30	-	-	100	40
BBT-204	Practical III (Based on BBT-201 and BBT-202)	P	3	-	-	70	30	100	40
BBT-205	Practical IV (Based on BBT-203)	P	2	-	-	70	30	100	40
Total			**28**	**350**	**150**	**140**	**60**	**700**	**280**

Note:

1. Internal assessment marks will be based on written test, seminar/assignment & attendance in theory paper and practical record & attendance in practical papers respectively.
2. Passing criteria will be 40% of marks (External and Internal) together.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology)
Scheme of Examination
w.e.f Academic Section 2020-2021

SEMESTER III

Paper code	Subject	T/P	Credit Points	Theory		Practical		Total	Min Marks for passing
				External Assessment	Internal Assessment	External Assessment	Internal Assessment		
BBT-301	General Microbiology	T	4	70	30	-	-	100	40
BBT-302	Immunology	T	4	70	30	-	-	100	40
BBT-303	Fundamentals of Biochemistry	T	4	70	30	-	-	100	40
BBT-304	Enzymology	T	4	70	30	-	-	100	40
FC-301	Entrepreneurship Development	T	4	70	30	-	-	100	40
BBT-305	Practical V (Based on BBT-301 and BBT-302)	P	3	-	-	70	30	100	40
BBT-306	Practical VI (Based on BBT-303 and BBT-304)	P	2	-	-	70	30	100	40
Total			**25**	**350**	**150**	**140**	**60**	**700**	**280**

Note:

1. Internal assessment marks will be based on written test, seminar/assignment & attendance in theory paper and practical record & attendance in practical papers respectively.
2. Passing criteria will be 40% of marks (External and Internal) together.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology)
Scheme of Examination
w.e.f Academic Section 2020-2021

SMESTER IV

Paper code	Subject	T/P	Credit Points	Theory		Practical		Total	Min Marks for passing
				External Assessment	Internal Assessment	External Assessment	Internal Assessment		
BBT-401	Bioenergetics and metabolism	T	4	70	30	-	-	100	40
BBT-402	Genetics	T	4	70	30	-	-	100	40
BBT-403	Molecular biology	T	4	70	30	-	-	100	40
FC- 401	Soft skills	T	4	-	100	-	-	100	40
FC- 402	Research methodology	T	4	70	30	-	-	100	40
BBT- 404	Practical VII (Based on BBT-401 and BBT-402)	P	3	-	-	70	30	100	40
BBT- 405	Practical VIII (Based on BBT-403)	P	2	-	-	70	30	100	40
Total			**25**	**280**	**220**	**140**	**60**	**700**	**280**

Note:

1. Internal assessment marks will be based on written test, seminar/assignment & attendance in theory paper and practical record & attendance in practical papers respectively.
2. Passing criteria will be 40% of marks (External and Internal) together.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology)
Scheme of Examination
w.e.f Academic Section 2020-2021

SEMESTER V

Paper code	Subject	T/P	Credit Points	Theory		Practical		Total	Min Marks for passing
				External Assessment	Internal Assessment	External Assessment	Internal Assessment		
BBT-501	Recombinant DNA Technology	T	4	70	30	-	-	100	40
BBT-502	Environmental Biotechnology	T	4	70	30	-	-	100	40
BBT-503	Bio-analytical Techniques	T	4	70	30	-	-	100	40
BBT-504	Computational Biology& Bio-informatics	T	4	70	30	-	-	100	40
FC - 503	Statistics	T	4	70	30	-	-	100	40
BBT-505	Practical IX (Based on BBT-501 and BBT-502)	P	3	-	-	70	30	100	40
BBT-506	Practical X (Based on BBT-503 and BBT-504)	P	2	-	-	70	30	100	40
Total			**25**	**350**	**150**	**140**	**60**	**700**	**280**

Note:

1. Internal assessment marks will be based on written test, seminar/assignment & attendance in theory paper and practical record & attendance in practical papers respectively.
2. Passing criteria will be 40% of marks (External and Internal) together.

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology)
Scheme of Examination
w.e.f Academic Section 2020-2021

SEMESTER VI

Paper code	Subject	T/P	Credit Points	Theory		Practical		Total	Min Marks for passing
				External Assessment	Internal Assessment	External Assessment	Internal Assessment		
BBT-601	Industrial Biotechnology	T	4	70	30	-	-	100	40
BBT-602	Medical biotechnology	T	4	70	30	-	-	100	40
BBT-603	Animal Biotechnology	T	4	70	30	-	-	100	40
BBT-604	Plant Biotechnology	T	4	70	30	-	-	100	40
FC - 604	Biosafety and Intellectual Property Right	T	4	70	30	-	-	100	40
BBT-605	Practical XI (Based on BBT-601 and BBT-602)	P	3	-	-	70	30	100	40
BBT-606	Practical XII (Based on BBT-603 and BBT-604)	P	2	-	-	70	30	100	40
Total			**25**	**350**	**150**	**140**	**60**	**700**	**280**

Note:

1. Internal assessment marks will be based on written test, seminar/assignment & attendance in theory paper and practical record & attendance in practical papers respectively.
2. Passing criteria will be 40% of marks (External and Internal) together.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: I

Name of the Paper	Paper code	Theory		
Botany I	BBT-101	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: To introduce field of lower plants with special emphasis on diversity, morphology, physiology and salient feature.

Unit	Contents (Theory)
I	Algae: General characters: General account on : habitat and habit , algal cell structure, algal pigments, flagella and food reserves. Types of the life cycle and Classification. Introduction to cyanobacteria, occurrence, salient features, thallus organization and reproduction in Nostoc.
II	Habitat, structure, reproduction and life cycle of following forms: Chlorophyta - Volvox, , Chara. Xanthophyta: Occurrence, salient features, thallus organization and reproduction in Vaucheria. Bacillariophyta: Occurrence, salient features, thallus organization and reproduction of pennate and centric diatoms. Phaeophyta: Occurrence, salient features, thallus organization and reproduction with reference to Ectocarpus. Rhodophyta: Occurrence, salient features, thallus organization and reproduction in Polysiphonia Economic importance of algae.
III	Fungi: General characters, classification, Important Features, structure and mode of reproduction in fungi, and life history of Mastigomycotina- Phytophthora, Zygomycotiana Mucor, Ascomycotina :Aspergillus, Peziza,l Basibiomycotina - Puccinia, Alternaria, Agaricus Deurteromycotina Cercospora. Lichens: Classification, occurrence, systematic position, mode of nutrition, reproduction and economicimportance.
IV	General characters and classification of Bryophyta Hepaticopsida: *Marchantia* Anthoceropsida: *Anthoceros* Bryopsida: *Polytricum*
V	Pteridophyta: Important Characteristics and Classification Psilophytopsida: *Rhynia* Lycopsida: *Lycopodium* Sphenopsida: *Equisetum*
Learning Out come	Students should be able to Identify major categories of lower plants and analyze their classification, diversity and ubiquity

Text Books:

1. Smith, G.M.(1974). Cryptogamic Botany. Vol. I (Algae and Fungi). TMH publishing Company Ltd., New Delhi.
2. Kumar, H.D. (1988). Introductory Phycology. Affiliated East-West Press Ltd. New Delhi.
3. Vashistha,B.R.,Sinha, A.K. & Kumar, A.(2016). Algae, S.Chand & Co.Ltd.,Delhi.
4. Smith, A.L. (1921). Lichens. Cambridge University, Cambridge.
5. Ahmadjian,V.& Hale,M.E.(1973). The Lichens.Academic Press,London.
6. Smith, G.M. (1955). Cryptogamic Botany. Vol. II (Bryophytes and Pteridophytes).TMH publishing Company Ltd., New Delhi.
7. Rashid, A. (2015). An Introduction to Bryophyta. Vikas Publishing House Pvt. Ltd., New Delhi.
8. Malhotra, M. & Pathak, C. (2012). A Text Book of Bryophyta. Wisdom Press, New Delhi.
9. Vashistha,B.R., Sinha, A.K. & Kumar, A.(2016). Bryophyta, S.Chand & Co.Ltd.,Delhi.
10. Sharma, O.P. (2016). Bryophyta. McGraw Hill Education (India) Private Limited, New Delhi.

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: I

Name of the Paper	Paper code	Theory		
Zoology-I	BBT-102	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: To introduce field of zoology with special emphasis on Invertebrates diversity, morphology and physiology. To understand and appreciate the taxonomic principles and the phylogeny of animals and To comprehend how the arrangement of organ systems add to the complexity of animal body.

Unit	Contents (Theory)
I	Elementary Knowledge of Zoological Nomenclature and International Code. Classification of Lower Invertebrates (According to Parker and Haswell 7th edition) Classification of Higher Invertebrates (According to Parker and Haswell 7th edition) Protozoa- Type, Study of Plasmodium, Protozoa and Diseases.
II	Porifera- Type study of Sycon. Types of Canal system. Coelenterata- Type study of Obelia Corals and Coral Reef formation.
III	Helminthes- Type study of Liver Fluke. Nematodes and diseases. Annelida- Type study of earthworm , metamerism. Type Study of Hirudinaria. Structure and significance of Trochophore larva.
IV	Arthropoda- Type study of Prawn. Types study of Periplanata. Larval forms of Crustacea. Insect as Vectors of human diseases
V	Mollusca- Type study of Pila Echinodermata- External features and water vascular system of Star fish. Larval forms of Echinoderms. Minor Phyla – Ectoprocta & Rotifera
Learning Out come	It gives knowledge about body construction from unicellular to multicellular organisms & its evolution. Understand the glimps of Corals, Coral reef formation & its importance. Gain the knowledge about the formation of Leech to evolution of life. Understand Social organization in insects. Knowledge about organs gets specialized in higher invertebrates

Text Books:

1. Ruppert. *Invertebrate Zoology*. Edward Publication: Haryana Thomson Wadsworth 2006.
2. Jordan *Invertebrate Zoology*.E L Publication: New Delhi S Chand 2002.
3. Anderson. *Invertebrate Zoology*. D T Publication. 2006.
4. Brusca. *Inverterbrates*. Richard C Publication: 2003.
5. Pechenik. *Biology of the Invertebrates*., A Jan Publication: 2000.
6. Kotpal R. L. *Modern Text Book of Zoology-Invertebrates*, Rastogi Publications. 2004.
7. Prasad S.N. *Textbook of invertebrate Zoology*. Kitab Mahal Allahabad.1969.
8. Ayyar E: A Manual of Zoology. Vol I. S. Vishwanathan. 1993.
9. Chapman, R.F. *The Insects*. 6th edition Cambridge University Press. 1998
10. Kotpal R. L. *Modern Text Book of Zoology- Invertebrates*. Rastogi Publications. 2004.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus
Semester: I

Name of the Paper	Paper code	Theory		
Basics of Inorganic and Physical Chemistry	BBT- 103	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: This introductory course the students acquire knowledge of the basic concepts of inorganic chemistry, organic chemistry, physical chemistry and environmental chemistry. Environmental chemistry topic emphasizes on the importance of preserving environment in its natural form. It also provides an insight into the harmful impacts of human intervention on nature.

Unit	Contents (Theory)
I	**Atomic Structure:** Idea of de Broglie matter wave, Heisenberg uncertainty principle, atomic orbital's, Quantum numbers, shapes of s, p, d orbitals, Trends in periodic table and applications in predicting and explaining the physical and chemical behaviors. Atomic radii, ionic radii, ionization energy, electron affinity and electro negativity.
II	**Chemical Bonding**: Valence bond theory and its limitations ,directional characteristics of covalent bond, various types of hybridization and shapes of simple inorganic molecules and ions, Valence shell electron pair repulsion (VSEPR) theory, homonuclear and heteronuclear (CO and NO) diatomic molecules, Weak interactions, Hydrogen bonding, van der Waal forces
III	**s - Block elements**: Comparative study, diagonal relationships, salient features of Hydrides, Solvation and complexation tendencies. **p- Block elements:** Comparative study of groups 13–17 elements, compounds like hydrides, oxides, halides of group 13-16, basic properties of halogens, inter halogens and polyhalides. **d- blocks elements**: First transition series -Properties of the elements of the first transition series, stability of their oxidation states, coordination number. Second and Third transition series – General characteristics, comparative treatments with their 3d-analogues in respect of ionic radii, oxidation state and magnetic property.
IV	**Thermodynamics-** Principles, Kirchhoff's equation, calculation of w, q, ΔU, ΔH, The Hender-Hasselbatch equation, of thermodynamics, Enthalpy, Second law of thermodynamics, Entropy free energy, chemical equilibrium, law of mass sction, Le chatlier's principles. **Different States**: Structural differences between - solids, liquids and gases. Intermolecular forces, Definition of space lattice, unit cell. Bragg's equation. crystal structure of NaCl, KCl and CsCl, Ideal and non ideal solutions, methods of expressing concentration of solutions, Acid-Base concept.
V	Chemical kinetics & its scope, Rate of reaction, factors influencing the rate of reactions, zero order, second order, pseudo order, half life & mean life, various theories of chemical kinetics, Arrhenious equation & catalysis. Solution, ideal & non ideal solution, Different methods of concentration expression, raoult's law
Learning Out come	The fundamental concepts from all branches of Chemistry are learnt. This learning enables the students to gain conceptual knowledge in the relevant topics.

Text Books:

1. B.R Puri., L.R Sharma and K. C Kalia. 31st edition Advanced Inorganic Chemistry. Delhi:Shoban Lal Nagin Chand and Sons, 2011.
2. B.R Puri., L.R Sharma and Pathania. 46th edition Principles of Physical Chemistry. Vishal Publishing Company, 2012.
3. B. S. Bahl and A Bahl Advanced Organic Chemistry.20th ed. S. Chand & Co, 2011.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: I

Name of the Paper	Paper code	Theory		
Cell Biology	BBT-104	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: This course introduces the students to the basics of cell and its components and gives them a strong foundation on the basic unit of life.

Unit	Contents (Theory)
I	Introduction, Scope and Importance, History of Cytology. Prokaryotic cell, Eukaryotic cell (Plant and Animal Cell). Structure of cell wall. Plasma membrane: structure and functions (simple diffusion, facilitated diffusion, active transport, endocytosis, pinocytosis, phagocytois, and exocytosis).
II	Structure and functions of mitochondria, chloroplast, Structure and functions of Endoplasmic reticulum, Endoplasmic reticulum targeting proteins, protein folding and processing in ER, Targeting of lysosomal protein. Structure and function of Golgi complex, Protein Glycosylation within the Golgi. Structure and functions of Ribosome. Lysosome and Inracellular digestion.
III	The nucleus and nucleolus. structure and classification of Chromosomes. Chromosome structure and its types. Lampbrush and Polytene Chromosomes. Cellular reproduction: Cell cycle- mitosis and meiosis.
IV	Cell Motility and Shape I: Structure and function of microfilaments and Intermediate Filaments. Molecular Mechanisms of Cell-Cell Adhesions. Extracellular Matrix of animals, Cell signaling. Introduction and application of stem cells.
V	General introduction of Cancer, Apoptosis and necrosis. Techniques in cell biology: chromosomal banding techniques. Principles and applications of light microscope and electron microscope (Scanning and transmission). Karyotyping and Idiogram.
Learning Out come	At the end of the course, the student has a strong foundation on the functions of the cell.

Text Books:

1. Cell Biology and Genetics-By P.K. Gupta
2. Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th Edition. JohnWiley & Sons. Inc.
3. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology. 8thedition.Lippincott Williams and Wilkins, Philadelphia.
4. Cooper, G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach. 5th edition.ASMPress & Sunderland, Washington, D.C.; Sinauer Associates, MA.
5. Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G. P. 2009. The World of the Cell. 7thedition. Pearson Benjamin Cummings Publishing, San Francisco.
6. Cell Biology, DE Robertis & De Roberis, Blaze publishers & Distributors Pvt. Ltd.
7. Cell and Molecular Biology -By De Robertis
8. Cell and Molecular Biology -By Lodish

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: I

Name of the Paper	Paper code	Theory		
Practical –I	BBT-105	Credit	Marks	
		2	Maximum	Minimum
			100	40

Objective: Understand and appreciate the taxonomic principles and the phylogeny of plants animals by studying their form and symmetry from unicellular to organ system level of organization. To comprehend how the arrangement of systems add to the complexity of plant and animal body

Unit	Contents (Practical)
I	1. Study of types through fresh, preserved material and permanent slides 2. Identify and classify following types: • Algae: Rivularia, Scytonema, • Coleochaete, Fungi: Aspergillus • Bryophyta: Riccia, Pellia, Sphagnum. • Pteridophyta: Psilotum (Stem), Equisetum (Stem). 3. Structure and Reproductive organs: • Algae • Chara, Sargassum, Polysiphonia • Fungi: Phytopthora, Peziza, Ustilago • Bryophyta: Notothylas, • Funaria & • Polytrichum: Sex organs & Capsule • Pteridophyta: Equisetum: Cones 4. Types of Stele: chart and Permanent slides
II	1. Study of museum slides / specimens / models (Classification of animals up to orders) i. Protozoa: Amoeba, Paramoecium, Paramoecium Binary fission and Conjugation, Vorticella, Entamoeba histolytica, Plasmodium vivax ii. Porifera: Sycon, Spongilla, Euspongia, Sycon - T.S & L.S, Spicules, Gemmule iii. Coelenterata: Obelia – Colony & Medusa, Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatula iv. Platyhelminthes: Planaria, Fasciola hepatica, Fasciola larval forms – Miracidium, Redia, Cercaria, Echinococcus granulosus, Taenia solium, Schistosoma haematobium v. Nemathelminthes: Ascaris(Male & Female), Drancunculus, Ancylostoma, Wuchereria vi. Annelida: Nereis, Aphrodite, Chaetopteurs, Hirudinaria, Trochophore larva vii. Arthropoda: Cancer, Palaemon, Scorpion, Scolopendra, Sacculina, Limulus, Peripatus, Larvae - Nauplius, Mysis, Zoea, Mouth parts of male & female Anopheles and Culex, Mouthparts of Housefly and Butterfly. viii. Mollusca: Chiton, Pila, Unio, Pteredo, Murex, Sepia, Loligo, Octopus, Nautilus, Glochidium larva ix. Echinodermata: Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon, Bipinnaria larva x. Hemichordata: Balanoglossus, Tornaria larva 2. Dissections: Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst Insect Mouth Parts 3. Laboratory Record work shall be submitted at the time of practical examination 4. An "Animal album" containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to different sets of students for

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

	this purpose. 5. Computer aided techniques should be adopted – show virtual dissections
Learning Out come	It gives knowledge about plant and animal body construction from unicellular to multicellular organisms.

Text Books:

1. Bendre, A.M.& Kumar,A.(2017).A Text Book of Practical Botany-1,Rastogi Publications,Meerut.
2. Pandey, B.P.(2017).Modern Practical Botany-Vol.I,S.Chand & Co,Ltd.,New Delhi.
3. Sharma,O.P.(2017). Practical Botany-I, PragatiPrakashan,Meerut.
4. Pechenik. *Biology of the Invertebrates*., A Jan Publication: 2000.
5. Kotpal R. L. *Modern Text Book of Zoology-Invertebrates*, Rastogi Publications. 2004.
6. Prasad S.N. *Textbook of invertebrate Zoology*. Kitab Mahal Allahabad.1969.
7. Ayyar E: A Manual of Zoology. Vol I. S. Vishwanathan. 1993.
8. Barrington E.J.W. *Invertebrates Structure and Function*. London. Elbs.1979.Bhamrah H.S.: *Introduction to Mollusca*. Anmol Publications, New Delhi, 2001.

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (M.P.)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: I

Name of the Paper	Paper code	Theory		
Practical –II	BBT-106	Credit	Marks	
		2	Maximum	Minimum
			100	40

Objective: This course imparts skills to determine physical parameters like density, viscosity, surface tension, molecular weight etc. of substances. The paper also imparts practical knowledge on the biology of cells. It also emphasizes the importance of organized and systematic approach in carrying out experiments

Unit	Contents (Practical)
I	**Chemistry** 1. Inorganic Chemistry : Semi micro Analysis – cation analysis, separation and identification of ions from GroUps I, II, III, IV, V and VI, Anion analysis. 2. Chemical Kinetics: 1. To determine the specific reaction rate of the hydrolysis of methyl acetate/ethyl acetate catalyzed by hydrogen ions at rooms temperature. 2. To study the effect of acid strength on the hydrolysis of an ester. 3. To compare the strengths of HCl and H2SO4 by studying the kinetics of hydrolysis of ethyl acetate. 4. To study kinetically the reaction rate of decomposition of iodide by H2O4. 3. Distribution Law: 1. To study the distribution of iodine between water and CCl4. 2. To study the distribution of benzoic acid between benzene and water. 4. Colloids: 1. To prepare arsenious sulphide sol and compare the precipitating power of mono-, bi- and trivalent anions. 5. Viscosity, Surface Tension: 1. To determine the percentage composition of a given mixture (non interacting systems) by viscosity method. 2. To determine the viscosity of amyl alcohol in water at different concentration and calculate the excess viscosity of these solutions. 3. To determine the percentage composition of a given binary mixture by surface tension method (acetone & ethyl methyl ketone).
II	1. Separation of nucleic acid bases by paper chromatography. 2. Microscopy- (Visit / Video Demonstration - including Sample Preparation and Staining). • Light and Electron microscope. • Electron / photo micrographs: Fluorescence microscopy, autoradiography, positive staining, negative staining, freeze fracture, freeze etching, shadow casting. • structure of cell organelles through electron micrographs. 5. To demonstrate the presence of mitochondria in striated muscle cells/ cheek epithelial cell using vital stain Janus Green B. 6. Study of polyploidy in Onion root tip by colchicine treatment. 7. Preparations of temporary mount of Grasshopper testis / onion flower bud anthers and study the different stages of Meiosis. 8. Study of mitosis and meiosis from permanent slides. 9. Identification and study of cancer cells-Slides/Photomicrograph
Learning Out	Principles of physical chemistry and cell biology studied by the students in the theory classes get reinforce.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

come	Expertises in Microscopy techniques with utmost importance.

Text Books:

1. Levitt, *Findlay's practical physical chemistry revised by* Longman's London, 9th edn ,2010
2. Shoemaker and Garland *Experiments in physical chemistry* McGraw Hill International 8th edn., 2008.
3. J.B. Yadav, *Advanced practical chemistry* by Krishna prakashan media (p) ltd,,29th ed. Meerut, 2010.
4. Daniels Farringtonl *Experimental physical chemistry* .Nabu press, 2011.
5. J. E. Celis. Cell Biology: A laboratory Hand Book, 3rd edition, USA: Elsevier Academic Press, 2006.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: I

Name of the Paper	Paper code	Theory		
		Credit	Marks	
English Language	FC-101	4	Maximum	Minimum
			100	40

Objective: The objective of this course is to improve the competence of the students in basic language skills and to acquaint the students with the working knowledge of English Language.

Unit	Contents (Theory)
I	**Structural Items:** • Simple, compound and complex sentences. • Co-ordinate clauses (with, but, or, neither-nor, otherwise, else). • Sub-ordinate clauses-noun clauses-as subjects, objects and complement. • Relative clauses (restrictive and non restrictive clauses) • Adverb clauses (open and hypothetical, conditional: with, because, through, where, so that, as long as. As soon. • Comparative clauses (as + adjective/adverb + as no sooner.....that) **Tense:** Simple present, progressive and present perfect, Simple past, progressive and past perfect, Indication of futurity. **The Passive:** Simple present and past, present and prefect and to infinitive structure
II	**Verb:** its forms & structure; **Modal Verbs:** will, shall, would, ought, to have to/have got to, can-could, may-might and need **Reported speech:** Declarative sentences, Imperatives, Interrogative-wh-questions, Yes/No questions, Exclamatory sentences. **Linking devices:** The above language items will be introduced to express the following communicative factions: Seeking and imparting information, Expressing attitudes-intellectual and emotional and Persuasion and discussion etc.
III	Reading Comprehension: Adequate practice should be provided in reading with understanding through graded materials prescribed in the text book. Attempt should also be made to expand the learner's vocabulary.
IV	**Writing skills:** Graded practice should be provided in the basic skills of composition. The following forms of composition should also make to expand the learner's vocabulary. • Paragraph writing (150 words) • Letter writing (both formal and informal)
V	**Speaking:** Contextualized vocabulary teaching and oral work should be used to strengthen the learner's acquirement of the sound distinctions, stress and intonation in English.
Learning Out come	Improved grammar skills. Increased proficiency in reading, paragraph writing and essay writing. Exposure to visual text as a means to learn language and the issues concerning social and economic stratification with specific reference to India. Exposure to literature and different aspects of life through themes such as love, partition, childhood, gender, sports science and religion. Sensitization towards cultivation of values and principles in personal life.

Text Books:

1. The book published by M.P. Hindi Granth Academy is the prescribed book for this syllabus.
2. Wren & Martin: High School English Grammar & Composition.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: I

Name of the Paper	Paper code	Theory		
Introduction to Computers	FC-102	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: The objective of this paper is to impart the fundamental skills of using Computers in science.

Unit	Contents (Theory)
I	Computer system concepts and characteristics, basic components of computer system
II	Software, type of software, system software, operating system overview and functions.
III	Application software, word processing, spread sheet, presentation, graphics and DTP.
IV	DBMS: introduction, purpose, views of data models, types of data languages
V	Network: LAN, WAN, MAN, Components of LAN, internet evolution protocols and interface E mail, WWW, viruses, Antivirus, Anti-spy wares, Fire Wall.
Learning Out come	Produce a sound knowledge of IT fundamentals.

Text Books:

1. Texali –PC software.
2. PK Sinha Fundamentals of computers.
3. Loen, Fundamentals of information technology, Vikas Pub.
4. V Rajaraman Fundamentals of computers, Prentice hall.
5. Saxena First Course in Computers, Vikas Pub
6. S Jaiswal Computer Today, Galgotia Pub.
7. Dhiraj Sharma Foundation of IT, Excel Books.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: II

Name of the Paper	Paper code	Theory		
Botany II	BBT--201	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: To increase the understanding of the students about the diversity of plants, their classification, structure and growth.

Unit	Contents (Theory)
I	Higher plants: General characters and Classification of Gymnosperms and Angiosperms. Principles and rules of Botanical Nomenclature and Fossilization.
II	Plant Physiology: Plant Water Relations: Properties of water, Importance of water in plant life, Diffusion, Osmosis & Osmotic relation to plant cell. Water Absorption, Ascent of Sap. Transpiration: Structure & Physiology of Stomata, Mechanism of Transpiration, Factors affecting the rate of transpiration. Photosynthesis: Chloroplast, Photosynthetic pigments, Red drop, Emerson' effect, Concept of two Photosystems, Light reaction, Dark reaction – Calvin cycle, Hatch & Slack cycle, CAM cycle, Factors affecting rate of photosynthesis & Photorespiration.
III	Embryology: Concept of flower as a modified shoot. Structure of Anther, Microsporogenesis and Male Gametophyte. Structure of Pistil, Ovules, Megasporogenesis and Development of Female Gametophyte (Embryo Sac) and its types. Pollination– Mechanism and Agencies of Pollination, Pollen Pistil interactions and Self incompatibility. Double Fertilization and triple fusion. Development and types of endosperm and its morphological nature, Development of Embryo in Monocot and Dicot. Fruit development and maturation. Seed structure and dispersal. Mode of Vegetative Propagation
IV	Plant Pathology: Introduction. Classification of Plant Diseases, Symptoms of Plant Diseases, Agents of Plant diseases (Virus, Bacteria and Fungi).
V	Mendelian genetics (Monohybrid, Dihybrid ratio), Complementary and Supplementary genes interactions, Cytoplasmic inheritance:(Mirabilis, male sterility in plants), modes of reproduction, Sex determination and Sex-linked Inheritance in plants. Introduction and objectives of Plant Breeding, Importance and consequences of plant Breeding, Role of mutations, Polyploidy, Distant hybridization and role of biotechnology in crop improvement.
Learning Out come	The students will develop understanding about the diversity, identification, classification and economic importance of plants.

Text Books:

1. Raghavan, V.; Developmental Biology of Flowering plants; New York: Springer -Verlag, 1999.
2. VasishtaP.C.,; Botany for degree students-Vol. V, Gymnosperm; Delhi: S. Chand, 1983.
3. Dutta, A.C.; A Class-book of Botany; 15th edition; Calcutta: Oxford University Press, 1976.
4. Sivarajan, V.V.; Introduction to the principles of plant taxonomy; 2nd edition; Cambridge: Cambridge University Press,1991.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

5. Verma S. K. Textbook of Plant physiology and Biochemistry ; 4th editon; S. Chand & Company Ltd, 2003.
6. Ganguly A.K., Kumar N.C.; General Botany, Vol II, Part II: Introduction to plant physiology; 7thEdition; Emkay Publications, 1990.
7. Futehally Laeeq; Gardens, 2ndEdition; New Delhi: National Book Trust, 1990.
8. Dubey, R.C.; Text Book of Biotechnology; S.Chand Ltd, 20

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: II

Name of the Paper	Paper code	Theory		
Zoology II	BBT-202	Credit	Marks	
			Maximum	Minimum
		4	100	40

Objective: To understand and appreciate the classification of animals and their organ system. To know the scope of applied zoology.

Unit	Contents (Theory)
I	Origin of Chordates Classification of phylum Chordata upto orders according to Parker and Haswell (Latest edition). Hemichordata – External features and affinities of Balanoglossus. Urochordata – Type study of Herdmania. Cephalochordata – Type study of Amphioxus. Affinities of Amphioxus
II	Comparative account of limb bones and girdles of vertebrates (Amphibia, Reptiles, Birds and Mammals). Comparative account of digestive system. Comparative account of respiratory system. Comparative account of aortic arches and heart. Comparative account of brain Placentation in mammals.
III	Host-parasite Relationship; Transmission, Prevention and control of diseases; Pest and Management Introduction to Animals husbandry, Poultry Farming, Pisciculture, Pearl culture, Sericulture, Apiculture and Lac culture.
IV	Origin of life- modern concepts only. Lamarckism, Darwinism. Modern synthetic theories: Variations, Mutation, Isolation & speciation Adaptation and mimicry Micro, macro evolution and mega evolution.
V	Animal improvement for desired traits by biotechnology interventions; Scope for biotechnological interventions; Model organisms and their significance; DNA micromanipulation; Somatic cell nuclear transfer; Embryo sexing; Gene mapping and identification of genes of economic importance in farm animals
Learning Out come	It gives knowledge about higher animals, its organ system, its evolution. and application and management of animals

Text Books:

1. R.L.Kotpal :Modern text book of biology Vertebrate (Rastogi Publication, Meerut).
2. Young J. Z. Life of Vertebrates. Oxford Univ Press. 3rd edn. 2006.
3. Urf Abdul Jamal. Birds of India. A literary Anthology. 2008.
4. Ayyar E . A Manual of Zoology. Vol II. S. Vishwanathan. 2009.
5. Boulenger E. G. Natural History of World Animals. Vinod Publishers. 2003.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

6. Karday Kenneth. Vertebrates. Mc Graw Hill. 2005.
7. Parker & Hasewell. A Text Book of Zoology – Vol II. Tata Mc Graw Hill. 2003.
8. Tomar R. S & Singh N. Economic Zoology. Emkay Publishers. 2004.
9. Text Book of Animal Husbandry –G. C. Banergee (1999), 9thed Oxford and IBH Publishers, New Delhi.
10. Singh R.A. 2001. Poultry Production Kalyani Publishers New Delhi

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: II

Name of the Paper	Paper code	Theory		
Basics of Organic Chemistry	BBT-203	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: To deal with fundamentals of Organic Chemistry and its functional group. It emphasizes on the judicious use of energy resources.

Unit	Contents (Theory)
I	Structure of Organic compounds, bond length, bond angle, Hydrogen bond, Resonance, Electronic effects, inductive, Mesomeric, Electromeric & Hyperconjugation. Nucleophiles and Electrophiles, Reaction intermediates Carbonium ions, Carbanions, Free radicals and Carbenes, Homolytic fission and Heterolytic fission.
II	Introduction, Nomenclature, Isomerism, Preparation and General Properties of Aliphatic hydrocarbons, Alkanes, Alkenes and Alkynes, Cycloalkanes,
III	Introduction, Nomenclature, Preperation and general properties of Alcohols, Phenols, Aldehyde and Ketones. Aromaticity.
IV	Carbohydrates(monosaccarides, diasaccarides and polysaccharides) : classification and general properties, Glucose and fructose (open chain and cyclic structure), Overview of primary, secondary, tertiary and Quaternary structure of proteins. Introduction, glycerides, synthetic detergents, Introduction, classification of amino acids
V	Stereochemistry: Simple molecules , Hybridization, conformation & configuration, Geometrical isomerism, optical isomerism, Chirality, Enantiomers and optical activity.
Learning Out come	Students gain insight into the rates of reactions and factors that affect it. Understanding the reactions of important classes of organic compounds.

Text Books:

1. Arun Bahl And B.S.Bahl A Text Book Of Organic Chemistry, 20th Edition, New Delhi: S.Chand&Company, 2011.
2. R. T Morrison, and R. N. Boyd. Organic Chemistry. 7th ed. New Delhi: Prentice-Hall of India (P) Ltd., 2000.
3. L Finar, Organic Chemistry Vol. II, 5th ed. New Delhi: ELBS and Longman Ltd., reprint 2008.
4. P. A Sykes Guide Book to Mechanism in Organic Chemistry, 6th Edition, New Delhi: pearson publishers., 2003.
5. Ege, Seyhan N. Organic Chemistry – Structure and Reactivity. 5th ed. Delhi: AITBS publishers, 2003.
6. Y. Bruice, Paula Organic Chemistry. 6th ed. New Jersey: Prentice-Hall International Inc, 2010

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: II

Paper Code	Paper Name	Credit	Theory		No Practical
			Marks		
			Maximum	Minimum	
FC-201	Environmental Studies	4	70	30	

Objective: To introduce the students to various regional and global concerns regarding the environment, including the natural challenges, various types of environmental pollutants and their effects, the changing environment, and the developments of diverse technologies to detect, study and address these concerns.

Unit	Contents
I	Study of Environment and ecology (a) Definition and importance (b) Ecosystem: Concept, structure &function, food chains, ecological successions (c) Environmental pollution and problems (d) Public participation and public awareness
II	Environmental pollution & Disaster management: (a) Air, Water, Noise, Heat and Nuclear pollution (b) Causes , effect and prevention of pollution (c) Disaster management-Food, Earthquake, cyclones, droughts and landslides.
III	Social issues and the environment: (a) Development-non-sustainable to sustainable. (b) urban problems related to energy (c) water conservation water harvesting & watershed management (d) Environmental ethics (e) Public Awareness
IV	Conserving natural resources: (a) Food resources- World food problem (b) Energy resources-increasing demand for energy (c) Land resources- Land as resources (d) Forest resources (e) Water resources (f) Bio-diversity and its protection
V	Environment conservation laws: (a) Conservation laws for air and water pollution (b) Wildlife conservation laws (c) Role of information technology in protecting environment & health (d) Social problems and the environment
Learning Out come	Students may be able to apply scientific and quantitative techniques to describe, monitor and understand environmental systems.
Suggested	1. Eugene P. Odum & Gary W. Barrett, Fundamentals of Ecology, 5thEd, Cengage

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

Readings:	Learning, India Edition, 2005. 2. E J Kormondy, Concepts of Ecology,4thEd, Prentice Hall of India Pvt. Ltd., 1996. 3. Thomas M. Smith & Robert Leo Smith, Element of Ecology, 6thEd, Pearson Education, Inc., 2006 4. Madhab Chandra Dash & Satya Prakash Dash, Fundamentals of Ecology, 3rdEd, Tata Mc Graw Hill Education Private Limited, New Delhi, 2009. 5. Richard T. Wright & Dorothy F. Boorse, Environmental Science: Towards a Sustainable Future, 11thEd, Benjamin Cummins, 2011. 6. Daniel B. Botkin, & Edward A. Keller, Environmental Science: Earth as a Living Planet, 7thEd, Wiley, India, 2010

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: II

Paper Code	Paper Name	Credit	Theory		No Practical
			Marks		
FC-205	Communication Skill	4	Maximum	Minimum	
			70	30	

Objective: To educate the students in the skills of communication so as to help them to interact with the society effectively in their career.

Unit	Contents (Theory)
I	Communication Skills: Introduction, Definition, The Importance of Communication,The Communication Process – Source, Message, Encoding, Channel, Decoding, Receiver, Feedback, Context Barriers to communication: Physiological Barriers, Physical Barriers, Cultural Barriers, Language Barriers, Gender Barriers, Interpersonal Barriers, Psychological Barriers, Emotional barriers Perspectives in Communication: Introduction, Visual Perception, Language, Other factors affecting our perspective - Past Experiences, Prejudices, Feelings, Environment
II	Elements of Communication: Introduction, Face to Face Communication - Tone of Voice, Body Language (Non-verbal communication), Verbal Communication, Physical Communication Communication Styles: Introduction, The Communication Styles Matrix with example for each -Direct Communication Style, Spirited Communication Style, Systematic Communication Style, Considerate Communication Style
III	Basic Listening Skills: Introduction, Self-Awareness, Active Listening, Becoming an Active Listener, Listening in Difficult Situations Effective Written Communication: Introduction, When and When Not to Use Written Communication - Complexity of the Topic, Amount of Discussion' Required, Shades of Meaning, Formal Communication Writing Effectively: Subject Lines, Put the Main Point First, Know Your Audience, Organization of the Message
IV	Interview Skills: Purpose of an interview, Do's and Dont's of an interview Giving Presentations: Dealing with Fears, Planning your Presentation, Structuring Your Presentation, Delivering Your Presentation, Techniques of Delivery
V	Group Discussion: Introduction, Communication skills in group discussion, Do's and Dont's of group discussion
Learning Out come	Students will develop knowledge, **skills**, and judgment around human **communication** that facilitate their ability to work collaboratively with others. Such **skills** could include **communication** competencies such as managing conflict, understanding small group processes, active listening, appropriate self-disclosure, etc.

Text Books:

1. Basic communication skills for Technology, Andreja. J. Ruther Ford, 2nd Edition, Pearson Education, 2011
2. Communication skills, Sanjay Kumar, Pushpalata, 1stEdition, Oxford Press, 2011

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

3. Organizational Behaviour, Stephen .P. Robbins, 1stEdition, Pearson, 2013
4. Brilliant- Communication skills, Gill Hasson, 1stEdition, Pearson Life, 2011
5. The Ace of Soft Skills: Attitude, Communication and Etiquette for success, Gopala Swamy Ramesh, 5thEdition, Pearson, 2013
6. Developing your influencing skills, Deborah Dalley, Lois Burton, Margaret, Green hall, 1st Edition Universe of Learning LTD, 2010
7. Communication skills for professionals, Konar nira, 2ndEdition, New arrivals -PHI, 2011
8. Personality development and soft skills, Barun K Mitra, 1stEdition, Oxford Press, 2011
9. Soft skill for everyone, Butter Field, 1st Edition, Cengage Learning india pvt.ltd, 2011
10. Soft skills and professional communication, Francis Peters SJ, 1stEdition, M Graw Hill Education, 2011
11. Effective communication, John Adair, 4thEdition, Pan Mac Millan,2009
12. Bringing out the best in people, Aubrey Daniels, 2ndEdition, Mc Graw Hill, 1999

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: II

Name of the Paper	Paper code	Theory		
Practical III	**BBT-204**	**Credit**	**Marks**	
		3	**Maximum**	**Minimum**
			100	**40**

Objective: Objective of this course is to provide detailed knowledge of anatomical structure of higher plants and animals

Unit	Contents (Practicals)
I	1. Angiosperms: Study of families as per theory syllabus including floral formula and floral diagram. 2. Study of aneuploidy: Down's, Klinefelter's and Turner's syndromes through photographs. 3. Photographs/Permanent Slides showing Translocation Ring, Laggards and Inversion Bridge. 4. Hybridization techniques - Emasculation, Bagging (video). 5. Induction of polyploidy conditions in plants (video).
II	1. Study of museum slides / specimens / models (Classification of animals up to orders) 1. Protochordata 2. Cyclostomata 3. Pisces 4. Amphibia 5. Reptilia 6. Aves 7. Mammalia 2. Histology: T.S. of Liver, Pancreas, Kidney, Stomach, Intestine, Lungs Artery, Vein, Bone T.S., Spinal cord.
Learning Out come	To understand detailed knowledge of anatomical structure of higher vertebrates To understand ostiology, embryology, dissection and study of museum slides

Text Books:

1. Sivarajan, V.V.; Introduction to the principles of plant taxonomy; 2nd edition; Cambridge:Cambridge University Press,1991.
2. Verma S. K. Textbook of Plant physiology and Biochemistry ; 4th editon; S. Chand & Company Ltd, 2003.
3. Ganguly A.K., Kumar N.C.; General Botany, Vol II, Part II: Introduction to plant physiology; 7thEdition; Emkay Publications, 1990.
4. Futehally Laeeq; Gardens, 2ndEdition; New Delhi: National Book Trust, 1990.
5. Raghavan, V.; Developmental Biology of Flowering plants; New York: Springer -Verlag, 1999.
6. VasishtaP.C.,; Botany for degree students-Vol. V, Gymnosperm; Delhi: S. Chand, 1983.
7. Dutta, A.C.; A Class-book of Botany; 15th edition; Calcutta: Oxford University Press, 1976.
8. Dubey, R.C.; Text Book of Biotechnology; S.Chand Ltd, 20
9. R.L.Kotpal :Modern text book of biology Vertebrate (Rastogi Publication, Meerut).

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

10. Young J. Z. Life of Vertebrates. Oxford Univ Press. 3rd edn. 2006.
11. Ayyar E . A Manual of Zoology. Vol II. S. Vishwanathan. 2009.
12. Boulenger E. G. Natural History of World Animals. Vinod Publishers. 2003.
13. Karday Kenneth. Vertebrates. Mc Graw Hill. 2005.
14. Parker & Hasewell. A Text Book of Zoology – Vol II. Tata Mc Graw Hill. 2003.
15. R.L.Kotpal :Modern text book of biology Vertebrate (Rastogi Publication, Meerut).
16. Urf Abdul Jamal. Birds of India. A literary Anthology. 2008.
17. Text Book of Animal Husbandry –G. C. Banergee (1999), 9thed Oxford and IBH Publishers, New Delhi.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: II

Name of the Paper	Paper code	Theory		
Practical IV	BBT-205	Credit	Marks	
		2	Maximum	Minimum
			100	40

Objective: To provide detailed knowledge of Calibration of Thermometer, Determination of melting point, Distillation, Qualitative Analysis and Crystallization:

Unit	Contents (Practicals)
I	1. Calibration of Thermometer: 2. Determination of melting point: 3. Determination of boiling point: 4. Mixed melting point determination:
II	1. Distillation: Simple distillation of ethanol-water mixture using water condenser, 2. Crystallization: Concept of induction of crystallization,
Learning Out come	To understand detailed knowledge of melting point, Distillation and Qualitative Analysis

Text Books:

1. F.G.Mann, B.C. Saunders, *Practical Organic Chemistry*, 4th Ed., Orient Longmann, 2007.
2. Arun Bahl And B.S.Bahl A Text Book Of Organic Chemistry, 20th Edition, New Delhi: S.Chand&Company, 2011.
3. R. T Morrison, and R. N. Boyd. Organic Chemistry. 7th ed. New Delhi: Prentice-Hall of India (P) Ltd., 2000.
4. L Finar, Organic Chemistry Vol. II, 5th ed. New Delhi: ELBS and Longman Ltd., reprint 2008.
5. P. A Sykes Guide Book to Mechanism in Organic Chemistry, 6th Edition, New Delhi: pearson publishers., 2003.
6. Ege, Seyhan N. Organic Chemistry – Structure and Reactivity. 5th ed. Delhi: AITBS publishers, 2003.
7. Y. Bruice, Paula Organic Chemistry. 6th ed. New Jersey: Prentice-Hall International Inc, 2010

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology Syllabus

Semester: III

Name of the Paper	Paper code	Theory		
General Microbiology	BBT-301	Credit	Marks	
			Maximum	Minimum
		4	100	40

Objective: The objective of this course is to develop the understanding of basics of microbiology, classification of microbes, control of microorganisms, microbial growth, metabolism and reproduction, microorganism present in water and food and their significance.

Unit	Contents (Theory)
I	**Fundamentals, History and Evolution of Microbiology:** Contribution of scientist, Spontaneous generation, germ theory of disease. Classification of bacteria – Haeckel's three kingdom concept, Whittaker's five kingdom concept, three domain concept of Carl Woes' and Bergey's Manual classification. **Microbial Diversity:** Morphology and cell structure of major groups of microorganisms eg. Bacteria, Cynobacteria, Fungi, Mycoplasma, Protozoa and Unique features of viruses.
II	**Microbial growth:** Growth curve, Generation time, synchronous, batch and continuous culture - chemostat and thermostat, measurement of growth – direct microscopic count, turbidometery and factors affecting growth of bacteria.
III	**Cultivation and Maintenance of microorganisms:** Nutritional categories of micro-organisms, Streak plate technique, Lawn culture, Stroke culture, Stab culture, Pour plate method, Liquid culture and Anaerobic culture methods. Replica-plating techniques for isolation of mutants. **Identification microorganisms:** Morphology, Staining, Motility, Biochemical test, Pathogenicity, Antigenic structure and Genetic identification.
IV	**Sterilization and disinfection** - Principles and methods of sterilization. Physical methods - autoclave, hot-air oven, pressure cooker, laminar air flow, filter sterilization. Radiation methods - UV rays, gamma rays, ultrasonic methods. Chemical methods - Use of alcohols, aldehydes, fumigants, phenols, halogens and hypochlorites. **Control of Microorganism:** Antimicrobial agents, Sulfa drugs, Broad Spectrum antibiotics, anti fungal antibiotics.
V	**Microbial Metabolism:** Glycolysis, Krebs Cycle. Pentose Phosphate pathway, Entner-Doudoroff pathway and Glyoxalate pathway. **Bacterial Reproduction:** Transformation, Transduction and Conjugation. Endospores and sporulation in bacteria.
Learning Out come	After the successful course completion, learners will develop following attributes: Know the basics of microbiology; Have knowledge of the general classification of microbes; Understand basics of Control of Microorganisms, growth and metabolism; Understand importance of microorganism.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

Text Books:

1) Willey JM, Sherwood LM, and Woolverton CJ. (2008). Prescott, Harley and Klein's Microbiology. 7th edition. McGraw Hill Higher Education.
2) Stanier RY, Ingraham JL, Wheelis ML, and Painter PR. (2005). General Microbiology. 5th edition. McMillan.
3) Pelczar MJ, Chan ECS and Krieg NR. (1993). Microbiology. 5th edition. McGraw Hill Book Company.
4) Alexopoulos CJ, Mims CW, and Blackwell M. (1996). Introductory Mycology. 4 th edition. John and Sons, Inc.
5) Jay JM, Loessner MJ and Golden DA. (2005). Modern Food Microbiology. 7thedition, CBS Publishers and Distributors, Delhi, India.
6) Kumar HD. (1990). Introductory Phycology. 2nd edition. Affiliated East Western Press.
7) Madigan MT, Martinko JM and Parker J. (2009). Brock Biology of Microorganisms. 12th edition. Pearson/Benjamin Cummings.
8) Tortora GJ, Funke BR, and Case CL. (2008). Microbiology: An Introduction. 9 th edition. Pearson Education.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology Syllabus

Semester: III

Name of the Paper	Paper code	Theory		
Immunology	BBT-302	Credit	Marks	
			Maximum	Minimum
		4	100	40

Objective: To facilitate the students to understand the basics of immunology and become familiar with immunization practices and their importance.

Unit	Contents (Theory)
I	**History and scope of immunology, Overview of the immune system** – Immunity, types, factors, mechanisms and Immune response: Innate immunity and characteristics of adaptive immune responses, Hematopoiesis.
II	**Anatomical organization of Immune System:** Primary Lymphoid Organs, Secondary Lymphoid Organs, Cell of immune system: Mononuclear cells and granulocyte, Antigen presenting cells, lymphocytes and their subsets, Lymphocyte surface molecule.
III	**Antigen:** Properties, types and determinants of antigenicity, what makes a good antigen, foreignness. Heptanes: Factor affecting immunogenicity, Super antigen. **Antibody:** Nature, Types and Structure of Immunoglobulin and Their Functions. Antigen-Antibody interaction avidity and affinity. Development and differentiation of B and T lymphocytes – antigen recongnition of B & T cells.
IV	**Humoral and cell mediated immune response:** Structure of MHC class I, II & III antigens and their mode of antigen presentation, MHC restriction; Dendritic cell and antigen processing, cytokines. **Complement system:** Components, Classical and alternate pathways of complement activation,
V	**Vaccines and Immunodiagnostics:** Adjuvants , DNA vaccines, recombinant vaccines, bacterial vaccines, viral vaccines, vaccines to other infectious agents, passive & active immunization. Introduction to immunodiagnostics – RIA, ELISA.
Learning Out come	After completion of the course the students will know the history and scope of Immunology and understand the types of Immunity and the cell and organs of immune responses and their functions.

Text Books:

1. Kuby Immunology, Richard A.Goldsby, Thomas J.Kindt, Barbara A Osborne, 2000, 4th Edi. W.H. Freeman & Co.
2. Immunology: An Introduction, lan Tizard, 1995, Thomson Learning.
3. Hybridoma technology in the Biosciences and Medicine – Timothy Springer (1985) Plenum Press.
4. Essentials of Infectious Diseases by Lionel A. Mandell, Edward D. Ralph (1985) Black Well Science Inc.
5. Vaccines 86 : New approaches to immunization : Developing vaccines against Parasitic, bacterial & viral diseases, Robert M. Chanock, Fred Brown, Richard A. Lerner, 1986, Cold Spring Lab. Press

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology Syllabus

Semester: III

Name of the Paper	Paper code	Theory		
		Credit	Marks	
Fundamentals of Biochemistry	BBT-303	4	Maximum	Minimum
			100	40

Objective: to understand the role of bioorganic molecule that forms the basic structure and function in a living organism

Unit	Contents (Theory)
I	**Carbohydrates:** Structure, Nomenclature, classification and properties of Monosaccharides, Disaccharides, and Polysaccharides (starch, glycogen, peptidoglycan, cellulose). Ringed and closed structures. Stereoisomerism-Optical isomerism .Chirality, Dextro and laevo rotatory, Carbohydrates and its derivatives.
II	**Amino acids and Proteins:** Structure, nomeculature, classification and properties of amino acids, Structures and functions of proteins (Hb and Myoglobin). Acid base chemistry of amino acids. Primary, secondary, tertiary and quarternary structure of proteins. Holoenzyme apoenzyme and coenzyme and cofactors. Isomerism and types. Dihedral angles, Ramachandran plot. Hydropathy plot, Models of protein folding. Chaperone assisted protein folding; Amyloid disease, Dnak and DnaJ mechanism of action; Circular dichroism.
III	**Lipids:** Structure, nomeculature classification and properties of Fatty acids, triglycerides, oil and wax, Mono and polyunsaturated fatty acids. Glycerolipid, Sphingolipid and their derivatives, phospholipids, lipoproteins, Cholesterol, steroid and related molecules
IV	**Nucleic acids:** Purines and pyrimidines, nucleosides, nucleotides, deoxy and ribose sugars, polynucleotides, DNA, types and function, RNA types and functions. Derivatives of purine and pyrimidines, Forces stabilizing nucleic acid structure. Stability of nucleic acid. Temperature curve and Nucleic acid, Tm. Ribosome and its types.
V	**Vitamins, nutrition and minerals:** Water and fat soluble vitamins, chemical composition, structure and function, Mechanism of synthesis, digestion, absorption, excretion and related disorders/deficiency. Mineral Metabolism and Abnormalities. Energy Metabolism and Nutrition. Detoxification and Biotransformation of Xenobiotics.
Learning Out come	The student will be versed of cellular processes and function that takes place with the role of these biomolecules in normal and diseased state of an individual.

Text Books:

1. Principles of Biochemistry- AlbertL. Lehninger CBS Publishers & Distributors
2. Biochemistry – Lubert stryer Freeman International Edition.
3. Biochemistry – Keshav Trehan Wiley Eastern Publications
4. Fundamentals of Bochemistry-J.L.Jain S.Chand and Company
5. Textbook of biochemistry for medical students 9th edition.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology Syllabus

Semester: III

Name of the Paper	Paper code	Theory		
		Credit	Marks	
Enzymology	BBT-304	4	Maximum	Minimum
			100	40

Objective: The purpose of design of the course is to understand the biological catalyst that operates and catalyzes the molecular and chemical reaction in the body The reactions help to carry out daily energy yielding, inflammation and wound healing processes in the body

Unit	Contents (Theory)
I	**Introduction** – IUBMB enzyme classification (specific examples), enzyme specificity, methods for isolation, purification and characterization of enzymes, tests for homogeneity of enzyme preparation.
II	**Kinetics of enzyme action** – Concept of ES complex, active site, specificity, derivation of Michaelis-Menten equation for uni- substrate reactions. Different plots for the determination of Km & Vmax and their physiological significances. Importance of Kcat/Km. Kinetics of zero & first order reactions. Significance and evaluation of energy of activation. Michaelis – pH functions and their significance
III	**Enzyme Inhibition-** Competitive, non-competitive & uncompetitive inhibitions; Lineveaver-Burk Vmax and Km and Kcat values. Reversible and irreversible inhibition. Line ar-mixed type inhibitions. Suicide inhibitor.
IV	**Mechanism of Enzyme Action** – Acid-base catalysis, covalent catalysis, proximity, orientation effect. Strain and distortion theory. Mechanism of action of chymotrypsin, lysozyme, glyceraldehyde 3-phosphate dehydrogenase. Role of co-factors and co-enzymes.
V	**Enzyme Regulation** – General mechanisms of enzyme regulation, product inhibition. Reversible (glutamine synthase & phosphorylase) and irreversible (proteases) covalent modification of enzymes Feedback inhibition and feed forward stimulation. Allosteric enzymes, qualitative description of "concerted" & "sequential" models for allosteric enzymes, Hill and Scatchard plots.
Learning Out come	On completion of the course student would know the details of catalysis by the enzymes. The student will also be able to understand the subtle and vital role of these enzyme in normal and disease condition.

Text Books:

1. Biochemistry, Lubert Stryer, 6th Edition, WH Freeman, 2006.
2. Harper's illustrated Biochemistry by Robert K. Murray, David A Bender, Kathleen M.Botham, Peter J. Kennelly, Victor W. Rodwell, P. Anthony Weil. 28th Edition, McGrawHill, 2009.
3. Biochemistry, Donald Voet and Judith Voet, 2nd Edition, Publisher: John Wiley and Sons, 1995.
4. Structure and Mechansim in protein Science. A guide enzyme catalysis and protein folding Allan Fersht.
5. Biochemistry by Mary K.Campbell & Shawn O.Farrell, 5th Edition, Cenage Learning, 2005.
6. Fundamentals of Enzymology Nicholas Price and Lewis Stevens Oxford University Press 1999

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

7. Fundamentals of Enzyme Kinetics Athel Cornish-Bowden Portland Press 2004
8. Practical Enzymology Hans Bisswanger Wiley–VCH 2004
9. The Organic Chemistry of Enzyme-catalyzed Reactions Richard B. Silverman Academic Press 2002

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology Syllabus

Semester: III

Paper Code	Paper Name	Credit	Theory	No Practical
Entrepreneurship Development	FC-301	4	Maximum Marks - 70	

Objectives: The objective of this course is to equip students with basic skills in starting their own enterprises.

Unit	Contents
I	Introduction to Entrepreneurship: What is Entrepreneurship? Concepts, Functions, How has Entrepreneurship changed the world? Entrepreneur: Who is an Entrepreneur? Entrepreneurial DNA, Traits and Gap Analysis.
II	Entrepreneurship on Campus (E-cell), What are E-Cells? , Why join an E-Cell? , Introduction to Entrepreneurial styles, concepts, behavior, Innovation and Entrepreneur. Project Identification, Project Classification; Project Formulation, Elements of Project Formulation.
III	Entrepreneurial Success Stories, Creative and Design Thinking; Communication, Barriers of communication, Body Language, Training Preparation and Development Programs
IV	Personal Selling: Show and Tell, Institutional Finance to Entrepreneurs: Commercial Banks, Financing Institutions (IDBI, IFCI, LIC, UTI, SFC, SIDC, and SIDBI).
V	Risk-taking and Resilience, Institutional Support to Entrepreneurs : National Small Industry Corporation Ltd., Small Industries Development Organization, Small Industries Service Institutes, District Industries Centers (DICs), Industrial Estates, Khadi & Village Industries Commission (KVIC).
Learning out come	The students will be able to acquire basic knowledge to become an entrepreneur of his/her own choice.

Test book:

1. Entrepreneurship Development, S. Chand & Sons.
2. S. S. Khanka. Enterpreneurial Development, New Delhi, S. Chand and Sons, 2nd Ed. 2000.
3. Aruna K. Dr., Entrepreneurship Management, Vikas Publication House, New Delhi.
4. Gupta CB & Srinivasan NP, Entrepreneurial Development, Sultan Chand & Sons, New Delhi.
5. Vasant Desai, Dynamics of Entrepreneurial Development and Management, Bombay, Himalaya Publishing House, 4th Ed. 2000.
6. Entrepreneurship Development – Centre for Research and Industrial Staff Performance, New Delhi, Tata McGraw Hill, 1998.
7. Thomas W. Zimmer and Norman M. Scarborough, Entrepreneurship and New Venture Formation, New Delhi, Prentice Hall of India, 1996
8. Hirsch, Entrepreneurship (Special Indian Edition), 6th Edition, McGraw-Hill Education

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology Syllabus

Semester: III

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical V	BBT-305		Maximum	Minimum
		3	100	40

Objective: The objective of this course is to develop practical skill of microbiology for their wide application. To provide demonstrations and hands on training to student regarding handling of saprophytic and pathogenic microorganism.

Unit	Contents (Practical)
I	**General Microbiology** 1. Preparation of media & sterilization methods. 2. Isolation of bacteria from soil. 3. Cultural and morphological characteristics of Bacteria and Fungi 4. Staining methods: simple staining, Gram staining, spore staining, and negative staining. 5. Testing motility of bacteria. 6. Micrometry. 7. Enumeration of microorganism in decomposing organic matter. 8. Enumeration of microorganism present in water. 9. Isolation and identification of Coliforms present in sewage sample. 10. MPN test for testing quality of water. 11. Identification of fungi using Lactophenol cotton blue staining.
II	**Immunology** 1. Immune cells –observation by staining and cell counting 2. Separation of peripheral blood mononuclear cells using Ficoll histopaque 3. Blood grouping –Determination of blood groups 4. Agglutination tests and immunological precipitation 5. Demonstration of Neutralization and complement fixation reaction 6. Demonstration of Radio immunoassay and ELISA. 7. Demonstration of Immuno-electrophoresis.
Learning Outcome	• Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively • Demonstrate practical skills in microscopy and their handling techniques and staining procedures. • Comprehend the various methods for culturing, purifying and identification of unknown microorganisms. • Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes.

Text Books:

1. A Textbook of Microbiology – P. Chakraborthy, New central Book agency Pvt. Ltd, calcutta
2. Modern concept of Microbiology – D D Kumar, S Kumar; Vikas Publishing House

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

Pvt. Ltd. New mDelhi

3. Introduction to Genetic Engineering & Biotechnology- A. J. Nair; Jones & Bartlett Publishers, Boston,USA.
4. Introduction to Microbiology- J Heritage, E G V Evans, R A Killington; Cambridge University Press.
5. Microbiology – L M Prescott, Brown Publishers, Australia
6. Principles of Biotechnology – A. J. Nair Laxmi Publications New Delhi
7. Advances in Microbiology – J P Tewari, T N Lakhanpal, I Singh, R Gupta and B P Chanola; A P H Publishing Corporation, New Delhi.
8. Microbiology: Principles and Explorations – Jacquelyn G. Black. Prentice Hall, New Jersey.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology Syllabus

Semester: III

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical VI	BBT-306		Maximum	Minimum
		2	100	40

Objective: The course is intended to give the students an idea about how cellular components perceive the physiological signals and responds. The subject takes students to the cellular level where that learn to work and experiment with biological catalysts that are responsible for sustenance of cellular process.

Unit	Contents (Practical)
I	**Fundamentals of Biochemistry** 1. Tests for Carbohydrates – Benedicts, Barfoeds, Molish, Inversion test Selwinoff's Osazone test , Test for reducing and non reducing sugar 2. Test for Amino acid and proteins Biuret test Precitpitation test, Half and full saturation test, Acid Precipitation test TCA/SSA/Picric acid. Precipitation by organic and heavy Color Reactions of Proteins. 3. Test for Fats and Lipids –Solubility test Acrolein Test , emulsification Saponification 4. Test for Nucleic Acid – Absorbance for DNA and RNA values demonstration of EtBr run gel and quantification by absorbance.
II	**Enzymology** 1. Preparation of buffers. 2. Principles of Colorimetry: • Verification of Beer's law, estimation of Protein • To study relation between absorbance and % transmission. 3. The effect of pH, temperature on the activity of salivary amylase optimum conditions. 4. Determination of – Km value, Vmax value. 5. Effect of Inhibitor (Inorganic phosphate) on the enzyme activity. 6. Estimation of blood glucose by glucose oxidase method. 7. Separation of Amino acids by paper chromatography.
Learning out come	The students can apply their knowledge of changes or losses in physiological function as exemplified in many diseases. To understand the nature functions of biological catalysts and their regulation for optimum working of a body

Text Books:

1. G.J. Tortora and B.H. Derrickson, Principles of Anatomy and Physiology, 9th edition, John Wiley & Sons, Inc, 2009.
2. E.P. Widmaier, H. Raff and K.T. Vander, Human Physiology, 11th edition, McGraw Hill, 2008.
3. A.C. Guyton and J.E. Hall, Textbook of Medical Physiology, 12th edition, Harcourt Asia Pvt. Ltd/ W.B. Saunders Company, 2011.
4. J. M. Berg, J. L. Tymoczko and L. Stryer, Biochemistry, 6th edition, W.H Freeman and Co.,

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

2006.

5. D. L. Nelson, M. M. Cox and A.L. Lehninger, Principles of Biochemistry, 4th edition, W.H. Freeman and Co, 2009.
6. R.K. Murray, D.K. Granner, P.A. Mayes, and V.W. Rodwell, Harper's Illustrated Biochemistry, 28th edition, Lange Medical Books/Mc Graw3Hill, 2009.
7. Practical Enzymology Hans Bisswanger Wiley–VCH 2004

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: IV

Name of the Paper	Paper code	Theory		
Bioenergetics and Metabolism	BBT--401	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: The objective of this course is to develop the understanding of characteristics of Enzymes, enzyme inhibition and kinetics, carbohydrate metabolism, significance of glycolysis and ETC, untreated diabetes, lipid metabolism and production of ketone bodies, protein metabolism, role of urea cycle and errors of protein metabolism, biosynthesis and degradation of purine and pyrimidine

Unit	Contents (Theory)
I	**Carbohydrate Metabolism**: Transport of glucose into cell, glycolysis, feeder pathways, tricarboxylic acid cycle, gluconeogenesis and glycogen metabolism. Pentose phosphate pathway, uronic acid pathway, metabolism of other sugars, sorbitol pathway and regulation of blood glucose level. Electron transport chain, oxidative phosphorylation, mitochondrial membrane transporters, enzymes participating in biological oxidation and mictochondrial myopathies.
II	**Amino Acid Metabolism**: Nitrogen metabolism, catabolism of amino group nitrogen, catabolism of carbon skeleton of amino acids, biosynthesis of amino acids, Amino acids as precursors of specialized products.
III	**Lipid Metabolism**: β-oxidation, other oxidative pathways, ketone body production and metabolism, de novo synthesis of fatty acids, chain elongation and desaturase systems, metabolism of triacylglycerol, adipose tissue metabolism, metabolism of complex lipids. Lipoproteins, metabolism of cholesterol atherosclerosis, prostaglandins.
IV	**Nucleotide Metabolism**: nucleotide: chemistry and biological significance, purine metabolism, pyrimidine metabolism.
V	**Integration of Metabolism**: Hormonal regulation of major metabolic pathways, metabolic interconnections and organ specialization, metabolic adaptation in three fasting starvation stages, diabetes mellitus, metabolism of xenobiotics, alcohol metabolism.
Learning Out come	After the successful course completion, learners will understand the characteristic of Enzymes, enzyme inhibition and kinetics and Know the basics of carbohydrate metabolism, significance of glycolysis and ETC, untreated diabetes, Lipid metabolism and production of ketone bodies, Protein metabolism, role of urea cycle and errors of protein metabolism and biosynthesis and degradation of purine and pyrimidine

Text Books:

1. Lehninger Principles of Biochemistry, 4th Edition by David L. Nelson David L. Nelson Michael M. Cox Publisher: W. H. Freeman; Fourth Edition
2. Biochemistry – Lubert stryer Freeman International Edition.
3. Biochemistry – Keshav Trehan Wiley Eastern Publications
4. Fundamentals of Biochemistry-J.L.Jain S.Chand and Company

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

5. Fundamental of Biochemistry – Dr.A.C.Deb
6. The Biochemistry of Nucleic acid – Tenth Edition-Roger L.P.Adams, John T. Knowler and David P.Leader, Chapman and Hall Publications
7. Standard Methods of Biochemical Analysis, S. K. Thimmaiah (Ed), Kalyani Publishers, Ludhiana.
8. Text Book of Biochemistry, 5th edition by DM Vasudevan and Sreekumar S, JAYPEE Publishers, New Delhi

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: IV

Name of the Paper	Paper code	Theory		
		Credit	Marks	
Genetics	BBT- 402		Maximum	Minimum
		4	100	40

Objective: This course is giving a thorough knowledge in classical genetics, which is the base of all genetica studies –basic as well as applied science including genetic engineering and gene therapy. This will prepare the students to pursue higher studies in genetics and molecular biology

Unit	Contents (Theory)
I	**History, Scope of genetics:** Mendelian law of inheritance, Variations of Mendelian analysis, Linkage and crossing over, Linkage mapping, Sex determination and Sex linked inheritance, Gene Mapping.
II	**Microbial Genetics**: Gene transfer mechanism in microbe transformation, transduction, conjugation and recombination, Horizontal gene transfer, genetics of model organism- Neurospora, Yeast and E.coli.
III	**Mutation**: Types of mutation, molecular mechanism of mutation, chromosomal mutations changes - changes in the structure and number of Chromosomes, polyploidy, types of DNA repair.
IV	**Gene concept**: Classical concept, molecular concept of the gene. Jumping genes, Split genes, Pseudo genes, overlapping gene, repeated gene, natural gene amplification. Molecular basis of cancer - oncogene, tumor suppressor genes.
V	**Extra chromosomal DNA and Gene regulation**: Lytic and Lysogenic cycles, IS, and Tn elements in bacteria, bacterial plasmids, other Extra chromosomal DNA, gene regulation during development, *E. coil* recombination system.
Learning Out come	After the successful course completion, learners will develop following attributes: • Learn about basic genetics, epistasis, Concepts of allosomes and autosomes, Linkage and Crossing Over. • Learn about Chromosomes, Chromosomal Variations, Chromosome mapping, structural numerical aberrations, genomes and human Genetics

Text Books:

1. Aggarwal SK (2009) Foundation Course in Biology, 2nd Edition, Ane Books Pvt. Ltd
2. Veer Bala Rastogi (2008), Fundamentals of Molecular Biology Ane Books Pvt. Ltd
3. Taylor (2008) Biological Sciences. Cambridge University Press India Pvt. Ltd
4. Nicholl T (2007) An Introduction to Genetic Engineering, Cambridge University Press India Pvt. Ltd
5. Durbin (2007) Biological Sequence Analysis. Cambridge University Press India Pvt. Ltd
6. John Ringo (2004) Fundamental Genetics. Cambridge University Press India Pvt. Ltd.
7. Dobzhansky, B (1961) Genetic and origin of species, Columbia university Press New York
8. Gardner,E.J and Snustad,D.P(1984) Principles of Genetics. John Wiley, New York.
9. Gupta, P. K. Genetics, Rastogi Publications.
10. Gupta P. K. – Genetics (Rastogi publications).
11. Sharma, A.K and Sharma a (1980) Chromosome technique Theory and practice, Aditya Books, New York
12. Swanson, C.P (1957) Cytology and Genetics. Englewood cliffs, NewYork.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: IV

Name of the Paper	Paper code	Theory		
Molecular Biology	BBT--403	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: Molecular biology is basis of modern biology and biotechnology. This course imparts a very essential foundation for the proper understanding of life at molecular level, which is essential for further studies related to genetic engineering, immunology and other modern applied aspects of biology.

Unit	Contents (Theory)
I	**Nucleic Acid Structure:** DNA as genetic material, Chemical structure and base composition of nucleic acids, Double helical structures. Different forms of DNA, stabilizing nucleic acid structure. DNA Supercoiling. Properties of DNA, Renaturation and denaturation of DNA - Tm and Cot curves. RNA – structure, types and function.
II	**DNA Replication:** General features of DNA replication, Enzymes and proteins of DNA replication. Models of replication – Conservative, semi-conservative and dispersive. Regulations of DNA replication, Prokaryotic and eukaryotic replication mechanism.
III	**Transcription:** Mechanism of transcription in prokaryotes and eukaryotes. RNA polymerases and promoters. Post-transcriptional processing of tRNA, rRNA and mRNA (5' capping, 3' polyadenylation and splicing). RNA as an enzyme-Ribozyme.
IV	**Translation**: Genetic code, Deciphering of genetic code, Code in mitochondria, Translational mechanism in prokaryotes and eukaryotes, Post translational modifications (acetylation, glycosylation, phosphorylation etc.), transport and inhibitors of translation.
V	**Regulation of Gene Expression in Prokaryotes and Eukaryotes**: Operon concept, Positive and negative control, Structure and regulation of lac, trp and arb operon and regulation of gene expression in eukaryotes.
Learning Out come	After the successful course completion, learners will develop following attributes to the concept of gene. Understand DNA replication and regulation in prokaryotes and eukaryotes

Text Books:

1. Howe.C. (1995) Gene Cloning and manipulation, Cambridge University Press, USA
2. Lewin, B., Gene VI New York, Oxford University Press.
3. Sambrooket al (2000) Molecular cloning Volumes I, II, & III Cold spring Harbor Laboratory Press, New York, USA
4. Walker J.M. and Gingold, E.B. (1983) Molecular Biology & Biotechnology (Indian Edition) Royal Society of Chemistry U.K
5. Karp.G (2002) Cell & Molecular Biology, 3rd Edition, John Wiley & Sons; INC.

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: IV

Paper Name	Paper Code	Credit	Theory	No Practical
Soft Skills	FC-401	4	Maximum Marks - 70	

Objectives: To inculcate good manners and etiquettes and to make the students more flexible and adoptable to change before entering the Corporate World.

Unit	Contents
I	Introduction to Soft Skills-Soft skills, its importance in today's world; Art of Introduction; Perception & personalities. (To be taught with world & national leaders from politics & business world), grooming, personal appearance; Diversity, inclusiveness, gender sensitization, taking initiative.
II	Communication skills- Listening & its importance; Eye contact, courtesy, flexibility; Important non verbal cues to increase likeability; Public Speaking, handling criticism; Professionalism, work ethics, punctuality, willingness to learn,
III	Emotional Quotient & Emotional Intelligence: Meaning, importance, history; 5 elements of EQ; Testing your EQ and improving upon it; Advantages of having a high EQ.
IV	Managerial skills: Stress Management; Time management; Problem solving & critical thinking; Team spirit, positive attitude; Networking.
V	Practical based exercises & assessments.
Learning out come	The students will be able to acquire good manners and etiquettes. The students will be more flexible and adoptable to changes in the society.

Test book:

1. Personality Development by Rajiv K. Mishra, Rupa & Co.
2. Presence: Bringing your boldest self to your biggest challenges, Amy Cuddy, Little Brown & Co.
3. How to Win Friends & Influence people, Dale Carnegie.
4. The 7 Habits of Highly Effective People, Stephen Covey.

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: IV

Paper Name	Paper Code	Credit	Theory	No Practical
Research Methodology	FC-402	4	Maximum Marks - 70	

Objectives: The objective of this paper is to familiarize the student with the basic concepts of research methodology for applications in research.

Unit	Contents
I	Introduction to Research Methodology-Meaning, definition, objectives and importance of research, Types of research.
II	Research Process: Steps, Criteria of good research, Definition and Selection of research problem.
III	Research Design- Meaning, Characteristics of research design, Need for research design. Types of research design.
IV	Sampling Design: Meaning of sampling, Steps in Sample design, characteristics of a good sample design and types of sample design-probability & non-probability sampling. Data Collection-Meaning, Types & Methods of data collection – Primary & Secondary data.
V	Interpretation & Report Writing- meaning of Interpretation. Report writing-significance, different steps & layout of research report.
Learning out come	The students will be able to acquire basic knowledge for conducting research and will be more familiar with research methodology protocols and methods.

Test book:

1. C. R. Kothari: Research Methodology, New Age International.
2. C. R. Reddy: Research Methodology in Social Science.
3. Shashi K. Gupta: Research Methods.
4. S. P. Gupta: Statistical Analysis.
5. Shantanu Kumar Sahu: Research Methodology, SBPD Publications, Agra.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: IV

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical VII	BBT-404	3	Maximum	Minimum
			100	40

Objective: The course will impart a basic understanding about the concept of the biochemical basis of phenomenon life, metabolic reaction of cells that are essential for the sustenance of life and genetics. It specially focuses on the development of analytical skills in biochemistry by giving more importance to the laboratory experiments of biochemistry and genetics.

Unit	Contents (Practical)
I	**Bioenergetics and Metabolism** 1. To study activity of any enzyme under optimum conditions. 2. To study the effect of pH, temperature on the activity of salivary amylase enzyme. 3. Determination of - pH optima, temperature optima, Km value, Vmax value, Effect of inhibitor (Inorganic phosphate) on the enzyme activity. 4. Estimation of blood glucose by glucose oxidase method. 5. Principles of Colorimetry: (i) Verification of Beer's law, estimation of protein. (ii) To study relation between absorbance and % transmission. 6. Preparation of buffers. 7. Separation of Amino acids by paper chromatography. 8. Qualitative tests for Carbohydrates, lipids and proteins
II	**Genetics** 1. Permanent and temporary mount of mitosis. 2. Permanent and temporary mount of meiosis. 3. Mendelian deviations in dihybrid crosses 4. Demonstration of - Barr Body -Rhoeo translocation. 5. Karyotyping with the help of photographs 6. Pedigree charts of some common characters like blood group, color blindness and PTC tasting. 7. Study of polyploidy in onion root tip by colchicine treatment.
Learning out come	After the successful course completion, learners will develop hands-on skills in preparation of Buffers and Solutions. Will develop knowledge of Titrimetic and Volumetric Estimations and handling of basic Analytical Techniques like Chromatography and Colorimetry. The course impart knowledge of genetics and its role in cell development.

Text Books:

1. Principles and Techniques of Practical Biochemistry by Keith M. Wilson, John M. Walker Cambridge University Press
2. A Biologist's Guide to Principles and Techniques of Practical Biochemistry by BryanL.Williams, Keith Wilson Hodder Education
3. Experimental Biochemistry: A Student Companion, Beedu Sasidhar Rao & Vijay Deshpande (ed), I.K International Pvt. LTD, New Delhi

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

4. Introductory Practical biochemistry, S. K. Sawhney & Randhir Singh (eds) Narosa Publishing House, New Delhi
5. Aggarwal SK (2009) Foundation Course in Biology, 2nd Edition, Ane Books Pvt. Ltd
6. John Ringo (2004) Fundamental Genetics. Cambridge University Press India Pvt. Ltd.
7. Dobzhansky, B (1961) Genetic and origin of species, Columbia university Press New York

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: IV

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical VIII	BBT-405	2	Maximum	Minimum
			100	40

Objective: The objective of this course is to develop the understanding of concept of buffer, genomic and plamid DNA isolation, and enzymatic digestion of DNA.

Unit	Contents (Practical)
I	**Molecular Biology** 1. Preparation of solutions and buffers for DNA isolation 2. Isolation of Genomic DNA from bacteria cell 3. Isolation of Genomic DNA from plant tissue. 4. Isolation of Genomic DNA from animal tissue. 5. Examination of the purity of DNA by agarose gel electrophoresis. 6. Quantification of DNA by UV-spectrophotometer 7. Isolation and purification of plasmid DNA 8. Agarose gel analysis of plasmid DNA
II	1. Preparation of restriction enzyme digests of DNA samples 2. Demonstration of AMES test or reverse mutation for carcinogenicity 3. Competent cell preparation, transformation and selection.
Learning out come	After the successful course completion, learners will develop knowledge and skill of the importance of buffer and its preparation, isolation genomic DNA from different sources and it quantification and will develop ability to conduct other molecular experiments.

Text Books:

1. Molecular Biology of the gene – Watson, Baker, Bell Gann, Lewinw, Losick; Pearson Education Pvt.Ltd, New Delhi
2. Introduction to Molecular biology- P. Paolella; Mc Graw Hill, New York
3. PCR 3 - Practical Approach – C. Simon Hearington & John J O'Leary; Oxford, New York
4. Essential molecular Biology- A practical Approach, T A Brown; Oxford, New York

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: V

Name of the Paper	Paper code	Theory		
Recombinant DNA Technology	BBT--501	Credit	Marks	
			Maximum	Minimum
		4	100	40

Objective: To facilitate the students to understand the basics techniques in rDNA technology and become familiar with basic techniques of vectors & its biology. The course also Updates the knowledge in basic DNA cloning methods & their applications thus enabling their knowledge in techniques of hybridization.

Unit	Contents (Theory)
I	**The recombinant DNA Technology:** General concept and principle of cloning, Historical Background. Enzymes: Nucleases and restriction endonucleases-properties and types, polymerase, terminal deoxynucleotidyl transferase, poly A polymerase, Linkers, adaptors and homopolymer tailing.
II	**Prokaryotic host- vector system:** Characteristics of *E.coli* as host; vectors for cloning in E.coli. (plasmid pBr322, pUC, bacteriophage- EMBL) Design and characteristics of expression vectors for cloning in prokaryotes and factors that affect expression. Cloning in Yeast: Properties of yeast as host for cloning. Mechanism of DNA transfer. Methods of introduction of foreign DNA in animal system.
III	**Methods for Constructing rDNA and cloning:** Inserts; vector insert ligation; infection, transferring and cloning, Methods for screening and selection of recombinant clones, DNA Libraries: types, advantages and disadvantages of different types of libraries; Different methods for constructing genomic and full length cDNA libraries.
IV	**Principles and applications of Blotting techniques:** Southern, Northern, Western and Eastern Blot; Polymerase Chain reaction and types (multiplex, nested, RT, real time, touchdown PCR, hot start PCR, colony PCR).
V	**DNA fingerprinting and DNA footprinting:** restriction fragment length polymorphism.Application of Recombinant DNA technology in Medicine & Industry.
Learning Out come	After the successful course completion, learners will get proper knowledge about the DNA manipulative enzymes and Gene cloning. The students will learn about *in vitro* construction of recombinant DNA molecules, and expression, Polymerase chain reaction (PCR), sequencing and blotting techniques.

Text Books:

1. Brown TA. (2006). Gene Cloning and DNA Analysis. 5th edition. Blackwell Publishing, Oxford, U.K.
2. Clark DP and Pazdernik NJ. (2009). Biotechnology-Applying the Genetic Revolution. Elsevier Academic Press, USA.
3. Glick, B.R., Pasternak, J.J. (2003). Molecular Biotechnology- Principles and Applications of recombinant DNA. ASM Press, Washington

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

4. Primrose SB and Twyman RM. (2006). Principles of Gene Manipulation and Genomics, 7th edition. Blackwell Publishing, Oxford, U.K.
5. Sambrook J, Fritsch EF and Maniatis T. (2001). Molecular Cloning-A Laboratory Manual. 3rd edition. Cold Spring Harbor Laboratory Press.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: V

Name of the Paper	Paper code	Theory		
Environmental Biotechnology	BBT--502	Credit	Marks	
			Maximum	Minimum
		4	100	40

Objective: This course is aimed to bring an enthusiasm on environmental protection and it should give the contribution of biotechnology techniques to keep the environment clean and healthy. As well it should highlight the economic aspects in the application of biotechnology in protecting the environment from pollution

Unit	Contents (Theory)
I	**Basic concepts of Environment:** Basic concept of Environment & its component (Origin of earth, atmosphere, life & ecosystem), Scope & importance of environmental biotechnology. **Global Environmental Problems**: Ozone depletion, UV- B, Green House Effect, Acid Rain, Climate change
II	**Environmental Monitoring:** Methods for sampling & measurement of air pollution, methods for sampling & measurement of water pollution, methods for sampling & measurement of soil pollution, permissible limits & indices for pollution. **Environmental Pollution & Control:** sources, effects & control of air pollution, noise pollution, thermal pollution, water pollution, soil & solid waste pollution.
III	**Bioremediation:** Bio-remediation of inorganic & organic pollutants, bioremediation of xenobiotics, phytoremediation. **Solid & liquid waste Treatment:** Microbial treatment of solid waste, liquid waste (Example sewage) waste water treatment, biotechnology for enhanced oil recovery.
IV	**Clean Technology**: Integrated pest management, biopolymer production & bioplastic technology, biotechnology for energy (production of biofule, biogas, microbial hydrogen). Bio-fertilizers: vermin compost, green manure, use of microbes for improving soil fertility. Enrichment of ores by microorganisms (gold, copper, and Uranium),
V	**Restoration Technology:** Reforestation through micro-propagation, Soil restoration, Lake Restoration, Biodiversity conservation. Biosensor and Bio-reporter Technology: Principle types and application of biosensor, bio-reporter (Reporter Gene System). Environmental significance of Genetically modified microbes, plants and animals.
Learning Out come	After the successful course completion, learners will develop the understanding of environmental biotechnology, bioremediation, waste management, bioleaching, conventional and modern fuels
Text Books:	

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

1. Environmental Biotechnology - Alan Scragg; Longman, England
2. Biotechnology fundamentals and applications – Purohit & Mathur; Agrobotanica, India
3. Biotechnology – B D Singh; Kalyani Publishers, New Delhi
4. Biological waste water treatment 2nd Edition- Grady C P L
5. Biological Conservation – Spellergerg I F
6. Environmental issues and Options – Mishra C.
7. Biodiversity- Status and Prospects- Pramod tandon etal Narosa Publishing House, New Delhi
8. Ecology 2nd Edn, Subrahmanyam N S, Sambamurty V.S.S; Narosa Publishing House.
9. Biotechnology –U. Sathyanarayana; Biotechnology – U. Sathyanarayana Books and Allied (P) Ltd,Kolkata
10. Basics of Biotechnology- A. J. Nair; Laxmi Publications, New Delhi,
11. Microbiology (7th Ed) Prescott L. M., Harley, J. P., and Klein D. A. Mc Graw Hill, New York

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: V

Name of the Paper	Paper code	Theory		
		Credit	Marks	
			Maximum	Minimum
Bio-analytical techniques	BBT--503	4	100	40

Objective: This course is for biotechnology students, who are interested to know about the methods and techniques used in biotechnology and their contribution in the various fields of biotechnology.

Unit	Contents (Theory)
I	**Spectroscopy and Centrifugation techniques**: Principle and law of absorption fluorimetry, colorimetry, spectrophotometry (visible, UV, infrared). Centrifugation, cell fractionation techniques, isolation of sub-cellular organelles and particles.
II	**Chromatographic technique**: Introduction to the principle of chromatography. Paper chromatography, thin layer chromatography, column chromatography: silica and gel filtration, affinity and ion exchange chromatography, gas chromatography, HPLC.
III	**Molecular and electrophoretic Technique**: DNA Fingerprinting, PCR and its different variations, DNA sequencing. Introduction to electrophoresis. Starch-gel, polyacrylamide gel (native and SDS-PAGE), agarose-gel electrophoresis, pulse field gel electrophoresis, immuno- electrophoresis, isoelectric focusing, Western blotting. Introduction to Biosensors and Nanotechnology and their applications.
IV	**Microscopy**: Principle and working of Simple microscope, phase contrast microscope, florescence and electron microscope (TEM and SEM), absorption and emission spectroscopy
V	**Radioisotopic techniques**: Isotopes and radioisotopes, radiations- ionizing radiations, Application of isotopes and radioisotopes in biological research, radioisotope tracer technique and autoradiography.
Learning Out come	After the completion of the course the students will be able to understand the fundamentals of biophysics and will have knowledge of the general instrumental techniques used in biotechnology.

Text Books:

1. Lehninger's Biochemistry , Nelson D.L and Cox, M.M., Worth Publishers, New York
2. Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th Edition. John Wiley& Sons. Inc.
3. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology. 8th edition. Lippincott Williams and Wilkins, Philadelphia.
4. Cooper, G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach. 5th edition. ASM Press & Sunderland, Washington, D.C.; Sinauer Associates, MA.
5. Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G. P. 2009 The World of the Cell. 7th edition. Pearson Benjamin Cummings Publishing, San Francisco.
6. A Textbook of Biophysics- R N Roy, New central Book Agency Pvt. Ltd, Calcutta.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

7. Introduction to Genetic Engineering & Biotechnology- A. J. Nair; Jones & Bartlett Publishers, Boston,USA.
8. Nanobiotechnology: Concepts, Applications and Perspectives-C.M. Niemeyer and C.A. Mirkin, Wiley, US

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: V

Name of the Paper	Paper code	Theory		
		Credit	Marks	
Computer Application and Bioinformatics	BBT--504		Maximum	Minimum
		4	100	40

Objective: This course is to develop the understanding of basics of Application of Bioinformatics, Sequence Formats, Sequence Alignment, Data mining and Application of Bioinformatics.

Unit	Contents (Theory)
I	Introduction to Computer: History of development of computers - Computer system concepts - Capabilities and limitations. Basic components of a computer system – Control Unit, ALU, I/ O Devices, memory – RAM, ROM, EPROM, PROM, Flash Memory and other types of memory. Storage Devices - Primary Vs Secondary, Data Storage and Retrieval methods – Sequential, Direct and Index Sequential
II	Computer Software: Types of Software – System software, Application software, Utility Software, Demoware, Shareware, Freeware, Firmware, Free Software. Operating Systems – Functions, Types – Batch Processing, Single User, Multi User, Multiprogramming, Multi-Tasking. Programming languages – Machine, Assembly, High Level, 4 GL.
III	Databases: Concepts, architecture, features – management- security – Collection and Storage. Biological databases – sequence, structure – genomics, pathways, biodiversity, formats; access; annotation.
IV	Nucleic acid sequence analysis: DNA sequencing, assembly, restriction mapping, primer design, ORF prediction, transcriptional and translational signals, gene identification. Protein sequence analysis: composition, molecular weight, Pl, extinction coefficient, peptide mapping, hydrophobicity analysis of protein secondary structure, motifs.
V	Sequence comparison and database searching: Scoring matrices: pairwise alignment– dot plot, global, local, multiple sequence alignment: BLAST and FASTA searches: statistical and functional significance. Introduction to Gene finding tools, Phylogenetic tree, Protein structure visualization, Protein structure prediction, homology modeling.
Learning Out come	After the successful course completion, learners will develop basics knowledge of Bioinformatics and will attain knowledge of biological data search and processing.

Text Books:

1. Claverie J.M. and Notredome C (2003) Bioinformatics – a beginners guide. Wiley Publishers Inc.
2. Hogwins D and Taylor (2000). Bioinformatics: sequence, structure and databanks - a practical approach, Oxford University Press.
3. Gautham N (2005), Bioinformtaics, Norasa Publishers.
4. Altwood, TK and Parry-smith, DJ (2001), Introduction to Bioinformatics.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

Prentice Hall.

5. Sinha, P.K.(2007). Computer Fundamentals. New Delhi: BPB Publications.
6. Mukhi, Vijay (2008).Working with UNIX. New Delhi: BPB Publications.
7. Rajaraman, V. (2014). Fundamental of Computer. New Delhi: Prentice Hall India Pvt. Limited.
8. Rajoriya, Sheetanshu (2013). Computer Fundamentals. Indore: Kamal Prakashan.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: V

Paper Name	Paper Code	Credit	Theory	No Practical
Statistics	**FC--503**	**4**	**Maximum Marks - 70**	

Objectives: The objective of the course is to help the student in understanding the various statistical techniques useful in research studies.

Unit	Contents
I	Statistics: Meaning, Definition, Scope & Limitations; Statistical Investigations: Distrust laws of statistics, Frequency Distribution- Graphical Presentation of Data.
II	Measures of Central Tendency: Mean (Numerical), Median (Numerical), Mode (Numerical).
III	Dispersion: Standard deviation (Numerical) & Coefficient Variation, Analysis of Time series: Meaning, Importance & Components.
IV	Correlation analysis: Karl Pearson Coefficient of Correlation (Numerical), Regression Analysis: Meaning, Uses, Difference between Correlation & Regression.
V	Index Number: Meaning, features,uses & methods-Simple Average of Price Relatives Method, Simple Aggregative Method & Weighted Aggregative Method
Learning out come	The students will be able to acquire basic knowledge to statistical techniques which has wider application in research and evaluation

Test book:

1. D N Elhance, Fundamentals of Statistics, Kitab Mahal Allahabad
2. S P Gupta, Statistics, Sultanchand and sons, New Delhi
3. R S Bhardwaj, Business Statistics, Excel-Books.
4. Sharma, Anand, Quantitative Techniques for Decision Making, Himalaya, 2010
5. Levin, Krehbiel and Berenson, Business: A first course, Pearson Education A

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: V

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical IX	BBT--505	3	Maximum	Minimum
			100	40

Objective: To facilitate the students to know the basic techniques of recombinant DAN technology and environmental biotechnology. Developing the skill for handling laboratory important microbes and skills to conduct experiments of nucleic acid isolation, manipulation and analysis of nucleic acid, evaluation of water samples and production of biofuel and effective waste managment

Unit	Contents (Practical)
I	**Recombinant DAN Technology** 1. Isolation of chromosomal DNA from plant cells 2. Isolation of chromosomal DNA from animal tissues. 3. Isolation of chromosomal DNA from Bacteria/Fungi. 4. isolation of Plasmid DNA 5. Qualitative and quantitative analysis of DNA using spectrophotometer 6. Analysis of plasmid DNA in Agarose Gel electrophoresis 7. Restriction digestion of DNA 8. Making competent cells 9. Transformation in competent cells. 10. Demonstration of PCR 11. Demonstration of Southern Hybridization, Synthesis of cDNA.
II	**Environmental Biotechnology** 1. Estimation of BOD in water samples 2. Estimation of COD in water samples 3. Estimation of Total dissolved solid 4. Isolation of microorganisms from soil/industrial effluents 5. Production of biogas using cow/cattle dung 6. Identification and characterization of bioremediation microorganisms 7. Conservation of useful microorganisms 8. Production of ethanol from waste byproducts
Learning out come	To students will get knowledge about the basic and vital techniques used in recombinant DAN technology and environmental biotechnology and thus will develop talent to employ these technique in conduct research and ideas in developing novel methods for innovation.

Text Books:

1. Sambrook J, Fritsch EF and Maniatis T. (2001). Molecular Cloning-A Laboratory Manual. 3rd edition. Cold Spring Harbor Laboratory Press.
2. Primrose SB and Twyman RM. (2006). Principles of Gene Manipulation and Genomics, 7th edition. Blackwell Publishing, Oxford, U.K.
3. Brown TA. (2006). Gene Cloning and DNA Analysis. 5th edition. Blackwell Publishing, Oxford, U.K.
4. Clark DP and Pazdernik NJ. (2009). Biotechnology-Applying the Genetic Revolution.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

Elsevier Academic Press, USA.

5. Glick, B.R., Pasternak, J.J. (2003). Molecular Biotechnology- Principles and Applications of recombinant DNA. ASM Press, Washington
6. Biotechnology –U. Sathyanarayana; Biotechnology – U. Sathyanarayana Books and Allied (P) Ltd, Kolkata
7. Basics of Biotechnology- A. J. Nair; Laxmi Publications, New Delhi.
8. Microbiology (7th Ed) Prescott L. M., Harley, J. P., and Klein D. A. Mc Graw Hill, New York .

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: V

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical X	BBT--506	2	Maximum	Minimum
			100	40

Objective: To introduce the subject of bio analytical technique and bioinformatics to the students. Students should be familiarized to the importance of the bio-instruments in molecular studies, bioinformatics databases. tools and software at the elementary levels.

Unit	Contents (Practical)
I	**Biophysical and Molecular techniques** 1. Familiarization with basic laboratory instruments pH Meter, water bath, incubator, hot air oven and autoclave. 2. Preparation Phosphate buffers and determination of pH. 3. Spectrophotometer – Familiarization of the working of the instrument 4. Electrophoresis – a. demonstration of PAGE b. demonstration of Agarose Gel Electrophoresis c. demonstration of Native gel electrophoresis 5. Separation of amino acids by paper chromatography. 6. To identify lipids in a given sample by TLC.
II	**Computer Application and Bioinformatics** 1. Sequence information resource 2. Understanding and use of various web resources: EMBL, Genbank, Entrez, Unigene, Protein information resource (PIR) 3. Understanding and using: PDB, Swissprot, TREMBL 4. Using various BLAST and interpretation of results. 5. Retrieval of information from nucleotide databases.
Learning out come	After completion of the course the students will have knowledge of physical aspects, bioenergetics and computational knowledge of the living system and to familiarize the principle and working of various instruments and software tools used in biotechnology experiments.

Text Books:

1. Principles of Biochemistry By: Donald J. Voet, Judith G.Voet, Charlotte W.Pratt
2. Principles and techniques of Biochemistry and Molecular Biology Edited By Keith Wilson and John Walker
3. Experimental Biochemistry: A Student Companion by Sashidhar Beedu et al
4. Practical Biochemistry By Plummer
5. Ghosh Z. and Bibekanand M. (2008) Bioinformatics: Principles and Applications. Oxford University Press.
6. Pevsner J. (2009) Bioinformatics and Functional Genomics. II Edition. Wiley-Blackwell.
7. Campbell A. M., Heyer L. J. (2006) Discovering Genomics, Proteomics and Bioinformatics. II Edition. Benjamin Cummings.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: VI

Name of the Paper	Paper code	Theory		
		Credit	Marks	
Industrial Biotechnology	BBT- 601		Maximum	Minimum
		4	100	40

Objective: The students will be introduced to the industrial application of Food Biotechnology and Bioprocess technology through this course. Students should be trained to understand commercial importance of biotechnology through its industrial aspects.

Unit	Contents (Theory)
I	**Isolation and Culture of microorganisms:** History, scope and importance of industrial biotechnology, isolation, screening, culture and preservation of microorganism, strain improvement. **Fermentation Technology**: Bioreactor design, and operation types of fermenters, Fermentation media, Batch, Fed batch, continuous culture system and *Insitu* recovery of products.
II	**Alcohol and acid Production:** Industrial production of alcoholic beverages, vinegar, ethanol, organic acids, Amino acids and Antibiotics. **Enzyme Production:** Properties and types of enzymes, Enzymes production, immobilization of Enzymes, Enzyme/protein Engineering, Downstream processing, recovery, extraction and purification of fermentation products.
III	**Dairy Industry:** Fermented foods cheese production, use of enzymes in food industry, processing of milk and dairy products (Pasteurized milk, sterilized milk, cream and butter), enzymes in fruit juice and brewing, single cell protein. **Polymer and colloid production:** Microbial and algal polysaccharides and polyesters production, (Production of Hydrocolloids and polyhdroxyalkonoides) Mass culture technique for algae, primary and secondary metabolites of microorganism and plants.
IV	**Drug Discovery and Designing:** History and molecular aspects of drug discovery, drug discovery in cancer, microbial genomics for new antibiotics, drug designing. **Metabolic engineering:** Cloning and expression of heterologous genes, molecular breeding of bio synthetic pathways, metabolomics and metabolic engineering, limitations in metabolic engineering.
V	**Fuel biotechnology:** Concept, scope and importance of bio-fuels, bio-ethanol, bio-diesel, bio-hydrogen and biogas. **Bio-pesticides:** Microbial insecticides (types production and uses) Bio-pesticides (types, production and uses) principles and objectives of integrated nutrient management, biofertilizer
Learning Out come	After completion of the course, a student will be able to develop the understanding of industrial aspects of biotechnology. The students will be introduced to the industrial application of Food Biotechnology and Bioprocess technology through this course.

Text Books:

1. Bisen P.S (1994) Frontiers in Microbial Technology, 1st Edition, CBS Publishers. Books

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

(P) Ltd.
2. Crueger W. & Crueger A. (2000) A text of Industrial Microbiology, 2nd Edition, Panima
3. Glaser A.N & Nilaido.H (1995) Microbial Biotechnology,W.H Freeman & Co.
4. Kumar H.D (1991) A text book on Biotechnology (2nd Edition). Affiliated East West Press Private Ltd. New Delhi.
5. Prescott & Dunn (2002) Industrial Microbiology, Agrobios (India) Publishers. Publishers, Boston. Publishing Corp.
6. Stanbury P.F, Whitaker H, Hall S.J (1997) Principles of Fermentation Technology., Aditya

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: VI

Name of the Paper	Paper code	Theory		
		Credit	Marks	
Medical Biotechnology	BBT- 602		Maximum	Minimum
		4	100	40

Objective: The course has been designed to make students aware of role of biotechnology in the field of medical science. The course will provide basic knowledge of genetic diseases, diagnosis and Therapies.

	Contents (Theory)
I	**Biotechnology in medicine:** History, scope & importance of Biotechnology in medicine, disease diagnosis and treatment of genetic diseases. Molecular biology of cancer. Medical ethics guidelines.
II	**Therapeutic approaches for human diseases**. Gene therapy – exvivo and invivo gene therapy; somatic and germline gene therapy; Strategies of gene therapy: gene augmentation. Stem cells – potency definitions; embryonic and adult stem cells; applications of stem cells – cell based therapies and regenerative medicine. DNA based vaccines, subunit vaccines – Herpes Simplex Virus, Recombinant attenuated vaccines– Cholera
III	**Genetic Counseling:** Fertility control, Genetic counseling, congenital defects, sex determination. **Inherited disorders**: Chromosomal disorders caused due to structural chromosomal abnormalities (Deletions, duplications, Translocations) Chromosomal disorders caused due to numerical chromosomal abnormalities (autosomal and allosomal) Monogenic disorders (autosomal and X-linked diseases).
IV	**Drug Delivery methods**: Conventional and new approaches to drug delivery. Gene Delivery methods: Viral delivery (through Retroviral vectors, through Adenoviral vectors), Non-viral delivery, Antibody engineering
V	**Methods for diagnosis of human diseases**. Karyotyping of human chromosomes. Chromosome banding– G banding and R-banding technique, Pedigree analysis. Diagnosis using monoclonal antibodies- ELISA. DNA Fingerprinting in Forensic Medicines.
Learning Out come	After the successful course completion, learners will develop knowledge about genetic disorders, Therapeutic approaches for human diseases, Genetic Counseling and Tissue Engineering, Pharmaceutical Biotechnology, Drug Delivery methods and Methods for diagnosis of human diseases. The course has been designed to make students aware of role of biotechnology in the field of medical science. The course will provide basic knowledge of genetic diseases, diagnosis and Therapies.

Text Books:

1. Albert Sasson. Medical Biotechnology: Achievements, Prospects and Perceptions. United Nations University Press, 2005.
2. Michels et al., Genetic techniques for Biological Research. Wiley Publications, 2002.

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (M.P.)

ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

3. Glazer AN, Nikaido H. Microbial Biotechnology Fundamentals of Applied Microbiology WH Freeman, New York 1994.
4. Vyas. Methods in Biotechnology and Bioengineering, CBS publications, 2003.
5. Marshak et al., Stem cell Biology. CSHL publications, 2002
6. Medical Biotechnology-Pratibha Nallari, V.Venugopal Rao-Oxford Press
7. Introduction to Human Molecular Genetics – J.J Pasternak, John Wiley Publishers
8. Human Molecular Genetics –Tom Strachen and A P Read, Bios Scxientific Publishers
9. Human Genetics Molecular Evolution, Mc Conkey
10. Recombinant DNA Technology, AEH Emery
11. Principles and Practice of Medical Genetics, I, II, III Volumes by AEH Edts. Emery

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: VI

Name of the Paper	Paper code	Theory		
Animal Biotechnology	BBT- 604	Credit	Marks	
		4	Maximum	Minimum
			100	40

Objective: This course is designed to impart basic knowledge in the applied aspects of animal biotechnology for the improvement of agriculture and animal based industries. It gives an introduction about the various technques of animal cell culture, cloning and tissue culture of animals.

Unit	Contents (Theory)
I	**Introduction to Animal Biotechnology**: History and scope of animal biotechnology, laboratory requirements for animal cell culture, Sterilization of different materials used in animal cell culture, Aseptic concepts. Instrumentation and equipments for animal cell culture. History of cell culture. Primary and secondary cell culture.
II	**Media and Reagents**: Types of cell culture media, Ingredients of media, Physiochemical properties, Antibiotics, growth supplements, Foetal bovine serum; Serum free media, Trypsin solution, Selection of medium and serum, Conditioned media, Other cell culture reagents.
III	**Cell Culture**: Different types of cell cultures, Trypsinization, Cell separation, Continuous cell lines, Suspension culture, Organ culture. Development of cell lines, Characterization and maintenance of cell lines, stem cells, Cryopreservation, Common cell culture contaminants.
IV	**Stem cell research**: introduction, orgin, types and functions of stem cells, therapeutics, cloning for embryonic stem cells, stem cell therapy.
V	**Gene transfer technology in animals**: Dir ect and indirect methods of gene transfer, Production of transgenic animals and molecular pharming, current status of production of transgenic animals.
Learning Out come	After complication of the course the students to understand the basics of classical animal biotechnology and will become familiar with animal tissue culture methods thus enabling their knowledge in animal biotechnology

Text Books:

1. Brown, T.A. (1998). Molecular biology Labfax II: Gene analysis. II Edition. Academic Press, California,USA.
2. Butler, M. (2004). Animal cell culture and technology: The basics. II Edition. Bios scientific publishers.
3. Glick, B.R. and Pasternak, J.J. (2009). Molecular biotechnology- Principles and applications of recombinant DNA. IV Edition. ASM press, Washington, USA.
4. Griffiths, A.J.F., J.H. Miller, Suzuki, D.T., Lewontin, R.C. and Gelbart, W.M. (2009). An introduction to genetic analysis. IX Edition. Freeman & Co., N.Y., USA.
5. Watson, J.D., Myers, R.M., Caudy, A. and Witkowski, J.K. (2007). Recombinant DNA- genes and genomes- A short course. III Edition. Freeman and Co., N.Y., USA
6. Biotechnology-Fundamentals and Application- S S Purohit and S K Mathur;

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

Agrobotanica, India.

7. Introduction to Genetic Engineering & Biotechnology- A. J. Nair; Jones & Bartlett Publishers, Boston,USA.
8. Modern concept of Biotechnology- H D Kumar; Vikas Publishing House, Pvt. Ltd., New Delhi.
9. Animal cell culture- John R W Master; Oxford University Press Culture of animal cells – A manual of basic technique, R Ian Freshney; Wiley- Liss Publication, New York.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: VI

Name of the Paper	Paper code	Theory		
		Credit	Marks	
Plant Biotechnology	BBT- 603		Maximum	Minimum
		4	100	40

Objective: This course is designed to impart basic knowledge in the applied aspects of plant biotechnology and for the improvement of agriculture and plant based industries. It gives an introduction about the various techniques of plant tissue culture.

Unit	Contents (Theory)
I	**Plant Tissue Culture:** Basic aspects of plant biotechnology (History, application, scope and importance), laboratory and culture media for plant tissue culture, cell Culture and its applications. **Clonal Propagation and Protoplast Culture**: Micro propagation, Somaclonal Variation, Production and uses of Haploids, Protoplast isolation, Regeneration of plant, Somatic Hybridization
II	**Gene Transfer in Plants: Vectors** of gene transfer (Plasmids, Agrobacterium and Virus vector) Transformation technique (Agrobacterium mediated gene transfer, DNA mediated gene transfer (DMGT) Markers, Transgenic Plants. **Transgenic Plant resistance against Stress:** Development of herbicide resistant transgenic plant, Development of insect resistant transgenic plant, Transgenic plant resistance against microbial pathogens, transgenic plant resistance against abiotic stress.
III	**Genetically Modified Crops**: Transgenic plants with improved crop productivity, Transgenic plants with improved nutritional quality.
IV	**Transgenic Plants for Biosafety:** Biosafety regulations of Transgenic Crops, Commercialization of Transgenic plants, quality improvement of plants. **Choloroplast Engineering**: plants Engineering of Chloroplast Genome, Transformation of choloroplast genome in higher plants, Transplastomic Plants and its applications (in Tobacco, Potato, Rice, Tomato etc.)
V	**Molecular Farming**: Transgenic Plants for Value Added Specialty Crops, Transgenic Plants for Edible Vaccines, Transgenic Plants for Antibodies and Transgenic Plants for Biopharmaceuticals
Learning Out come	After complication of the course the students to understand the basics of classical plant Biotechnology and will become familiar with plant tissue culture methods thus enabling their knowledge in plant biotechnology

Text Books:

1. Bhojwani, S.S. and Razdan 2004 Plant Tissue Culture and Practice.
2. Brown, T. A. Gene cloning and DNA analysis: An Introduction. Blackwell Publication.
3. Gardner, E.J. Simmonns, M.J. Snustad, D.P. 2008 8th edition Principles of Genetics. Wiley India.
4. Reinert, J. and Bajaj, Y.P.S. 1997 Applied and Fundamental Aspects of Plant Cell, Tissue and Organ Culture. Narosa Publishing House.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

5. Russell, P.J. 2009 Genetics – A Molecular Approach. 3rdedition. Benjamin Co.
6. Sambrook & Russel. Molecular Cloning: A laboratory manual. (3rd edition)
7. Slater, A., Scott, N.W. & Fowler, M.R. 2008 Plant Biotechnology: The Genetic Manipulation of Plants, Oxford University Press.
8. Plant biotechnology, Recent Advances- P C Trivedi; Panima Publishing Corporation, New Delhi.
9. Introduction to Plant Biotechnology- H S Chawla; Oxford & IBH publishing Co.Pvt.Ltd., New Delhi.
10. Basics of Biotechnology- A. J. Nair; Laxmi Publications, New Delhi.
11. An Introduction to Plant Tissue Culture – M K Raxdan; Oxfird & IBH Publishing Co.Pvt. Ltd., New Delhi
12. Role of Biotechnology in Medicinal and aromatic plants- Irfan A Khan and Atiya Khanum ; Ukaaz Publications, Hyderabad.
13. Plant vell, Tissue and Organ Culture- Fundamental Methods, O L Gamborg, G C Philips; Narosa Publishing House, New Delhi.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: VI

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical XI	BBT- 605		Maximum	Minimum
		3	100	40

Objective: The students will be introduced to the application of Biotechnology in Bioprocess technology and medicine through this course. Students should be trained to understand commercial importance of biotechnology through its industrial aspects.

Unit	Contents (Practical)
I	**Industrial Biotechnology** 1. Screening of Microorganisms (Primary selection, secondary selection) 2. Production of Citric acid 3. Screening of amylase producing microorganisms 4. Production of wine using common yeast 5. Production of alcohol by fermentation and Estimation of alcohol by colorimetry 6. Production of hydrogen or biogas using cow/cattle dung 7. Production of Penicillin/Ampicillin 8. Production of biofertilizers (Azolla) 9. Estimation of Dissolved oxygen in water samples 10. Isolation of microbes from soil or industrial effluents
II	**Medical Biotechnology** 1. Karyotyping of normal and abnormal human chromosome sets 2. Human pedigree analysis 3. Estimation of C-reactive protein 4. Dot ELISA 5. Genotyping of candidate genes for diseases by RFLP 6. Encapsulation of mammalian cells
Learning out come	After completion of the course student will be able to develop the understanding and technical skill of industrial aspects of bioprocessing and application of medical biotechnology in diagnosis.

Text Books:

1. Modern Concept of Biotechnology- H D Kumar; Vikas Publishing House Pvt. Ltd., New Delhi.
2. Food Processing – Biotechnolgical Applications- S S Marwaha & J K Arora, Asiatech Publishers Inc., New Delhi
3. Food Microbiology- M R Adamas & M O Moss; Panima Publishing Corporation, New Delhi
4. Introduction to Genetic Engineering & Biotechnology- A. J. Nair; Jones & Bartlett Publishers, Boston, USA.
5. Industrial Microbiology – A H Patel, Panima Publishing House New Delhi.
6. Fundamentals of Microbiology, Jones & Bartlett Publishers, Boston, USA.
7. Medical Biotechnology-Pratibha Nallari, V.Venugopal Rao-Oxford Press
8. Introduction to Human Molecular Genetics – J.J Pasternak, John Wiley Publishers
9. Principles and Practice of Medical Genetics, I, II, III Volumes by AEH Edts. Emery

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus
Semester: VI

Name of the Paper	Paper code	Practical		
		Credit	Marks	
Practical XII	BBT- 606	3	Maximum	Minimum
			100	40

Objective: This course is designed to impart basic knowledge in the applied aspects of plant biotechnology and animal biotechnology. It gives an introduction about the various techniques of animal and plant cell and tissue culture.

Unit	Contents (Practical)
I	**Animal Biotechnology** 1. Demonstration of working in biosafety cabinets, 2. Aseptic handling of samples. 3. Preparation of media for cell culture. 4. Isolation of cells from Chick embryo 5. Demonstration of Isolation of cell from tissue 6. Establishment and maintenance of primary cell cultures 7. Cell counting using Neubauer Chamber 8. Cell viability assay: trypan blue assay 9. Demonstration of cryopreservation.
II	**Plant Biotechnology** 1. Preparation of plant tissue culture medium 2. Sterilization methods of explants (seed leaf, inter node &root), medium 3. Demonstration of plant tissue culture techniques 4. Cell suspension cultures. 5. Isolation of protoplast 6. Demonstration of somatic hybridization 7. Synthetic seed production.
Learning out come	After completion of the course the students will Know the basics requirements of animal and plant tissue culture and will learn the basics of animal and plant tissue culture methods.

Text Books:

1. Modern concept of Biotechnology- H D Kumar; Vikas Publishing House, Pvt. Ltd., New Delhi.
2. Animal cell culture- John R W Master; Oxford University Press
3. Culture of animal cells – A manual of basic technique, R Ian Freshney; Wiley- Liss Publication, New York
4. Strategies in Transgenic Animal Sciences - By Glemn M.M. and James M. Robl ASM Press 2000.
5. Practical Biotechnology – Methods and Protocols - By S. janarthanan and S. Vincent
6. Animal Cells as Bioreactors - By Terence Gartoright, Cambridge Univ Press)
7. Principles and Practice of Animal Tissue Culture - By Sudha Gangal
8. Plant Tissue Culture and its Biotechnological Applications By W. Barz, E. Reinhard, M.H. Zenk

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

9. Plant Tissue Culture By Akio Fujiwara
10. Frontiers of Plant Tissue Culture By Trevor A. Thorpe
11. In vitro Haploid Production in Higher Plants by S. Mohan Jain, S.K. Sopory, R.E. Veilleux
12. Plant Tissue Culture : Theory and Practice By S.S. Bhojwani and A. Razdan
13. Plant Cell, Tissue and Organ Culture, Applied and Fundamental Aspects By Y.P.S. Bajaj and A. Reinhard

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

People's University, Bhopal
Faculty of Science
Bachelor of Science in Biotechnology (B.Sc. Biotechnology) Syllabus

Semester: VI

Paper Name	Paper Code	Theory		
		Credit	Marks	
Biosafety and Intellectual Property Right	FC- 604	4	Maximum	Minimum
			100	40

Objectives: The objective of the course is to help the student in understand the importance of Intellectual Property Right and it application and regulations.

Unit	Contents
I	Biotechnology and social responsibility, public acceptance issues in biotechnology, issues of access, ownership, monopoly, traditional knowledge, biodiversity, benefit sharing, environmental sustainability, public vs private funding, biotechnology in international relations, globalization and development divide.
II	Introduction to bioethics: Social and ethical issues in biotechnology. Principles of bioethics. Ethical conflicts in biotechnology- interference with nature, unequal distribution of risk and benefits of biotechnology, bioethics vs business ethics.
III	Biosafety: Definition of bio-safety, Biotechnology and bio-safety concerns at the level of individuals, institutions, society, region, country and world with special emphasis on Indian concerns. Biosafety in laboratory institution: laboratory associated infection and other hazards, assessment of biological hazards and level of biosafety. Bio safety regulation: handling of recombinant DNA products and process in industry and in institutions (Indian context).
IV	Introduction to IPR: IPR, forms of IPR and Intellectual property protection. Concept of property with respect to intellectual creativity, Tangible and Intangible property. WTO: agency controlling trade among nations, WTO with reference to biotechnological affairs, TRIPs. WIPO, EPO.
V	Concept related to patents novelty, non-obviousness, utility, anticipation, prior art etc. Type of patents. Indian patent act and foreign patents. Patentability, Patent application, Revocation of patent, Infringement and Litigation with case studies on patent, Commercialization and Licensing.
Learning out come	The students will be able to acquire basic knowledge Intellectual Property Right, bioethics, and patents and it importance.

1. 1. Fleming, D.A., Hunt, D.L., (2000). Biotechnology and Safety Assessment (3rd Ed) Academic press.ISBN-1555811804,9781555811808.
2. Thomas, J.A., Fuch, R.L. (1999). Biotechnology and safety assessment (3rd Ed). CRC press, Washington. ISBN: 1560327219, 9781560327219
3. Law and Strategy of biotechnological patents by Sibley. Butterworth publication.(2007) ISBN: 075069440, 9780750694445.
4. Intellectual property rights- Ganguli-Tat McGrawhill. (2001) ISBN-10: 0074638602
5. Intellectual Property Right- Wattal- Oxford Publicatiopn House.(1997) ISBN:0195905024.

CHAIRMAN BOARD OF STUDIES FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN ACADEMIC AFFAIRS PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN FACULTY OF SCIENCE PEOPLE'S UNIVERSITY BHOPAL

6. Biotechnology - A comprehensive treatise (Vol. 12). Legal economic and ethical dimensions VCH. (2nd ed) ISBN-10 3527304320.
7. Encyclopedia of Bioethics 5 vol set, (2003) ISBN-10: 0028657748.
8. Thomas, J.A., Fuch, R.L. (2002). Biotechnology and safety Assessment (3rd Ed) Academic press.
9. B.D. Singh. Biotechnology expanding horizons.
10. H.K.Das. Text book of biotechnology 3rd edition.

CHAIRMAN
BOARD OF STUDIES
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL (MP)

DEAN
ACADEMIC AFFAIRS
PEOPLE'S UNIVERSITY, BHOPAL (M.P.)

DEAN
FACULTY OF SCIENCE
PEOPLE'S UNIVERSITY BHOPAL

CONTENTS

PHILOSOPHY

INC believes that:

Health is a state of well-being that enables a person to lead a psychologically, socially and economically productive life. Health is a right of all the people. Individuals, families and communities responsibility towards maintaining their health.

Nursing contributes to the health services in a vital and significant way in the health care delivery system. It recognizes national health goals and is committed to participate in the implementation of National Health policies and programmes. It aims at identifying health processionals and community groups.

Scope of nursing practice encompasses provision of promotive, preventive, curative and rehabilitative aspects of care to people across their life span in wide variety of health care settings. Practice of nursing is based upon application of basic concepts and principles derived from the physical, biological and behavioral sciences, medicine and nursing.

Nursing is based on values of caring, and aims to help individuals to attain independence in self-care. It necessitates development of compassion and understanding of human behaviour among its practitioners to provide care with respect and dignity and protect the rights of individuals & groups.

Undergraduate nursing program is broad based education within an academic framework specifically directed to the development of critical thinking skills, competencies & standards required for practice of professional nursing and midwifery as envisaged in National Health Policy 2002.

The teachers have the responsibility to be role models and create learning environment that enables students to acquire inquiry driven, self directed learning and foster an attitude of life long learning.

Under graduate nursing education program prepares its graduates to become exemplary citizen by adhering to code of ethics and professional conduct at all times in fulfilling personal. Social and professional obligations so as to respond to national aspirations.

AIM

The aim of the undergraduate nursing program is to:

- Prepare graduates to assume responsibilities as professional, competent nurses and midwives in providing promotive, preventive, curative, and rehabilitative services.

- Prepare nurses who can make independent decisions in nursing situations, protect the rights of and facilitate individuals and groups in pursuit of health, function in the hospital, community-nursing services, and conduct research studies in the areas of nursing practice. They are also expected to assume the role of teacher, supervisor, and manager in a clinical / public health setting.

OBJECTIVES

On completion of the four year B. Sc Nursing program the graduate will be able to:-

1. Apply Knowledge from physical, biological and behavioral sciences, medicine including alternative systems and nursing in providing nursing care to individuals, families and communities.
2. Demonstrate understanding of life style and other factors, which affect health of individuals and groups.
3. Provide nursing care based on steps of nursing process in collaboration with the individuals
4. Demonstrate critical thinking skill in making decisions in all situations in order to provide quality care.
5. Utilize the latest trends and technology in providing health care.
6. Provide promotive preventive and restorative health services in line with the national health policies and programmes.
7. Practice within the framework of code of ethics and professional conduct, and acceptable student of practice within the legal boundaries.
8. Communicate effectively with individuals and groups, and members of the health team in order to promote effective interpersonal relationships and teamwork.
9. Demonstrate skills in teaching to individuals and groups in clinical/community health settings.
10. Participate effectively as members of the health team in health care delivery system.
11. Demonstrate leadership and managerial skills in clinical/community health settings.
12. Conduct need based research student in various settings and utilize the research findings to improve the quality of care.
13. Demonstrate awareness, interest, and contribute towards advancement of self and of the profession.

ADMISSION REQUIREMENTS

1. The minimum age for admission shall be 17 years on or before 31st Dec. of the year of admission.

2. The minimum educational requirements shall be the passing of:

   Higher Secondary school certificate Examination (12 year course)

   Or

   Senior School certificate Examination (10+2), Pre degree Examination (10+2)

   Or

   An equivalent with 12 years schooling from a recognized board or university with Sciences (Physics, Chemistry, Biology) and English with minimum of 50 % aggregate marks (PCBE).

3. Candidate shall be medically fit.

Entrance / selection test

- Selection of the candidates should be based on the merit of the entrance examination held by University or competent authority.

Duration

Duration of the course shall be four years including internship

Vacation

8 Weeks vacation shall be given in each year.

DURATION

Course Duration	=	**4 Years**
Weeks available per year	=	52 weeks
Vacation	=	8 weeks
Gazetted holidays	=	3 weeks
Examination (Including preparatory)	=	4 weeks
Available weeks	=	37 weeks
Hours per week	=	40
Practical	=	30 hours per week
Theory	=	10 hours per week
Internship	=	48 hours per week
Hours available per academic year	=	1480 (37 week x 40 hours)

COURSE OF INSTRUCTION

FIRST YEAR

Subject	Theory in hrs. (Class and lab)	Practical in hrs. (Clinical)	In hrs.
1. English	60		
2. Anatomy	60		
3. Physiology	60		
4. Nutrition	60		
5. Biochemistry	30		
6. Nursing Foundations	265+200	450	
7. Psychology	60		
8. Microbiology	60		
9. Introduction of computers	45		
10. **Hindi / regional language	30		
11. Library work / self Study			50
12. Co- curricular Activities			50
Total Hours	**930**	**450**	**100**
Total hours =1480 Hrs.			

(** Optional)

SECOND YEAR

Subject	Theory in hrs. (Class and lab)	Practical in hrs. (Clinical)	In hrs.
1. Sociology	60		
2. Pharmacology	45		
3. Pathology & 4. Genetics	30 15		
5. Medical Surgical nursing (Adult including geriatrics)-I	210	720	
6. Community Health nursing –I	90	135	
7. Communication and Educational Technology	60+30		
8. Library work/ self Study			50
9. Co-curricular activities			35
Total Hours	**540**	**855**	**85**
Total hours = 1480 hrs.			

THIRD YEAR

Subject	Theory in hrs. (Class and lab)	Practical in hrs. (Clinical)	(In hrs)
1. Medical –Surgical nursing (Adult including geriatrics)-II	120	270	
2. Child Health Nursing	90	270	
3. Mental Health Nursing	90	270	
4. Midwifery and Obstetrical nursing	90	180	
5. Library work/ self Study			50
6. Co-curricular activities			50
Total Hours	**390**	**990**	**100**
Total hours = 1480 hrs.			

FOURTH YEAR

Subject	Theory in hrs. (Class & lab)	Practical in hrs. (Clinical)	(In hrs)
1. Midwifery and Obstetrical nursing		180	
2. Community Health nursing –II	90	135	
3. Nursing Research & Statistics	45		
4. Management of Nursing Services and education	60+30		
Total Hours	**225**	**315**	
Total hours = 540 hrs.			

- Project work to be carried out during internship.

Practical =30 hours per week

Intern –Ship (Integrated Practice)

Subject	Theory	Practical (In hrs.)	In weeks
1. Midwifery and Obstetrical nursing		240	5
2. Community Health nursing –II		195	4
3. Medical Surgical Nursing (Adult and geriatric)		430	9
4. Child Health		145	3
5. Mental Health		95	2
6. Research Project		45	1
Total Hours		**1150**	**24**
Total hours =1480 hrs.			

Note:

1. Internship means 8 hours of integrated clinical duties in which 2 weeks of evening and night shift duties are included.

2. Internship should be carried out as 8 hours per day @ 48 hours per week.

3. Students during internship will be supervised by nursing teachers.

4. Fourth year final examination to be held only after completing internship.

SCHEME OF EXAMINATION

FIRST YEAR

Subject	Assessment			
	Hours	Internal	External	Total
Theory				
1. Anatomy & Physiology	3	25	75	100
2. Nutrition & Biochemistry	3	25	75	100
3. Nursing Foundations	3	25	75	100
4. Psychology	3	25	75	100
5. Microbiology	3	25	75	100
6. English	3	25	75	100
7. Introduction of computers		25	75	100
Practical and Viva Voce				
1. Nursing Foundations		100	100	200

SECOND YEAR

Subject	Assessment			
	Hours	Internal	External	Total
Theory				
8. Sociology	3	25	75	100
9. Medical Surgical nursing-I	3	25	75	100
10. Pharmacology, Pathology, Genetics	3	25	75	100
11. Community Health nursing –I	3	25	75	100
12. Communication and Educational Technology	3	25	75	100
Practical and Viva Voce				
2. Medical –Surgical Nursing-I		100	100	200

THIRD YEAR

Subject	Assessment			
	Hours	Internal	External	Total
Theory				
13. Medical –Surgical nursing-II	3	25	75	100
14. Child Health Nursing	3	25	75	100
15. Mental Health Nursing	3	25	75	100
Practical and Viva Voce				
3. Medical –Surgical nursing-II		50	50	100
4. Child Health Nursing		50	50	100
5. Mental Health Nursing		50	50	100

FOURTH YEAR

Subject	Assessment			
	Hours	Internal	External	Total
Theory				
16. Midwifery and Obstetrical nursing	3	25	75	100
17. Community Health nursing – II	3	25	75	100
18. Nursing Research & Statistics	3	25	75	100
19. Management and Nursing Services and education	3	25	75	100
Practical and Viva Voce				
6. Midwifery and Obstetrical nursing	3	50	50	100
7. Community Health nursing	3	50	50	100

Note: -

1. Anatomy and physiology –Question paper will consist of Section A Anatomy of 37 marks and B Physiology should be of 38 marks.

2. Nutrition and Biochemistry and –Question paper will consist of Section A Nutrition of 45 marks and Section B of Biochemistry of 30 marks.

3. Pharmacology, genetics, and pathology: Section A of Pharmacology with 38 marks, Section B of Pharmacology of 25 and Genetics with 12 marks.

4. Nursing Research & Statistics-Nursing Research Should be of 50 marks and Statistics of 25 marks.

5. Minimum pass mark shall be 40% for English only.

6. Theory and Practical exams for Introduction to computer to be conducted as College exam and marks to be sent to University for inclusion in the marks sheet.

7. Minimum pass marks shall be 50% in each of the theory and practical papers separately.

8. A candidate must have minimum of 80% attendance (irrespective of the kind of absence) in theory and practical in each subject for appearing for examination.

9. A candidate must have 100% attendance in each of the practical area before award of degree.

10. A Candidate has to pass in theory and practical exam separately in each of the paper.

11. If a candidate fails in either theory or practical paper he/she has re-appear for both the papers (Theory and Practical)

12. Maximum number of attempts permitted for each is 3 including first attempt

13. A Candidate failing in more then two subjects will not be prompted to the next year.

14. Candidate shall not be admitted to the subsequent higher examination unless the candidate has passed the previous examination.

15. The maximum period to complete the course successfully should not exceed 8 years

16. Maximum number of candidate for practical examination should note exceed 20 per day

17. All practical examinations must be held in the respective clinical areas.

18. One internal and one external examiner should jointly conduct practical examination for each student.

19. An examiner should be a lecture or above in a college of nursing with M. Sc (N) in concerned subject and minimum of 3 year of teaching experience. To be an examiner for nursing foundations faculty having M. Sc (N) with any specialty shall be considered.

ENGLISH

Placement -: first Year **Time:** theory –60 hours

Course Description: The Course is designed to enable students to enhance ability to comprehend spoken and written English (and use English) required for effective communication in their professional work students will practice their skills in verbal and written English during clinical and classroom experiences.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	10	• Speak and write grammatically correct English	• Review of Grammar • Remedial study of Grammar • Building Vocabulary • Phonetics • Public Speaking	• Demonstrate use of dictionary • Class-room conversation • Exercise on use if Grammar • Practice in public speaking	• Objective type • Fill in the blanks • Para - phrasing
II	30	• Develop ability to read, understand and express meaningfully the prescribed text	• Read and comprehend prescribed course books	• Exercise on: ❑ Reading ❑ Summarizing ❑ Comprehension	• Short Answers • Essay types
III	10	• Develop writing skills	• Various forms of composition ❑ Letter writing ❑ Note taking ❑ Precise writing ❑ Nurses notes ❑ Anecdotal records ❑ Diary writing ❑ Reports on health problems etc. ❑ Resume/CV	• Exercise on writing ❑ Letter writing ❑ Nurses Notes ❑ Precise ❑ Diary ❑ Anecdote ❑ Health problems ❑ Story writing ❑ Resume /CV • Essay writing ❑ Discussion on written reports/ documents	• Assessment of the skills based on the check list
IV	6	• Develop skill in spoken English	• **Spoken English** ❑ Oral ❑ Discussion ❑ Debate ❑ Telephonic conversation	• Exercise on: ❑ Debating ❑ Participating in Seminar, panel, symposium ❑ Telephonic conversation	• Assessment of the skills based on the check list
V	4	• Develop skill in the listening comprehension	• **Listening Comprehension** ❑ Media, audio, Video, speeches etc.	• Exercise on: ❑ Listening to audio, video tapes and Identify the key points	• Assessment of the skills based on the check list

ANATOMY

Placement: First Year **Time:** Theory –60 Hours

Course Description: The Course is designed to enable students to acquire knowledge of the normal structure of various human body systems and understand the alterations in anatomical structures in disease and practice of nursing:

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	5	• Describe the anatomical terms, organization of human body and structure of cell, tissues, membranes and glands	**Introduction to Anatomical terms organization of the human body** • Human Cell structure • Tissues-Definition, Types characteristics, classification, location, functions and formation • Membranes and glands – classification and structure Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, microscopic slides, Skeleton & torso • Demonstrate cell, types of tissues membranes and glands • Record book	• Short answer questions • Objective types
II	6	• Describe the structure & function of bones and joints	**The Skeletal System** • Bones –types, structure, Axial & Appendicular Skeleton, • Bone formation and growth • Description of bones • Joints- classification & structure Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, Skeleton loose bones, and joints • Record book	• Short answer questions • Objective type
III	7	• Describe the structure and function of muscles	**The Muscular system** • Types and structure of muscles • Muscle groups Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, models and films • Demonstrate muscular movements • Record book	• Short answer questions • Objective type
IV	6	• Describe the structure & function of nervous system	**The Nervous System** • Structure of neuralgia & neurons • Somatic Nervous systems ▫ Structure of brain, spinal chord, cranial nerves, spinal nerves, peripheral nerves • Autonomic Nervous system – sympathetic, parasympathetic ▫ Structure, location Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, torso, models, slides specimens • Record book	• Short answer questions • Objective types

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
V	6	• Explain the structure & function of sensory organs	**The Sensory Organs** • Structure of skin, eye, ear, nose, tongue, (Auditory and olfactory apparatus) Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, torso, models, slides specimens • Record book	• Short answer questions • Objective type
VI	7	• Describe the structure & function of circulatory and lymphatic system	**Circulatory and lymphatic system** • The Circulatory system ❑ Blood-Microscopic structure ❑ Structure of Heart ❑ Structure of blood vessels-Arterial & Venous System, ❑ Circulation: systemic, pulmonary, coronary • Lymphatic system ❑ Lymphatic vessels and lymph ❑ Lymphatic tissues - Thymus gland - Lymph nodes - Spleen - Lymphatic nodules Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, models, slides, specimens • Record book	• Short answer questions • Objective type
VII	5	• Describe the structure & functions of Respiratory system	**The Respiratory System** • Structure of the organs of respiration • Muscles of respiration: Intercostals and Diaphragm Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type
VIII	6	• Describe the structure & functions of digestive system	**The digestive System** • Structure of Alimentary tract and accessory organs of digestion Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type
IX	4	• Describe the structure & functions of Excretory system	**The Excretory System (Urinary)** • Structure of organs of urinary System: Kidney, ureters, urinary bladder, urethra, structure of skin Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
X	4	• Describe the structure & functions of endocrine system	**The Endocrine System** • Structure of pituitary, Pancreas, Thyroid, Parathyroid, thymus and adrenal glands Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type
XI	4	• Describe the structure & functions of reproductive system	**The Reproductive System** • Structure of female reproductive organs • Structure of male reproductive organs • Structure of breast • Structure in disease Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type

PHYSIOLOGY

Placement: first year **Time:** theory 60-Hours

Course description: The course is designed to assist the students to acquire knowledge of the normal physiology of various human body systems and understand the alterations in physiology in diseases and practice of Nursing.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	4	• Describe the physiology of cell, tissues membranes and glands	**Cell Physiology** • Tissue- formation repair • Membranes & glands- functions Alterations in disease Application and implications in nursing	• Lecture Discussion	• Short answer questions • Objective type
II	4	• Describe the bone formation and growth and movements of skeleton system	**Skeletal System** • Bone formation & growth • Bones-Functions and movements of bones of axial and Appendicular skeleton, bone healing • Joints and joint movement Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, models and films • Demonstration of joint movements	• Short answer questions • Objective type
III	4	• Describe the muscle movements and tone and demonstrate muscle contraction and tone	**Muscular System** • Muscle movements, muscle tone, Physiology of muscle contraction, levels and maintenance of posture Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, models, slides, specimen and films • Demonstration of muscle movements, tone and contraction	• Short answer questions • Objective type
IV	7	• Describe the physiology of never stimulus, reflexes, brain, cranial and spinal nerves • Demonstrate reflex action and stimulus	**Nervous System** • Functions of Neuralgia & neurons • Stimulus & nerve-impulse- definitions and mechanism • Functions of brain, spinal, cord, cranial and spinal nerves • Cerebrospinal fluid- Composition, circulation and function • Reflex arc, reflex action and reflexes	• Lecture discussion • Explain using Charts, models and films • Demonstrate nerve stimulus, reflex action, reflexes	• Short answer questions • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			• Autonomic functions- ▫ Pain: somatic, visceral, and referred ▫ Autonomic learning and biofeedback Alterations in disease • Application and implications in nursing		
V	8	• Describe the physiology of blood and function of Heart • Demonstrate blood cell Count, coagulation, grouping, Hb: BP and pulse monitoring	**Circulatory System** • Blood formation, composition, blood groups, blood coagulation • Hemoglobin: Structure, Synthesis, and breakdown, Variation of molecules, estimation • Functions of Heart, Conduction, Cardiac cycle, circulation- Principles, control, factors, influencing BP and Pulse Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, models and films • Demonstration of Blood cell count, coagulation, grouping/ Hemoglobin estimation, Heart conduction systems. • Measurement of Pulse, BP	• Short answer questions • Objective type
VI	6	• Describe the physiology and Mechanisms of respiration • Demonstrates spirometry	**The Respiratory System** • Functions of respiratory organs • Physiology of respiration • Pulmonary ventilation, Volume • Mechanics of respiration • Gaseous exchange in lungs • Carriage of oxygen &carbon-dioxide • Exchange of gases in tissues • Regulation of respiration Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films • Demonstration of Spirometry	• Short answer questions • Objective type
VII	6	• Describes the physiology digestive system • Demonstrates BMR	**The Digestive Systems** • Functions of organs of digestive tract. Movements of alimentary tract, Digestion in mouth, stomach, small intestines, Large intestines, Absorption of food, Functions of liver, gall bladder and pancreas • Metabolism of carbohydrates, protein and fat.	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
VIII	5	• Describes the physiology of excretory System	**The Excretory System** • Functions of kidneys, ureters, urinary bladder & urethra • Composition of urine • Mechanism of urine formation • Functions of skin • Regulation of body temperature • Fluid and electrolyte balance, Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective types
IX	4	• Describes the Physiology of sensory organs	**The Sensory Organs** • Functions of skin, eye, ear, nose, tongue Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective type
X	5	• Describe the physiology of endocrine glands	**The Endocrine System** • Functions of Pituitary, Pineal body, thymus, Thyroid, Parathyroid, pancreas, Suprarenal, Placenta and ovaries & Testes Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films • Demonstration of BMR	• Short answer questions • Objective type
XI	5	• Describe the physiology of Male & female reproductive system	**The Reproductive System** • Reproduction of cells- DNA, Mitosis, Meiosis, spermatogenesis, oogenesis • Function of female reproductive organs; Functions of Breast, Female sexual cycle. • Introduction to embryology • Functions of male reproductive organs, male function in reproduction, Male fertility system, Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, and films, models, specimens	• Short answer questions • Objective type
XII	2	• Describe the physiology of Lymphatic and Immunologi c-al System	**Lymphatic and Immunological System** • Circulation of lymph • Immunity ❑ Formation of T-Cells, B Cells ❑ Types of Immune response ❑ Antigens ❑ Cytokines ❑ Antibodies	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective type

NUTRITION

Placement: First Year Time: Theory 60 hours

Course Description: The Course is designed to assist the students to acquire knowledge of nutrition for maintenance of optimum health at different stages of life and its application for practice of nursing.

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
I	4		• Describe the relationship between nutrition & Health	Introduction • Nutrition: ❑ History ❑ Concepts • Role of nutrition in maintaining health • Nutritional problems in India • National nutritional policy • Factors affecting food and nutrition: socio-economic, cultural, tradition, production, system of distribution, life style and food habits etc. • Role of food and its medicinal value • Classification of foods • Food standards • Elements of nutrition: Macro and micro • Calorie, BMR	• Lecture Discussion • Explaining using charts • Panel discussion	• Short answer • Objective type
II	2		• Describe the classification functions, sources and recommended daily allowances (RDA) of carbohydrates	**Carbohydrates** • Classification • Caloric value • Recommended Daily allowances • Dietary sources • Functions, • Digestion, absorption and storage, metabolism of carbohydrates • Malnutrition: Deficiencies and Over consumption	• Lecture Discussion • Explaining using charts	• Short answer • Objective type
III	2		• Describe the classification functions,	**Fats** • Classification,	• Lecture Discussion	• Short answer

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
			sources and recommended daily allowances (RDA) of Fats	• Caloric value • Recommended Daily allowances • Dietary sources • Functions, • Digestion, absorption and storage, metabolism • Malnutrition: Deficiencies and Over consumption	• Explaining using charts	• Objective type
IV	2		• Describe the classification, functions, sources and recommended daily allowances (RDA) of proteins	**Proteins** • Classification • Caloric value • Recommended Daily allowances • Dietary sources • Functions • Digestion, absorption, metabolism and storage • Malnutrition: Deficiencies and Over consumption	• Lecture Discussion • Explaining using charts	• Short answers • Objective type
V	3		• Describe the daily calorie requirement for different categories of people	**Energy** • Unit of Energy- Kcal • Energy requirements of different categories of People • Measurements of energy • Body mass index (BMI) and basic metabolism • Basal Metabolic rate (BMR) –determination and factors affecting	• Lecture Discussion • Explaining using charts • Exercise • Demonstration	• Short answers • Objective type
VI	4		• Describe the classification, functions, sources and recommended daily Allowances (RDA) of Vitamins	**Vitamins** • Classification • Recommended Daily allowances • Dietary sources • Functions • Absorption, synthesis, metabolism storage and excretion • Deficiencies • Hypervitaminosis	• Lecture Discussion • Explaining using charts	• Short answers • Objective type

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
VII	4		• Describe the classification, functions, sources and recommended daily Allowances (RDA) of Minerals	**Minerals** • Classification • Recommended daily allowances • Dietary sources • Functions, • Absorption, synthesis, metabolism storage and excretion • Deficiencies • Over consumption and toxicity	• Lecture Discussion • Explaining using charts	• Short answers • Objective type
VIII	3		• Describe the sources, functions and requirements of Water & electrolytes	**Water & Electrolytes** • Water: Daily Requirement, regulation of water metabolism, distribution of body water, • Electrolytes: Types, sources, composition of body fluids • Maintenance of fluid & electrolyte balance • Over hydration, dehydration and water intoxication • Electrolyte imbalances	• Lecture Discussion • Explaining using charts	• Short answers • Objective type
IX	5	15	• Describe the Cookery rules and preservation of nutrients • Prepare and serve simple beverages and different types of foods	**Cookery rules and preservation of nutrients** • Principles, methods of cooking and serving ❑ Preservation of nutrients • Safe food handling-toxicity • Storage of food Food preservation, Food additives and its principles • Preservation of food Adulteration Act (PFA) • Food standards • Preparation of simple beverages and different types of food	• Lecture discussion • Demonstration • Practice session	• Short answers • Objective type

Unit	Time(Hrs.)		Learning Objective	Content	Teaching Learning Activities	Assessment methods
	Th.	Pr.				
X	7		• Describe and plan balanced Diet for different categories of people	**Balance Diet** • Elements • Food groups • Recommended Daily Allowance • Nutritive value of foods • Calculation of balanced diet for different categories of people • Planning menu • Budgeting of food • Introduction to therapeutic diets: Naturopathy-Diet	• Lecture Discussion • Explaining using charts • Practice session • Meal planning	• Short answers question • Objective type
XI	4		• Describe various national programmes related to nutrition • Describe the role of nurse in assessment of nutritional status and nutrition education	**Role of nurse in nutritional programmes** • National Programmes related to nutrition • Vitamin A deficiency Programme • National iodine deficiency disorders (IDD) Programme • Mid-day meal Programme • Integrated child development scheme (ICDS) • National and International agencies working towards food/ nutrition • Assessment of nutritional status • Nutrition education and role of nurse	• Lecture Discussion • Explaining with • Slide/Film shows • Demonstration of Assessment of nutritional status	• Short answers question • Objective type

BIOCHEMISTRY

Placement: First Year Time: Theory –30 Hours

Course Descriptions: The Course is designed to assist the students to acquire knowledge of the normal biochemical composition and functioning of human body and understand the alterations in biochemistry in diseases for practice of nursing.

Unit	Time (hrs.)	Objectives	Content	Teaching Learning Activity	Assessment Methods
I	3	• Describe the structure Composition and functions of cell • Differentiate between prokaryote and Eukaryote cell • Identify techniques of Microscopy	**Introduction** • Definition and significance in nursing • Review of structure, Composition and functions of cell • Prokaryote and Eukaryote cell organization • Microscopy	• Lecture discussion using charts, slides • Demonstrate use of microscope	• Short answer questions • Objective type
II	6	• Describe the structure and functions of Cell membrane	**Structure and functions of cell membrane** • Fluid mosaic model tight junction, Cytoskeleton • Transport mechanism: diffusion, osmosis, filtration, active channel, sodium pump • Acid base balance –maintenance & diagnostic tests ❑ PH buffers	• Lecture discussion	• Short answer questions • Objective type
III	6	• Explain the metabolism of carbohydrates	**Composition and metabolism of Carbohydrates** • Types, structure, composition and uses – Monosaccarides, Disaccharides, polysaccharides, Oligosaccharides, • Metabolism ❑ Pathways of glucose: – Glycolysis – Gluconeogenesis: Cori's cycle, Tricarboxylic acid (TCA) cycle – Glycogenolysis – Pentose phosphate pathways (Hexose mono phosphate) ❑ Regulation of blood	• Lecture discussion of blood glucose monitoring	• Short answer questions • Objective type

Unit	Time (hrs.)	Objectives	Content	Teaching Learning Activity	Assessment Methods
			glucose level Investigations and their interpretations		
IV	4	• Explain the metabolism of Lipids	**Composition and metabolism of Lipids** • Types, structure, composition and uses of fatty acids ❑ Nomenclature, Roles and Prostaglandins • Metabolism of fatty acid ❑ Breakdown ❑ Synthesis • Metabolism of triacylglycerols • Cholesterol metabolism ❑ Biosynthesis and its regulation – Bile salts and bilirubin – Vitamin D – Steroid hormones • Lipoproteins and their functions: ❑ VLDs -IDLs, LDLs and HDLs ❑ Transport of lipids ❑ Atherosclerosis, Investigations and their interpretations	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type
V	6	• Explain the metabolism of Amino acids and Proteins	**Composition and metabolism of Amino acids and Proteins** • Types, structure,, composition and uses of Amino acids and Proteins • Metabolism of Amino acids and Proteins ❑ Protein Synthesis, targeting and glycosylation ❑ Chromatography ❑ Electrophoresis ❑ Sequencing • Metabolism of Nitrogen ❑ Fixation and assimilation ❑ Urea Cycle ❑ Hemes and chlorophylls • Enzymes and co-enzymes ❑ Classification ❑ Properties ❑ Kinetics and inhibition ❑ Control Investigations and their interpretations	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type

Unit	Time (hrs.)	Objectives	Content	Teaching Learning Activity	Assessment Methods
VI	2	• Describe types, composition and utilization of Vitamins & minerals	**Composition of vitamins and minerals** • Vitamins and minerals: ❑ Structure ❑ Classification ❑ Properties ❑ Absorption ❑ Storage & transporting ❑ Normal concentration investigations and their interpretations	• Lecture Discussion using chart • Demonstration of laboratory tests	• Short answer questions • Objective type
VII	3	• Describe Immuno-chemistry	• **ImmunoChemistry** • Immune response, • Structure and classification of Immunoglobins • Mechanism of antibody production • Antigens: HLA Typing • Free radical and antioxidants • Specialized Protein: Collagen, Elastin, Keratin, Myosin, and Lens Protein. • Electrophoretic and Quantitative determination of immunolobins –ELISA etc. • Investigations and their interpretations	• Lecture discussion • Demonstrate laboratory tests	• Short answer Questions • Objective type

NURSING FOUNDATIONS

Placement: First Year **Time:** Theory-265 hours

Practical –650 hours
(200 lab and 450 clinical)

Course Description: This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of nursing in various Supervised Clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of nursing and practice them in Supervised Clinical settings.

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	10	• Describe the concept of health, illness and health care agencies	**Introduction** • Concept of Health: Health Illness continuum • Factors influencing health • Causes and risk factors for developing illness • Body defences; Immunity and immunization • Illness and illness Behavior • Impact of illness on patient and family • Health Care Services: Health promotion and prevention, Primary care, Diagnoses, Treatment, Rehabilitation and continuing. Care. • Health care teams • Types of health care agencies • Hospitals: Types, Organization, and functions • Health Promotion and Levels of Disease Prevention • Primary health care and its delivery: Role of nurse	• Lecture discussion • Visit to health care agencies	• Essay type • Short Answers • Objective type
II	16	• Explain concept and scope of nursing • Describe values, code of ethics and professional conduct for nurses in India	**Nursing as a profession** • Definition and characteristics of a profession • Nursing: ❑ Definition, Concepts, Philosophy, Objectives ❑ Characteristics, nature and scope of nursing practice ❑ Functions of nurses ❑ Qualities of a nurse ❑ Categories of nursing personnel	• Lecture discussion • Case discussion • Role plays	• Essay type • Short Answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			❑ Nursing as a profession ❑ History of Nursing in India • Values: Definition, Types. Values Clarification and values in professional Nursing: Caring and Advocacy • Ethics: ❑ Definition and Ethical principles ❑ Code of ethics and professional conduct for nurses		
III	4	• Explain admission and discharge procedure • Performs admission discharge procedure	**Hospital admission and discharge** • Admission to the hospital ❑ Unit and its preparation admission bed ❑ Admission procedure ❑ Special considerations ❑ Medico-legal issues ❑ Roles and responsibilities of the nurse • Discharge from the Hospital ❑ Types: Planned discharge, LAMA and abscond, referrals and transfers ❑ Discharge planning ❑ Discharge procedure ❑ Special considerations ❑ Medico-legal issues ❑ Role and Responsibilities the nurse ❑ Care of the unit after discharge	• Lecture discussion • Demonstration • Lab practice • Supervised Clinical practice	• Essay type • Short Answers • Objective type • Assess skills with check list • Clinical practical examination
IV	10	• Communicate effectively with patient, families and team members and maintain effective human relations (projecting professional image)	**Community and Nurse patient relationship** • Communication: Levels, Elements, Types, Modes, Process, Factors influencing communication ❑ Methods of Effective communication, ▪ Attending skills Rapport building Skills ▪ Empathy skills	• Lecture Discussion • Role play and video film on the nurses interacting with the patient • Practice Session on patient teaching • Supervised Clinical practice	• Essay type • Short Answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
		• Appreciate the importance of patient teaching in nursing	❑ Barriers to effective communication, • Helping Relationships (NPR) Dimensions of Helping relationship, • Communicating effectively with patient, families and team member and maintain • effective human relations with special reference to communicating with vulnerable group (children, women, physically and mentally challenged and elderly) Patient Teaching: Importance, Purposes, Process, role of nurse and Integrating teaching in Nursing Process		
V	15	• Explain the concept, uses, format and steps of nursing process • Documents nursing process as per the format	**The Nursing Process** • Critical Thinking and Nursing judgment ❑ Critical Thinking: Thinking and Learning ❑ Competencies, Attitudes for Critical thinking, levels of critical thinking in Nursing • Nursing Process Overview: Application in Practice. ❑ Nursing process format: INC, current format ❑ Assessment ▪ Collection of Data: Types sources, Methods ▪ Formulating Nursing judgment: Data interpretation ❑ Nursing diagnosis ▪ Identification of client problems ▪ Nursing diagnosis statement ▪ Difference between medical and nursing diagnosis ❑ Planning ▪ Establishing Priorities ▪ Establishing Goals and expected Out comes.	• Lecture discussion • Demonstration • Exercise • Supervised Clinical practice	• Essay type • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			▪ Selection of intervention: protocols and standing Orders ▪ Writing the Nursing Care Plan ❑ Implementation ▪ Implementing the plan of care ❑ Evaluation ▪ Outcome of care ▪ Review and Modify ❑ Documentation and Reporting		
VI	4	• Describe the purposes, types, and techniques of recording and reporting	**Documentation and Reporting** • Documentation: purposes of recording and reporting • Communication within the Health Care Team, • Types of records; ward records, medical /nursing records • Common Record- keeping forms, computerized documentation • Guidelines for Reporting: Factual Basis, Accuracy, Completeness, current ness, Organization, confidentiality • Methods of recording • Reporting: Change of shift reports: Transfer reports, Incident reports • Minimizing legal Liability through effective record keeping	• Lecture discussion • Demonstration • Practice Session • Supervised Clinical practice	• Essay type • Short answers • Objective type
VII	15	• Describe principles and techniques of monitoring and maintaining vital sings • Monitor and Maintain vital sings	**Vital sings** • Guidelines for taking vital signs: • Body temperature**:** ❑ Physiology, Regulation, Factors affecting body Temperature ❑ Assessment of body temperature: Sites equipments and technique, special considerations ❑ Temperature alterations: Hyperthermia, Heatstroke, Hypothermia ❑ Hot and cold applications	• Lecture discussion • Demonstration • Practice • Supervised Clinical practice	• Essay type • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			• **Pulse:** ❑ Physiology and regulation, Characteristics of the pulse, factors affecting pulse ❑ Assessment of pulse: Sites, location, equipments and technique, special considerations ❑ Alterations in pulse: • **Respiration:** ❑ Physiology and regulation mechanics of breathing Characteristics of the respiration, Factors affecting respiration ❑ Assessment of respirations: technique, special considerations ❑ Alterations in respiration • **Blood pressure:** ❑ Physiology and Regulation, Characteristics of the blood pressure, Factors affecting blood pressure ❑ Assessment of blood pressure: Sites, equipments and technique, special considerations ❑ Alterations in blood pressure • Recording of vital signs		
VIII	30	• Describe Purpose and process of health assessment • Describe the health assessment of each body system • Perform health assessment of each body system	**Health assessment** • Purposes • Process of Health assessment ❑ Health history ❑ Physical examination: ▪ Methods-Inspection, palpation, percussion Auscultation, Olfaction ▪ Preparation for examination: patient and unit ▪ General assessment ▪ Assessment of each body system ▪ Recording of health assessment	• Lecture discussion • Demonstration • Practice on simulators • Supervised Clinical practice	• Essay type • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
IX	5	• Identifies the various machinery, equipment and linen and their care	**Machinery, Equipment and Linen** • Types: Disposables and reusable-Linen, rubber goods, glass ware, metal, plastics, furniture machinery • Introduction ❑ Indent ❑ Maintenance ❑ Inventory	• Lecture discussion • Demonstration	• Essay type • Short answers • Objective type
X	60	• Describe the basic, physiological and psychosocial needs of patients • Describe the principles and techniques for meeting basic, physiological and psychosocial needs of patient • Perform plan, implement and evaluate the care for meeting basic. Physiological need of patient	**Meeting needs of patient** • Basic needs (activities of daily living) ❑ Providing safe and clean environment: ▪ Physical –environment: Temperature, Humidity, Noise, Ventilation, light, Odour, Pests control ▪ Reduction of physical hazards: fire, accidents ▪ Safety devices: Restraints, side rails, airways, trapez, etc. ▪ Role of nurse in providing safe and clean environment ❑ Hygiene:- ▪ Factors Influencing Hygienic practice ▪ Hygienic care: Care of the skin-Bath and pressure point, feet and nail, Oral cavity, Hair Care, Eyes Ears, and nose o Assessment, principles, types, Equipment procedure, Special considerations ▪ Patient environment: Room Equipment and linen, making patient beds	• Lecture discussion • Demonstration • Practice sessions • Supervised practice • Clinical practice	• Essay type • Short answer • Objective types • Assess with check list and clinical examination

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			○ Types of beds and bed making ❑ Comfort; ▪ Factors influencing comfort ▪ Comfort devices • Physiological needs: ❑ Sleep and Rest: ▪ Physiology of sleep ▪ Factors affecting sleep ▪ Promoting Rest and sleep ▪ Sleep Disorders ❑ Nutrition: - ▪ Importance ▪ Factors affecting nutritional needs: Principles, equipments, procedure and special considerations ○ Oral ○ Enteral: Naso/ Orogastric, Gastrostomy ○ Parenteral ❑ Urinary Elimination ▪ Review of physiology of Urine Elimination, Composition and characteristics of urine ▪ Factors influencing Urination ▪ Alteration in Urinary Elimination ▪ Types and Collection of urine specimen: Observation, urine testing ▪ Facilitating urine elimination: assessment, types, equipments, procedures and special considerations ❑ Providing urinal /bed pan. ▪ Care of urinary drainage ▪ Care of urinary diversions		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			▪ Bladder irrigation ❑ Bowel Elimination ▪ Review of Physiology of Bowel Elimination, composition and characteristics of Faeces ▪ Factors affecting Bowel elimination ▪ Alteration in bowel elimination ▪ Type and Collection of specimen of Faeces: Observation ▪ Facilitating bowel Elimination: Assessment, equipments, procedures and, special considerations ▪ Passing of flatus tube o Enemas o Suppository o Sitz both o Bowel wash o Care of ostomies ❑ Mobility and Immobility ▪ Principles of Body Alignment and mobility ▪ Factors affecting body Alignment and mobility ▪ Hazards associated with immobility ▪ Alteration in body Alignment and Mobility: Nursing intervention for impaired Body alignment and mobility: Assessment, types, devices used, method and special considerations rehabilitation aspects		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			○ Rang of motion exercises ○ Maintaining body alignment: positions ○ Moving ○ Lifting ○ Transferring ○ Walking ○ Restraints ❑ Oxygenation ▪ Review of Cardiovascular and respiratory physiology ▪ Factors Affecting Oxygenation ▪ Alterations in oxygenation ▪ Nursing interventions in oxygenation: assessment, types, equipments used, procedure and special considerations ○ Maintenance of patent airway ○ Oxygen administration ○ Suction ○ Inhalations: dry and moist ○ Chest physiotherapy and postural drainage ○ Care of chest drainage ○ Pulse oximetry ○ CPR-Basic life support ❑ Fluid, Electrolyte, and Acid -Base Balances Review of physiological Regulation of fluid, Electrolyte, acid- Base balances ▪ Factors affecting Fluid, Electrolyte, and Acid – Base Balances ▪ Alterations in Fluid, Electrolyte, and Acid-Base Balances		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			▪ Nursing interventions in Fluid, Electrolyte, and Acid Base Imbalances: assessments, types, equipments procedure and special considerations o Measuring fluid intake and Output o Correcting Fluid, Electrolyte Imbalance: ✓Replacement of fluids: Oral and parenteral venipuncture, IV flow rates,changing IV solutions and tubing, changing IV dressing, ✓Administering Blood transfusion ✓Restriction of fluids • Psychosocial Needs ❑ Concepts of Cultural Diversity, Stress and Adaptation, self-concept, Sexuality, Spiritual Health, Coping with loss, death and grieving ❑ Assessment of psychosocial needs ❑ Nursing intervention for psychosocial needs o Assist with coping and adaptation o Creating therapeutic environment ✓ Recreational and divers ional therapies		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
XI	20	• Describe principles and techniques for infection control and biomedical waste management in Supervised Clinical settings	**Infection control in Clinical settings** • Infection control ❑ Nature of infection ❑ Chain of infection transmission ❑ Defenses against infection: natural and acquired infection, ❑ Hospital acquired infection (Nosocomial infection) • Concept of asepsis: medical asepsis, and surgical asepsis • Isolation precautions (Barrier nursing) Hand washing: simple, hand antisepsis and surgical antisepsis (scrub) ❑ Isolation: source and protective ❑ Personal protecting equipment: types, uses and technique of wearing and removing ❑ Decontamination of equipment and unit ❑ Transportation of infected patients ❑ Standard safety precautions (Universal precautions) ❑ Transmission based precautions • Biomedical waste management: ❑ Importance ❑ Types of hospital waste ❑ Hazards associated with hospital waste ❑ Decontamination of hospital waste ❑ Segregation and Transportation and disposal	• Lecture discussion • Demonstration • Practice session • Supervised Clinical practice	
XII	40	• Explain the principles, routes, effects of administration of medications • Calculate conversions of	**Administration of Medications** • General Principles /Considerations ❑ Purposes of Medication Principles: 5 rights, Special Considerations, Prescriptions, Safety in	• Lecture discussion • Demonstration • Practice session	• Essay type • Short answers • Objective type • Assess with check

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
		drugs and dosages within and between systems of measurements • Administer drugs by the following routes –oral, Intradermal, Subcutaneous Intramuscular, Intra Venous topical, inhalation	Administering medications and Medication Errors ❑ Drug forms ❑ Routes of administration ❑ Storage and maintenance of drugs and Nurses responsibility ❑ Broad classification of drugs ❑ Therapeutic Effect, side effect, Toxic effects, Idiosyncratic Reactions, Allergic Reactions, Drug, Tolerance, Drug Interactions, ❑ Factors influencing drug actions ❑ Systems of drug Measurement: Metric System, Apothecary Systems, Household Measurements, Solutions ❑ Converting Measurements Units: Conversion within one systems, Conversion between systems, Dosage Calculation ❑ Terminologies and abbreviations used in prescriptions of medications • Oral Drugs Administrations: Oral, Sublingual and Buccal: Equipment, procedure • Parenteral ❑ General Principles: decontamination and disposal of syringes and needles ❑ Types of parenteral therapies ❑ Types of syringes, needles, canula, and infusion sets ❑ Protection from needlestick Injuries: Giving Medications with a safety syringes ❑ Routes of parenteral therapies	• Supervised Clinical practice	list and clinical practical Examination

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			- Intradermal: Purpose, site, equipment, procedure, special considerations - Subcutaneous: purpose, site, equipment, procedure, special considerations - Intramuscular: Purpose, site, equipments, - Procedure, special considerations - Intra Venous: purpose, site, equipment, procedure, special considerations • Advanced techniques: epidural, intrathecal, intraosseous, intraperitonial, intraplural intraarterial- Role of nurse • Topical Administration: purposes, site, equipment, procedure special considerations for ❑ Application to Skin ❑ Application to mucous membrane - Direct application of liquids-Gargle and swabbing the throat - Insertion of Drug into body cavity: Suppository/ medication packing in rectum/ vagina - Instillations: Ear, Eye, Nasal, Bladder, and Rectal - Irrigations: Eye, Ear, Bladder, Vaginal and Rectal - Spraying: Nose and throat • Inhalation: Nasal, oral, endo-tracheal / tracheal (steam, oxygen and medications)- purposes, types, equipment, procedure, special considerations Recording and reporting of		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			medications administered		
XIII	10	• Describe the pre and post operative post operative care of patients • Explain the process of wound healing • Explain the principles and techniques of wound care • Perform care of wounds	**Meeting needs of Perioperative patients** • Definition and concept of Perioperative Nursing • Perioperative Phase ❑ Preparation of patient for surgery • Intraoperative ❑ Operation theatre Set up and environment ❑ Role of nurse • Postoperative Phase ❑ Recovery unit ❑ Post operative unit, ❑ Post operative care • Wounds: types, Classifications, wound Healing Process, Factors affecting Wound ,complications of wound healing • Surgical asepsis • Care of the wound: types, equipment, procedure and special considerations ❑ Dressings, Suture Care, ❑ Care of Drainage ❑ Application of Bandages, Binders, Splints & Slings • Heat and Cold Therapy	• Lecture discussion • Demonstration • Practice session • Supervised clinical practice	• Essay type • Short answers • Objective type • Assess with check list and clinical practical Examination
XIV	15	• Explain care of patents having alterations in body functioning	**Meeting special needs of the patient** • Care of patients having alteration in ❒ Temperature (hyper and hypothermia); Types Assessment, Management ❒ **Sensorium** (Unconsciousness); Assessment, Management ❑ Urinary elimination (Retention and incontinence) assessment & management ❑ Functioning of sensory organs: (Visual & hearing impairment)	• Lecture discussion • Case discussion • Supervised Clinical practice	• Essay types • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			❑ Assessment of Self-Care ability ❑ Communication Methods and special considerations ❑ Mobility (physically challenged, cast), assessment of self care ability: Communication Methods and special considerations ❑ Mental state (mentally challenged), assessment of self-Care ability; ❑ Communication Methods and special considerations ❑ Respiration (distress); Types, Assessment, Management ❑ Comfort- (Pain) – Nature, Types, Factors influencing pain, Coping, Assessment, Management: • Treatments related to gastrointestinal System: naso-gastric suction, gastric irrigation, gastric analysis		
XV	5	• Explain care of terminally ill patient	**Care Terminally ill Patient** ❑ Concepts of Loss, grief, grieving Process ❑ Signs of clinical death ❑ Care of dying patient: special considerations - Advance directives: euthanasia, will, dying declaration, organ donation etc. ❑ Medico-legal issues ❑ Care of dead body: equipment, procedure and care of unit ❑ Autopsy ❑ Embalming	• Lecture discussion • Demonstration • Case discussion /Role play • Practices session • Supervised Clinical practice	• Essay type • Short answers • Objective type
XVI	6	• Explain the basic concepts of conceptual and theoretical models of nursing	**Professional Nursing concepts and practices** • Conceptual and theoretical models of nursing practice: Introduction to model- Holistic model,	• Lecture discussion	• Essay types • Short answers

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			heath belief model, health promotion model etc. • Introduction to Theories in Nursing; Peplau's, Henderson's Orem's, Neuman's, Roger's and Roy's Linking theories with nursing process		

NURSING FOUNDATIONS –PRACTICAL

Placement: First Year

Time: Practical –650 hours
(200 lab and 450 clinical)

Course Description: This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of nursing in various clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of nursing and practice them in clinical settings.

Areas	Time Hrs.	Objectives	Skills	Assignments	Assessment methods
Demonst-ration Lab General Medical and surgery ward	200 450 Minimum practice time in clinical area	• Performs admission and discharge procedure	**Hospital admission and discharge (III)** • Admission • Prepare Unit for new patient • Prepare admission bed • Performs admission procedure ❑ New patient ❑ Transfer in • Prepare patient records **Discharge / Transfer out** • Gives discharge counseling • Perform discharge procedure (Planned discharge, LAMA and abscond, Referrals and transfers) • Prepare records of discharge / transfer • Dismantle, and disinfect unit and equipment after discharge / transfer	• Practice in Unit / Hospital	• Evaluate with checklist • Assessment of clinical performance with rating scale • Completion of Practical record
		• Prepares nursing care plan as per the nursing process format	**Perform assessment:** • History taking, Nursing diagnosis, Problem list, Prioritization, Goals & Expected Outcomes, Selection of interventions • Write Nursing Care Plan • Gives care as per the plan	• Write nursing process records of patient • Simulated –I • Actual –I	• Assessment of nursing process records with checklist • Assessment of actual care given with rating scale

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
		• Communicate effectively with patient, families and team members and • Maintain effective human relations • Develops plan for patient teaching • Prepare patient reports • Presents reports • Monitor vital signs • Perform health assessment of each body systems • Provide basic nursing care to patients	**Communication** • Use verbal and non verbal communication techniques **Prepare a plan for patient teaching session** **Write patients report** • Change-of shift reports, Transfer reports, Incident reports etc. • Presents patient • Report **Vital signs** • Measure, Records and interpret alterations in body temperature pulse respiration and blood pressure **Health assessment** • Health history taking • Perform assessment: ❑ General ❑ Body Systems • Use various methods of physical examination • Inspection, Palpation, Percussion, Auscultation, Olfaction • Identification of system wise deviations **Prepare Patient's unit:** • Prepare Beds: ❑ Open, closed, occupied operation, amputation, • Cardiac, fracture, burn, Divided, Fowlers, renal bed • Pain assessment and provision for comfort	• Role – plays in simulated situations on communication techniques -I • Health talk-I • Write Nurses notes and present the patient report of 2-3 assigned patient • Lab Practices • Measure Vital signs of assigned pati • Practice in lab & hospital • Simulated exercise on CPR manikin	• Assess role plays with the check-list on communication techniques • Assess health talk with the check list • Assessment of communication techniques by rating scale • Assessment of performance with rating scale • Assessment of each skill with check list • Completion of activity record • Assessment of each skill with rating scale • Completion of activity record

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
			Use comfort devices **Hygienic care:** • Oral hygiene: • Baths and care of pressure points • Hair wash, Pediculosis treatment **Feeding:** • Oral, Enteral, Naso/Orogastric, gastrostomy and parenteral feeding • Naso-gastric insertion, suction, and irrigation **Assisting patient in urinary elimination** • Provides urinal/bed pan • Condom drainage • Perineal care • Catheterization • Care of urinary drainage **Bladder irrigation** **Assisting bowel Elimination:** • Insertion of Flatus tube • Enemas • Insertion of Suppository **Bowel wash** **Body Alignment and Mobility:** ❑ Range of motion exercises ❑ Positioning: Recumbent, Lateral (rt/lt), Fowlers, Sims, Lithotomy, Prone, Trendelenburg position ❑ Assist patients in Moving,lifting, transferring, walking ❑ Restraints **Oxygen administration** **Suctioning:** **Oropharyngeal, nasopharyngeal** **Chest physiotherapy and postural drainage** **Care of Chest drainage**		

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
			CPR – Basic life support **Intravenous therapy** **Blood and blood component therapy** **Collect/assist for collection of specimens for investigations: Urine, sputum, faeces, Vomitus, blood and other body fluids** **Perform lab tests:** • Urine: sugar, albumin, acetone • Blood: sugar (with strip/gluco-meter) **Hot and cold application:** Local and general sitz bath **Communicating and assisting with self-care of visually & hearing impaired Patients** **Communicating and assisting with self-care of mentally challenged/disturbed patients** **Recreational and diversional therapies** **Caring of patient with alteration in Sensorium** **Infection control** • Perform following procedures: ❑ Hand washing techniques ❑ (Simple, hand antisepsis and surgical antisepsis (scrub) ❑ Prepare isolation unit in lab/ward ❑ Practice technique of wearing and removing Personal Protective equipment (PPE) Practice Standard safety precautions (Universal precautions)		
		• Perform infection control procedures		• Observation study-2 • Department of infection control & CSSD • Visits CSSD write observation report –1 • Collection of samples for culture • Do clinical posting in infection Control	• Assess observation study with checklist • Evaluate all procedures with checklist

Areas	Time Hrs.	Objectives	Skills	Assignments	Assessment methods
			Decontamination of equipment and unit: • Surgical asepsis: ❑ Sterilization ❑ Handling sterilized equipment ❑ Calculate strengths of lotions, ❑ Prepare lotions Care of articles	department and write report • Practice in lab/ ward	
	100	• Provide care to pre and post operative patients • Perform procedures for care of wounds • Administer drugs	**Pre and post operative care:** • Skin preparations for surgery: Local • Preparation of post operative unit • Pre & post operative teaching and counseling • Pre and post operative monitoring • Care of the wound: • Dressings, suture Care, care of Drainage, Application of Bandages, Binders, Splints & Slings • Bandaging of various body parts **Administration of medications** • Administer Medications in different forms and routes • Oral, Sublingual and Buccal • Parenteral: Intradermal, subcutaneous, Intramuscular etc. • Assist with Intra Venous medications • Drug measurements and dose calculations • Preparation of lotions and solution • Administers topical applications • Insertion of drug into body cavity:		

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
		• Provide care to dying and dead • Counsel and support relatives	Suppository & medicated packing etc. • Instillation of medicines and spray into Ear, Eye, Nose and throat • Irrigations: Eye, Ear, Bladder, Vagina and Rectum • Inhalations: dry and moist **Care of dying patient** • Caring and packing of dead body • Counseling and supporting grieving relatives • Terminal care of the unit		

PSYCHOLOGY

Placement: First year Time: Theory - 60 hrs.

Course Description: The course is designed to assist the students to acquire knowledge of fundamentals of psychology and develop an insight into behaviour of self and others, Further it is aimed at helping them to practice the principles of mental hygiene for promoting mental health in nursing practice.

Unit	Time (Hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment method
I	2	• Describe the history, scope and methods of psychology	**Introduction** • History and origin of science of psychology • Definitions & Scope of Psychology • Relevance to nursing • Methods of Psychology	• Lecture discussion	• Essay type • Short answers
II	4	• Explain the biology of Human behaviour	**Biology of behaviour** • Body mind relationship modulation process in health and illness • Genetics and behaviour: Heredity and environment • Brain and behaviour: Nervous system, Neurons and synapse, • Association cortex, Rt and Lt Hemispheres • Psychology of Sensations • Muscular and glandular controls of behaviour • Nature of behaviour of an organism/Integrated responses	• Lecture discussion	• Essay type • Short answers
III	20	• Describe various cognitive processes and their applications	**Cognitive processes** • Attention: Types, determinants, Duration & degree, alterations • Perception: Meaning, Principles, factors affecting, Errors, • Learning: Nature, Types, learner and learning, Factors influencing, laws and theories, process, transfer, study habits • Memory: Meaning, Types, Nature, factors influencing, Development Theories and methods of memorizing and Forgetting • Thinking: Types and levels, stages of development,	• Lecture Discussion • Psychometric assessment: • Practice sessions	• Essay type • Short answers

Unit	Time Hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment method
			Relationship with language and communication • Intelligence: Meaning, classification, uses, theories • Aptitude: Concept, types Individual differences and variability • Psychometric assessment of cognitive processes • Alterations in cognitive processes • Applications		
IV	8	• Describe motivation, emotions, stress, attitudes and their influence on behaviour	**Motivation and Emotional Processes** • Motivation: Meaning, concepts, Types, Theories, Motives and behaviour, Conflicts and frustration, conflict resolution • Emotions & stress ❑ Emotion: Definition, components, Changes in emotions, theories, emotional adjustments, emotions in health and illness ❑ Stress: stressors, cycle, effect, adaptation & coping • Attitude: Meaning, nature, development, factors affecting, ❑ Behaviour and attitudes ❑ Attitudinal change • Psychometric assessments of emotions and attitudes • Alterations in emotions • Application	• Lecture Discussion • Role plays • Case Discussion • Demonstrai on	• Essay type • Short answers
V	**7**	• Explain the concepts of personality and its influence on behavior	**Personality** • Definitions, topography, types, theories • Psychometric assessments of personality • Alterations in personality • Applications	• Lecture Discussion • Demonstratio n	• Essay type • Short answers
VI	7	• Describe psychology of people during the life cycle	**Development Psychology** • Psychology of people at different ages from infancy to old age • Psychology of vulnerable	• Lecture Discussion • Case Discussion	• Essay type • Short answers

Unit	Time Hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment method
			individuals – challenged, women, sick, etc. • Psychology of groups		
VII	8	• Describe the characteristics of • Mentally healthy person • Explain ego defense mechanisms	**Metal hygiene and mental Health** • Concepts of mental hygiene and mental health • Characteristics of mentally healthy person • Warning signs of poor mental health • Promotive and preventive mental health strategies and services • Ego Defense mechanisms and implications • Personal and social adjustments • Guidance and counseling • Role of nurse	• Lecture Discussion • Case Discussion • Role Play • Demonstration	• Essay type • Short answers
VIII	4	• Explain the psychology assessments and role of nurse	**Psychological assessment & tests** • Types, development, Characteristics, Principles, Uses, Interpretations and role of nurse in psychological assessment	• Lecture Discussion • Demonstration • Practice sessions	• Assessment of practice

MICROBIOLOGY

Placements: First year

Time: Theory - 60 hrs.
(Theory 45+15 lab)

Course Description: This Course is designed to enable students to acquire understanding of fundamentals of Microbiology and identification of various micro-organisms. It also provides opportunities for practicing infection control measures in hospital and community settings.

Unit	Time (Hrs.)		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
I	5		• Explain concepts and principles of microbiology and their importance in nursing	**Introduction:** • Importance and relevance to nursing • Historical perspective • Concepts and terminology • Principles of microbiology	• Lecture Discussion	• Short answers • Objective type
II	10	5	• Describe structure classification morphology and growth of bacteria • Identify Microorganisms	**General characteristics of Microbes** • Structure and classification of microbes • Morphological types • Size and form of bacteria • Motility • Colonization • Growth and nutrition of microbes ❑ Temperature ❑ Moisture ❑ Blood and body fluids • Laboratory methods for Identification of Microorganisms • Staining techniques, Gram staining, Acid fast staining, Hanging drop preparation • Culture; various medias	• Lecture Discussion • Demonstration	• Short answers • Objective type
III	10	2	• Describe the methods of infection control • Identify the role of nurse in hospital infection Control Programme	**Infection control** • Infection: Sources, portals of entry and exit, transmission • Asepsis • Disaffection; Types and methods • Sterilization; Types and methods • Chemotherapy and antibiotics • Standard safety measures	• Lecture Discussion • Demonstration • Visits to CSSD • Clinical practice	• Short answers • Objective type

Unit	Time (Hrs.)		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
				• Biomedical waste management • Role of Nurse • Hospital acquired infection • Hospital infection control programme ❑ Protocols, collection of samples, preparation of report and status of rate of infection in the unit/ hospital, nurse's accountability, continuing education etc.		
IV	12	4	• Describe the different disease producing organisms	**Pathogenic organisms** • Micro-organism ❑ Cocci-gram positive and gram negative ❑ Bacilli-gram positive and gram negative ❑ Spirochete ❑ Mycoplasma ❑ Rickettsiae ❑ Chalmydiae • Viruses • Fungi-Superficial and Deep mycoses • Parasites • Rodents & vectors Characteristics, Source, portal of entry, transmission of infection Identification of disease Producing micro-organisms • Collection, handling and transportation of various specimens	• Lecture Discussion • Demonstration • Clinical practice	• Short answers • Objective type
V	8	4	• Explain the concept of immunity, hyper sensitivity and immunization	**Immunity** • Immunity – Types, classification • Antigen and antibody reaction • Hypersensitivity – Skin test • Serological test • Immunoprophylaxis • Vaccines & sera-Types & classification, storage and handling, cold chain • Immunization for various diseases • Immunization Schedule	• Lecture Discussion • Demonstration • Clinical practice	• Short answers • Objective type

INTRODUCTION TO COMPUTERS

Placements: First year Time: Theory – 45 hrs.

Course Description: This course is designed for students to develop basic understanding of uses of computer and its applications in nursing.

Unit	Time (Hrs.)		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
I	3		• Identify & define various concepts used in computer • Identify application of computer in nursing	**Introduction:** • Concepts of computers • Hardware and software; trends and technology • Application of computer in nursing	• Lecture Discussion • Demonstration	• Short answers • Objective type
II	6	20	• Describe and Use the Disk Operating System • Demonstrate skill in the use of MS Office	• Introduction to disk operating system ❑ DOS ❑ Windows (all version) • Introduction ❑ MS-Word ❑ MS-Excel with pictorial presentation ❑ MS-Access ❑ MS-Power Point	• Lecture Discussion • Demonstration • Practice session	• Short answers • Objective type • Practical Exam
III	2	3	• Demonstrate skill in using multi-media • Identify features of computer aided teaching and testing	• Multimedia; types & uses • Computer aided teaching & testing	• Lecture Discussion • Demonstration	• Short answers • Objective type • Practical Exam and Viva Voce
IV	1	3	• Demonstrate use of Internet and Email	• Use of Internet and e-mail	• Lecture Discussion • Demonstration • Practice session	• Short answers • Objective type • Practical Exam and Viva Voce

Unit	Time Hrs.		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
V	2	2	• Describe and use the statistical packages	• Statistical packages: Types and their features	• Lecture Discussion • Demonstration • Practice session	• Short answers • Objective type • Practical Exam and Viva Voce
VI	1	2	• Describe the use of Hospital Management System	• Hospital Management system: Types and uses	• Lecture Discussion • Demonstration	• Short answers • Objective type • Practical Exam and Viva Voce

SOCIOLOGY

Placement: Second Year Time: Theory 60 hrs.

Course Description: This course is designed to introduce the concepts of sociology related to community and social institutions in India and relationship with health, illness and nursing.

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	1	• State the importance of sociology in Nursing	**Introduction** • Definition of Sociology • Nature and Scope of the discipline • Importance and application of Sociology in Nursing	• Lecture Discussion	• Essay type • Short answers
II	3	• Describe the inter relation ship of individual in society and community	**Individual & Society** • Society and Community • Nature of Society • Difference between Society and community • Process of Socialization and individualization	• Lecture Discussion	• Essay type • Short answers
III	3	• Describe the influence of culture and on health and disease	**Culture** • Nature of culture • Evolution of culture • Diversity and uniformity of Culture • Culture and socialization • Trans cultural society • Influence on health and disease	• Lecture Discussion • Panel Discussion	• Essay type • Short answers
IV	4	• Identify various social groups and their interactions	**Social groups and Processes** • The meaning and classification of groups • Primary & Secondary Group • In-group V/S. out-group, class Tribe, Caste • Economic, political, Religious groups, Mob, Crowd public and Audience Interaction & Social Processes • Co-operation, Competition, Conflict • Accommodation, Assimilation & Isolation	• Lecture Discussion	• Essay type • Short answers

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
V	6	• Explain the growth of population in India and its impact on health	**Population** • Society and population • Population distribution in India Demographic characteristics • Malthusian theory of Populations • Populations explosion in India and its impact on health status • Family welfare programmes •	• Lecture Discussion • Community Identification	• Essay type • Short answers Assessment of report on community identification
VI	5	• Describe the institutions of family and marriage in India	**Family and Marriage** • Family – functions • Types –joint, Nuclear, Blended and extended family: Characteristics • The modern family- changes Problems- Dowry etc. Welfare Services. • Changes & legislations on family and marriage in India – marriage acts. • Marriage: Forms and functions of marriage, • Marriage and family problems in India • Family, marriage and their influence on health and health practices	• Lecture Discussion • Family Case study	• Essay type • Short Answers • Assessment of family case study
VII	7	• Describe the class and caste system and their influence on health and health practices	**Social Stratification** • Meaning & types of social stratification • The Indian Caste System-origin & features • Features of Caste in India Today • Social Class system and status • Social Mobility-Meaning & types • Race as a biological concept, criteria of racial classification • Salient features of Primary races racism • Influence of Class, Caste and Race on health and health practices.	• Lecture Discussion • Community survey	• Essay type • Short answers • Assessment of report on community survey

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
VIII	6	• Describe the types of communities in India, their Practices and the impact on health	**Types of Communities in India (Rural, Urban and Regional)** • Features of village community & characteristics of Indian Villages-panchayat Systems, social dynamics • Community Development project & planning • Change in Indian Rural Life • Availability of health facilities in rural and its impact on health and health practices • Urban –Community – features • The growth of cities: Urbanization and its impact on health and health practices • Major Urban problems – Urban Slums Region: Problems and impact on Health	• Lecture Discussion Visits of rural and urban community • Community survey	• Essay type • Short Answers Assessment of report on community survey
IX	4	• Explain the process of Social Change	**Social Change** • Nature and process of Social Change • Factors influencing Social change: cultural change, Cultural lag. • Introduction to theories of social change: Linear, Cyclical, Marxian, Functional Role of nurse-Change agents	• Lecture Discussion	• Essay type • Short Answers
X	4	• Describe the Social system and inter-relationship of social organizations	**Social organization and social system** • Social organization: elements, types • Democratic and authoritarian modes of Participation, • Voluntary associations • Social system: Definition and Types of social system • Role and status as structural elements of social system • Inter- relationship of institutions	• Lecture Discussion • Observation visits	• Essay type • Short Answers • Assessment of visit reports

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
XI	2	• Explain the nature and process of social control	**Social Control** • Nature and process of social control • Political, Legal, Religious, Educational ,Economic, Industrial and Technological systems, Norms & Values-folkways & Mores Customs, Laws and fashion • Role of nurse	• Lecture Discussion • Community survey	• Essay type • Short Answers • Assessment of report on community survey
XII	15	• Describe the role of the nurse in dealing with social Problem in India	**Social Problems** • Social disorganization • Control & planning: poverty housing, illiteracy, food supplies prostitution, rights of women & children, vulnerable groups: Elderly, handicapped, minority groups, other marginalized groups and child labour, child abuse, delinquency and crime substance abuse, HIV/AIDS. • Social Welfare programmes in India Role of nurse	• Lecture Discussion • Institutional Visits	• Essay type • Short Answers • Assessment of visit reports

PHARMACOLOGY

Placement: Second Year **Time:** Theory –4hrs.

Course Description: This course is designed to enable students to acquire understanding of Pharmaco-dynamics, pharmacokintics, principles of therapeutics and nursing implications.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	3	• Describe Pharmaco-dynamics, Pharmaco – kinetics classification and the principles of drug administration	**Introduction to pharmacology** • Definitions • Sources • Terminology used • Types: Classification • Pharmacodynamics: Actions, therapeutic, • Adverse, toxic • Pharmacokinetics: absorption distribution, metabolism, interaction, excretion • Review: Routes and principles of administration of drugs • Indian pharmacopoeia: Legal issues • Rational use of drugs • Principles of therapeutics	• Lecture Discussion	• Short answers • Objective types
II	6	• Explain chemotherapy of specific infections and infestations and nurse's responsibilities	**Chemotherapy** • Pharmacology of commonly used; ❑ Penicillin ❑ Cephalosporins ❑ Amino- glycosides ❑ Macrolide& Broad spectrum Antibiotics ❑ Sulfonamides ❑ Quinolones ❑ Antiamoebic ❑ Antimalarials ❑ Anthelminitics ❑ Antiscabies agents ❑ Antiviral & anti- fungal agents ❑ Antitubercular drugs ❑ Anti leprosy drugs ❑ Anticancer drugs ❑ Immuno-suppressants Composition, action, dosage, route, indications, contraindications, drug interactions side effects, adverse effects, toxicity role of nurse	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activities	Assessment Method
III	2	• Describe antiseptics, disinfectants, insecticides and nurse's responsibilities	**Pharmacology of commonly used antiseptics, disinfectants and insecticides** • Antiseptics; composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse • Disinfectants • Insecticides	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
IV	2	• Describe Drugs acting on Gastro Intestinal system and nurse's responsibilities	**Drugs acting on G.I. System** • Pharmacology of commonly used ❑ Antiemetics, ❑ Emetics ❑ Purgatives ❑ Antacids ❑ Cholinergic ❑ Anticholinergics ❑ Fluid and electrolyte therapy ❑ Anti diarrhoeals ❑ Histamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effectives, toxicity and role of nurse	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
V	2	• Describe Drugs used on Respiratory System and nurse's responsibilities	**Drugs used on Respiratory System** • Pharmacology of commonly used- ❑ Antiasthmatics ❑ Mucolytics ❑ Decongestants ❑ Expectorants ❑ Antitussives ❑ Bronchodilators ❑ Broncho constrictors ❑ Antihistamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
VI	2	• Describe Drugs used on Urinary System and Nurse's Responsibilities	**Drugs used on Urinary Systems** • Pharmacology of commonly used- ❑ Diuretics and antidiuretics ❑ Urinary antiseptics ❑ Cholinergic ,Anticholinergics ❑ Acidifiers and alkalanizers Composition, action, dosage, route, indications,	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse		
VII	4	• Describe Drugs used in de - addiction, emergency, deficiency of vitamins & minerals, poisoning, for immunization and immunosuppression and nurse's responsibilities	**Miscellaneous** • Drug used in de-addiction • Drugs used in CPR and emergency • Vitamins and minerals • Immunosuppresants • Antidotes • Antivenom • Vaccines and sera	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
VIII	1	• Describe Drugs used on skin and mucous membranes and nurse's responsibilities	**Drugs used on skin and mucous membranes** • Topical applications for skin, eye, ear, nose and buccal cavity antipruritics Composition, action dosage, route indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	• Lecture Discussion • Drug study/ presentation	• Short answers • Objective type
IX	8	• Describe Drugs used on Nervous Systems and nurse's responsibilities	**Drugs acting on Nervous Systems** • Basic & applied pharmacology of commonly used: • Analgesics and Anesthetics ❑ Analgesics - Non steroidal anti-inflammatory (NSAID) drugs ❑ Antipyretics • Hypnotics and Sedatives - Opioids - Non-Opioids -Tranquilizers -General & local anesthetics -Gases: oxygen, nitrous-oxide, carbon – dioxide • Cholinergic and anti-Cholinergic: ❑ Muscle Relaxants ❑ Major Tranquilizers ❑ Anti-psychotics	• Lecture Discussion • Drug study/ presentation	• Short answers • Objective types

Unit	Time hrs	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Antidepressants ❑ Adrenergics ❑ Noradregenics ❑ Mood stabilizers ❑ Acetylcholine ❑ Stimulants • Composition, action dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse		
X	5	• Describe Drugs used on Cardio vascular System and nurse's responsibilities	**Cardiovascular drugs** • Haematinics • Cardiotonics, • Anti-hypertensives & Vasodilators • Anti-arrhythmics • Plasma Expanders • Coagulants & anticoagulants • Antiplatelets & thrombolytics • Hypolipidemics Composition action, dosage, rout, indications, contraindications, drug interactions, side effects, Adverse effects, toxicity and role of nurse	• Lecture • Discussion • Drug study/presen -tation	• Short answers • Objective type
XI	4	• Describe drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy and nurse's responsibilities	**Drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy** • Insulin's & Oral hypoglycemic • Thyroid supplements and suppressants • Steroids, anabolic • Uterine stimulants and relaxants • Oral contraceptives • Other estrogen-progesterone preparations • Corticotrophine & Gondotropines • Adrenaline • Prostaglandins • Calcitonins • Calcium salts • Calcium regulators Composition, action, dosage,	• Lecture Discussion • Drug study/ presentation	• Short answers • Objective types

Unit	Time hrs	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse.		
II	6	• Demonstrate awareness of the common drugs used in alternative system of medicine	**Introduction to Drugs used in alternative systems of medicine:** Ayurveda, Homeopathy, Unani and Siddha etc.	• Lecture Discussion • Observational Visits	• Short answers • Objective type

Time: theory –45 hours (Pathology 30 & Genetics 15 hrs)

PATHOLOGY AND GENETIC
SECTION A- PATHOLOGY

Placement: Second Year Time: Theory –30 hrs.

Course Description: This course is designed to enable students to acquire knowledge of pathology of various disease conditions and apply this knowledge in practices of nursing.

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
I	3		• Define the common terms used in pathology, • Appreciate the deviations from normal to abnormal structure and functions of the body systems	• **Introduction** ❑ Importance of the study of pathology ❑ Definition of terms ❑ Methods and techniques ❑ Cellular and tissue changes ❑ Infiltration and regeneration ❑ Inflammations and Infections ❑ Wound healing ❑ Vascular changes • Cellular growth, Neoplasms ❑ Normal and Cancer cell ❑ Benign and Malignant growths ❑ In situ carcinoma • Disturbances of fluid and electrolyte imbalance	• Lecture Discussion • Explain using charts	• Short answers • Objective type
II	10	5	Explain pathological changes in disease conditions of various systems	**Special pathology** • Pathological changes in disease conditions of various systems: • Respiratory tract ❑ Tuberculosis, Bronchitis, Pleural effusion and pneumonia ❑ Lung abscess, emphysema, bronchiectasis ❑ Bronchial asthma, Chronic obstructive Pulmonary disease & tumors • Cardio-vascular system ❑ Pericardial effusion ❑ Rheumatic heart disease ❑ Infective endocarditis, atherosclerosis ❑ Ischemia, infarction & aneurysm • Gastro Intestinal Tract ❑ Peptic ulcer, typhoid,	• Lecture Discussion • Explain using charts, slides, specimen, X- rays and Scans • Visit to Pathology lab, endoscopy unit and OT	• Short answers • Objective types

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
				❑ Carcinoma of GI Tract- buccal, Esophageal ❑ Gastric & Intestinal • Liver, Fall bladder & pancreas ❑ Hepatitis, chronic liver abscess, cirrhosis ❑ Tumours of liver, gall bladder and pancreas, ❑ Cholecystitis • Kidneys & Urinary tract ❑ Glomerulonephritis, Pyelonephritis ❑ Calculi, renal failure, renal carcinoma & cystitis • Male genital system ❑ Cryptorchidism testicular atrophy ❑ Prostatic hyperplasia, carcinoma penis & prostate • Female genital system ❑ Fibroids ❑ Carcinoma cervix and Endometrium ❑ Vesicular mole, choricarcinoma ❑ Ectopic gestation ❑ Ovarian cyst & Tumours • Cancer Breast • Central Nervous system ❑ Hydrocephalus, meningitis, encephalitis, ❑ Vascular disorders- thrombosis, embolism ❑ Stroke, paraplegia, quadriplegia ❑ Tumours, menigiomas- gliomas • Metastatic Tumours • Skeletal system ❑ Bone healing, Osteoporosis, osteomyelitis ❑ Arthritis & Tumours		
III	4	3	• Describe various laboratory test in	**Clinical Pathology** • Various blood and bone marrow tests in assessment and monitoring of disease	• Lecture Discussion	• Short answers

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
			assessment and monitoring of disease conditions	conditions ❑ Hemoglobin ❑ RBC, White cell & platelet counts ❑ Bleeding time, clotting time and prothrombine time ❑ Blood grouping and cross matching ❑ Blood chemistry ❑ Blood culture ❑ Serological and immunological tests ❑ Other blood tests ❑ Examination of Bone marrow ❑ Methods of collection of blood specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values	• Demonstration • Visit to Clinical pathology & Bio-Chemistry lab and Blood bank	• Objective type
IV	2	1	• Describe the laboratory tests for examination of body cavity fluids transudates and exudates	**Examination of body cavity fluids, transudates and exudates** • The laboratories test used in CSF analysis • Examination of other body cavity fluids, transudates and exudates – sputum, wound discharge etc. • Analysis of gastric and duodenal contents • Analysis of semen-sperm count, motility and morphology and their importance in infertility • Methods of collection of CSF and other cavity fluids specimen for various clinical pathology, biochemistry, microbiology test, inference and normal values	• Lecture Discussion • Demonstration	• Short answers • Objective type
V	1	1	• Describe the laboratory tests for examination of urine and	**Urine and Faeces** • Urine ❑ Physical characteristics ❑ Analysis ❑ Culture and sensitivity	• Lecture Discussion • Demonstration	• Short answers • Objective type

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
			Faeces	• Faeces ❑ Characteristics ❑ Stool examination: occult blood, ova, parasite and cyst, reducing substance etc. ❑ Methods of collection for various tests, inference and normal values		

SECTION- B GENETICS

Placement: Second Year **Time**: theory –15 hrs.

Course Description: This course is designed to enable students to acquire understanding of Genetics, its role in causation and management of defects and diseases.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	3	• Explain nature, principles and perspectives of heredity	**Introduction:** • Practical application of genetics in nursing • Impact of genetic condition on families • Review of cellular division mitosis and meiosis. • Characteristics and structure of genes • Chromosomes –sex determination • Chromosomal aberrations patterns of inheritance ❑ Mendalian theory of inheritance ❑ Multiple allots and blood groups ❑ Sex linked inheritance ❑ Mechanism of inheritance ❑ Errors in transmission (Mutation)	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective types
II	3	• Explain Maternal prenatal and genetic influences on development of defects and diseases	**Maternal, prenatal and genetic influences on development of defects and diseases** • Conditions affecting the mother: genetic and infections • Consanguinity atopy • Prenatal nutrition and food allergies. • Maternal Age • Maternal drug therapy • Prenatal testing and diagnosis • Effect of Radiation, drugs and chemicals • Infertility • Spontaneous abortion • Neural Tube Defects and the role of folic acid in lowering the risks • Down syndrome (Trisomy 21)	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective type
III	2	• Explain the screening methods for	**Genetic testing in the neonates and children** • Screening for ❑ Congenital abnormalities	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
		genetic defects and diseases in neonates and children	❑ Developmental delay ❑ Dysmorphism		
IV	2	• Identify genetic disorders in adolescents and adults	**Genetic conditions of adolescents and adults** • Cancer genetics – familial Cancer • Inborn errors of metabolism • Blood group alleles and haematological disorder • Genetic haemochromatosis • Huntington's disease • Mental illness	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective type
V	5	• Describe the role of nurse in genetic services and Counselling	**Services related to Genetics** • Genetic testing • Human genome project • Gene Therapy • The Eugenics movement • Genetic Counselling Legal and Ethical issues Role of nurse	• Lecture Discussion	• Short answers • Objective type

MEDICAL SURGICAL NURSING (ADULT INCLUDING GERIATRICS) - I

Placement: Second Year

Time: Theory – 210 hrs.
Practical – 720 hrs.

Course Description: The purpose of this course is to acquire knowledge and develop proficiency in caring for patients with medical and surgical disorders in carpentries in varieties of health care setting and at home.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	15	• Appreciate the trends in medical and surgical nursing • Describe the role of a nurse in caring for adult patient in hospital and community • Describe the concepts of Medical Surgical asepsis	**Introduction:** • Introduction to medical surgical nursing – Evolution and trends of medical and surgical nursing • Review of Concepts of Health and illness. Disease-concepts, causations, classification-International Classification Diseases (ICD-10 or later version), Acute illness Chronic illness & Terminal illness, stages of illness • Review of concepts of comprehensive nursing care in medical surgical nursing process. • Role of Nurse, patient and family in care of adult patient • Role and responsibilities of a nurse in medical surgical settings: ❑ Outpatient department ❑ In-patient unit ❑ Intensive care unit ❑ Home and Community settings • Introduction to Medical Surgical asepsis ❑ Inflammation and Infection ❑ Immunity ❑ Wound healing • Care of Surgical patient ❑ Pre-operative ❑ Intra Operative ❑ Post Operative	• Lecture Discussion • Demonstration • Practice session • Supervised clinical practice	• Short answers • Objective type • Assessment of skills with check list

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
II	15	• Describe the common sings, symptoms, problems and their • Specific nursing interventions	**Common sings and symptoms and management** • Fluid and electrolyte imbalance • Vomiting • Dyspnea and cough, respiratory obstruction • Fever • Shock • Unconsciousness, Syncope • Pain • Incontinence • Edema • Age related problem – geriatrics	• Lecture Discussion • Seminar • Case discussion	• Short answers • Objective type
III	20	• Describe the etiology, patho-physiology, clinical manifestations, diagnostic measures and management of patients (adults including elderly) with disorders of respiratory systems	**Nursing management of patients (adults including elderly) with respiratory problems** • Review of anatomy and physiology of respiratory system • Nursing Assessment-History and Physical assessment • Etiology, Pathophysiology, Clinical manifestations diagnosis, treatment modalities and medical, surgical, dietetics & nursing management of adults including elderly with- ❑ Upper Respiratory tract infections ❑ Bronchitis ❑ Asthma ❑ Emphysema ❑ Atelectasis ❑ Chronic Obstructive Pulmonary Diseases (COPD) ❑ Bronchiectasis ❑ Pneumonia ❑ Pulmonary tuberculosis ❑ Lung abscess ❑ Pleural effusion ❑ Cysts and Tumours ❑ Chest injuries ❑ Respiratory arrest and insufficiency ❑ Pulmonary embolism Special therapies, alternative therapies Nursing Procedures Drugs used in treatment of respiratory disorders .	• Lecture discussion • Explain using Charts, graphs • Models. Films, slides • Demonstration • Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
VI	30	• Describe the etiology, patho-physiology, clinical manifestations, diagnostic measures and management of Patients (adults including elderly) with disorders of digestive system	**Nursing management of patients (adults including elderly) with disorders of digestive system** • Review of anatomy and physiology of digestive system • Nursing Assessment- History and physical assessment • Etiology, patho physiology, clinical manifestations, Diagnosis, treatment modalities & nursing management • Disorders of ❑ Oral cavity- lips, gums, tongue, salivary glands and teeth ❑ Esophagus- inflammation, stricture, obstruction, bleeding and Tumours ❑ Stomach and duodenum- hiatus hernia, gastritis, peptic and duodenal ulcer, bleeding, tumours, pyloric stenosis ❑ Small intestinal disorders- inflammation and infection, enteritis, Malabsorption, obstruction, tumor and perforation ❑ Large intestinal disorders- Colitis, inflammation and infection, obstruction and tumor and lump ❑ Hernias ❑ Appendix-inflammation, mass, abscess, rupture ❑ Anal & Rectum; hemorrhoids, fissures, Fistulas ❑ Peritonitis / acute abdomen ❑ Pancreas-inflammation. Cyst, abscess, cirrhosis, portal hypertension, hepatic failure, tumours ❑ Liver-inflammation, cyst, abscess, cirrhosis, portal hypertension, hepatic failure, tumours ❑ Gall bladder- inflammation, obstructions	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Cases discussion /Seminar • Health education • Supervised • Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			stones and tumours, Special therapies, alternative therapies Nursing procedures Drugs used in treatment of disorders of digestive system		
V	30	• Describe the etiology, path ophysiology clinical manifestations, diagnostic measures and management of patients (adults including elderly) with blood and cardio vascular problems • Discribes the vascular condition and its nursing management	**Nursing management of patients (adults including elderly) with blood and cardio vascular problem** • Review of anatomy and physiology of digestive system • Nursing Assessment- History and physical assessment • Etiology, pathophysiology, clinical manifestations, Diagnosis, treatment modalities & nursing management • Vascular system • Hypertension, Hypo tension • Arteriosclerosis • Raynaud's disease • Aneurisms and Peripherial vascular disorders **Heart** • Coronary artery diseases ❑ Ischaemic Heart Diseases ❑ Coronary atherosclerosis ❑ Angina pectoris ❑ Myocardial infarction • Valvular disorders of the heart ❑ Congenital and acquired ❑ Rheumatic Heart diseases • Endocarditis, Pericarditis Myocarditis • Cardio myopathies. • Cardiac dysrhythmias, Heart Block • Congestive cardiac failure Cor pulmonale, pulmonary edema, cardiogenic shock, cardiac tamponade. ❑ Cardiac emergencies and arrest ❑ Cardiac Pulmonary resuscitation (CPR) • Blood ❑ Anaemias ❑ Polycythemia	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation • Visit to blood bank • Participation in blood donation camps • Counselling	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Bleeding disorders; clotting factor defects and platelets defects ❑ Thalassemia ❑ Leukaemias ❑ Leukopenias and agranulocytosis ❑ Lymphomas ❑ Myelomas • Special therapies ❑ Blood transfusion, safety checks, procedure and requirements, management of adverse transfusion reaction, records for blood transfusion. ❑ Management and Counseling of blood donors, phlebotomy procedure, and post donation management. Blood bank functioning and hospital transfusion committee. Bio-safety and waste management in relation to blood transfusion ❑ Role of a nurse in Organ donation, retrieval and banking Alternative therapies Nursing procedures Drugs used in treatment of blood and cardio vascular disorders		
VI	10	Describe the etiology, path ophysiology, clinical manifestations diagnostic measures and management of patients (adults including elderly) with disorders of genito-urinary system	**Nursing management of patient (adults including elderly) with genito-urinary problems** • Review of anatomy and physiology of genito-urinary system • Nursing Assessment –History and Physical assessment Etiology, path ophysiology, clinical manifestations, diagnosis, treatment modalities and medical, surgical dietetics & nursing management of – • Nephritis • Nephrotic syndrome • Nephrosis • Renal calculus • Tumours	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Acute renal failure • Chronic renal failure • End stage renal disease • Dialysis, renal transplant • Congenital disorders, urinary infection • Benign prostate hypertrophy. • Disorder of ureters, urinary bladder and urethera-inflammation, infection, stricture, obstruction, tumour, prostrate Special therapies, alternative therapies. Nursing procedures. Drugs used in treatment of genito-urinary disorders	• Drug book /presentation	
VII	5	• Describe the etiology, path ophysiology, clinical manifestations diagnostic measures and management of patients (adults including elderly) with disorders of male reproductive system	**Nursing management of patient (adults including elderly) with reproductive system** • Review of anatomy and physiology of male reproductive system • Nursing Assessment –History and physical assessment • Etiology, Pathophysiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of disorders of male reproductive system • Congenital malformations; Cryptorchidism • Hypospadiasis, Epispadiasis • Infections • Testis and adjacent structures • Penis • Prostate: inflammation, infection, hypertrophy, tumour • Sexual Dysfunction • Infertility • Contraception • Breast; gynecomastia, tumour • Climacteric changes Special therapies, alternative therapies, Nursing procedures, Drugs used in treatment of disorders of male reproductive system**.**	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
VIII	10	• Describe the etiology, patho-physiology, clinical manifestations diagnostic measures and management of patients (adults including elderly) with disorders of endocrine system	**Nursing management of patient (adults including elderly) with disorders of endocrine system** • Review of anatomy and physiology of endocrine system • Nursing Assessment –History and physical assessment • Etiology, Pathophysiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of – • Disorders of Thyroid and parathyroid • Diabetes mellitus • Diabetes insipidus • Adrenal tumour • Pituitary disorders, Special therapies, alternative, therapies Nursing procedures Drugs used in treatment of disorders of endocrine systems	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Cases discussion /Seminar • Health education • Supervised • Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem
IX	10	• Describe the etiology, patho- -physiology clinical manifestations, diagnostic measures and management of patients (adults including elderly) with disorders of skin	**Nursing management of patient (adults including elderly) with Integumentary system** • Review of anatomy and physiology of Skin and Its appendages • Nursing Assessment –History and physical assessment • Etiology, Pathophysiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of – disorders of Thyroid and Parathyroid ❑ Lesions and abrasions ❑ Infection and infestations; Dermatitis. ❑ Dermatoses; infectious and Non infectious "inflammatory Dermatoses" ❑ Acne Vulgaris ❑ Allergies and Eczema ❑ Psoriasis ❑ Malignant melanoma Alopecia Special therapies, therapies, alternative therapies Nursing procedures drugs used in	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session Cases Discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			treatment of disorders of Intergumentary system		
X	15	• Describe the etiology, path ophysiology clinical manifestations, diagnostic measures and management of patients (adults including elderly) with disorders of Musculoskletal system	**Nursing management of patient (adults including elderly) with Musculoskeletal Problems** • Review of anatomy and physiology of musculoskeletal system. • Nursing Assessment –History and physical assessment • Etiology, Patho physiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of Disorders of: ❑ Muscles, Ligaments and Joints- infection, inflammation, trauma ❑ Bones-inflammation, infection, dislocation, fracture, tumour and trauma ❑ Osteomalacia and osteoporosis ❑ Arthritis ❑ Congenital deformities ❑ Spinal column- defects and deformities, tumor, prolapsed inter vertebral disc, pott's spine ❑ Paget's disease • Amputation • Prosthesis • Transplant & replacement surgeries • Rehabilitation. Special therapies, therapies, alternative therapies Nursing procedures drugs used in treatment of disorders of musculoskeletal system	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem
XI	10	• Describe the etiology, patho-physiology clinical manifestations, diagnostic measures and	**Nursing management of patient (adults including elderly) with Immunological problems** • Review of immune system • Nursing Assessment –History and physical assessment	• Lecture discussion • Explain using Charts, graphs • Models, films, slides Demonstration • Practice session	• Essay type • Short answers • Objective type • Assessment of skills with check list

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
		management of patients (adults including elderly) with Immunological systems	• Etiology, Patho physiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of – • Immunodeficiency disorder • Primary Immuno deficiency • Phagocytic dysfunction • B- cell and T- cell deficiencies • Secondary immunodeficiency • Acquired immunodeficiency syndrome (AIDS) • Incidence of HIV & AIDS • Epidemiology • Transmission-Prevention of Transmission • Standard Safety precautions • Role of Nurse; Counseling • Health education and home care consideration. • National AIDS Control program –NACO, various national and international agencies • Infection control program • Rehabilitation. Special therapies, alternative therapies Nursing procedures Drugs used in treatment of disorders of immunological system	• Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation • Orientation visit to Hospital Control system	• Assessment of patient management problem
XII	20	• Describe the etiology, patho physiology clinical manifestations diagnostic measures and management of patients (adults including elderly) with Communicable Diseases	**Nursing management of patient (adults including elderly) with Communicable Disease** • Overview of infections disease, the infectious process • Nursing Assessment –History and physical assessment • Epidemiology, infectious process, clinical manifestations, diagnosis, treatment, prevention and diagnosis, Control and eradication of common Communicable Diseases- ❑ Tuberculosis ❑ Diarrhoeal diseases ❑ Hepatitis A-E ❑ Herpes ❑ Chickenpox ❑ Smallpox ❑ Typhoid ❑ Meningitis ❑ Gas gangrene	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills With check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Leprosy ❑ Dengue ❑ Plague ❑ Malaria ❑ Diphtheria ❑ Pertussis ❑ Poliomyelitis ❑ Measles ❑ Mumps ❑ Influenza ❑ Yellow fever ❑ Filariasis ❑ HIV, AIDS • Reproductive Tract Infections • Special Infection Control measures: Notification, Isolation, Quarantine, Immunization, Infectious Disease Hospitals Special therapies, alterative therapies Nursing Procedures Drugs used treatment of Communicable diseases		
XIII	25	• Describe the Origination and Physical set up of operation theater Identify the various instruments and equipments used for used for common surgical procedures Describe the infection control measures in the Operation theatre Describe the role of the nurse in the peri Operative nursing care	**Peri-operative nursing:** • Organization and Physical set up of the Operation Theatre (OT): • Classifications ❑ O.T. DESIGN ❑ Staffing ❑ Member of the OT term ❑ Duties and responsibilities of nurse in O.T. ❑ Principles of Health and operating room attire. ❑ Instruments, ❑ Sutures and suture materials ❑ Equipments ❑ O.T. tables and sets for common surgical procedures ❑ Scrubbing procedures ❑ Gowning and gloving ❑ Preparation of O.T. sets. • Maintenance of therapeutic environment in O.T. • Standard Safety measures ❑ Infection control; fumigation, disinfection	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Supervised • Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			and sterilisation ❑ Biomedical waste management ❑ Prevention of accidents and hazards in O.T. • Anaesthesia ❑ Types ❑ Methods administration ❑ Effects and stages ❑ Equipments ❑ Drugs • Cardio Pulmonary Resuscitation (CPR) • Pain management techniques • Legal Aspects		

MEDICAL SURGICAL NURSING-I PRACTICAL (ADULT INCLUDING GERIATRICS)

Placement: Second Year **Time:** 720 hrs.

Areas	Durati-on (in week)	Objectives	Skills	Assignments	Assessment Methods
General Medical Ward (*Respiratory, GI, Endocrine, Renal, Hematology	6	• Provide nursing care to adult patients with medical discarders • Counsel and educate patients and families	• Assessment of the patient ❑ Taking history ❑ Perform general and specific physical examination ❑ Identify alterations and deviations • Practice medical surgical asepsis- Standard safety measures • Administer medications ❑ Oral, IV, IM, subcutaneous • IV therapy ❑ IV Canulation ❑ Maintenance and monitoring • Oxygen therapy by different methods. • Nebulization • Chest physio therapy • Naso gastric feeding • Assist in common diagnostic • Perform/ Assist in the rape procedures • Blood and component therapy • Throat Suctioning • Collect specimens for common investigations • Maintain elimination ❑ Catheterisation ❑ Bowel wash ❑ Enema ❑ Urinary drainage • Maintain intake output & documentation • Counsel & Teach related to specific disease condition	• Plan and give care to 3-4 assigned patients • Nursing care plan-2. • Nursing case study/ presentation-1. • Drug presention-1. • Maintain Practical record book	• Assess performance with rating scale. • Assess each skill with checklist. • Evolution of case study /presentation. • Completion of practical record.

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessment Methods
General Surgical Ward (Gl, Urinary CTVS)	6	• Provide pre and post operative nursing care to adult patients with surgical disorders • Counsel and educate patients and families	• Practical medical surgical asepsis-Standard safety measures • Pre operative preparation of patients • Post operative care- Receiving pt, assessment, monitoring care • Care of wounds and drainage • Suture removal • Ambulation and exercise • Naso gastric aspiration • Care of chest drainage • Ostomy care; ❑ Gastrostomy ❑ Colostomy ❑ Enterostomy ❑ Blood and component therapy ❑ Practice universal Precautions	• Plan and give care to 3-4 assigned patients • Nursing care plan-2. • Nursing case study/ presentation-1 • Maintain Drug book	• Assess performance with rating scale. • Assess each skill with checklist. • Evaluation of case study /presentation • Completion of Activity record.
Cardiology ward	2	• Provide nursing care to patients with cardiac disorders • Counsel and educate Patients and families	• Physical examination of the cardio vascular system Recording and interpreting ECG • Monitoring of patients • Preparation and assisting in non-invasive diagnostic procedures • Administer cardiac drugs • Cardio pulmonary Resuscitation • Teach patients and families • Practice medical and Surgical asepsis- Standard safety measures	• Plan and give care to 2-3 assigned patients • Nursing care plan-I. • Nursing case study/ presentation/ • Health talk-I. • Maintain Drug book.	• Assess performance with rating scale. • Assess each skill with checklist. • Evolution of case study / presentation / health talk • Completion of Activity record
Skin & Communicable diseases ward	1	• Identify skin problem • Provide nursing care to patients with Skin disorders & Communicable diseases • Counsel and educate patients and families	• Assessment of patients with skin disorders • Assist in diagnostic and therapeutic procedures • Administer topical medication • Practice medical surgical asepsis- Standard safety measures • Use of personal protective equipment (PPE) • Give Medicated baths • Counseling HIV positive patients • Teach Prevention of infectious diseases	• Plan and give care to 2-3 assigned patients • Health talk/Counseling HIV positive Families –I • Maintain drug book	• Assess performance with rating scale. • Evaluation of health talk / Counseling session • Completion of Activity record.

Areas	Duration-(in week)	Objectives	Skills	Assignments	Assessment Methods
Orthopa-edic Ward	2	• Provide nursing care to patients with Musculo-skletal disorders • Counsel and educate patients and families	• Assessment of orthopedic patients • Assist in application of plaster cast and removal of cast • Apply skin traction-buck's extension traction • Assist in application and removal of prosthesis • Physiotherapy- Range of motion exercise (ROM), muscle strengthening exercises • Crutch maneuvering technique. • Activities of daily living • Ambulation • Teach and counsel patients and families	• Plan and give care to 2-3 assigned patients • Nursing care plan-I. • Nursing case study/ presentation-I • Maintain drug book	• Assess performance with rating scale • Evaluation of Nursing Case plan and Nursing case study / Presentation • Completion of Activity record.
Operation Theatre	6	• Identify instruments used in common operations • Participate in Infection control practices in the Operation Theatre • Set- up the table/ trolleys for common operative procedures. • Assist in giving anesthesia • Assist in the operative procedures • Provide peri operative nursing care	• Scrubbing, gowning, gloving • Identify instruments, suturing materials for common operations • Disinfection, Carbonization, fumigation. • Preparation of instrument sets for common operations • Sterilization of sharps and other instruments • Prepare the OT table depending upon the operation. • Positioning and monitoring of patients. • Endotracheal Intubations • Assisting in minor and major operations. • Handling specimens. • Disposal of waste as per the guidelines	• Assist as a circulatory nurse in • Major cases-10 • Minor cases-5 • Assist as a scrub nurse in • Major cases-10 • Minor cases-5 • Maintain drug book	• Assess performance with rating scale • Completion of activity record

INTERNSHIP

Time: 260 hours (9 Weeks)

Areas	Durati-on (in week)	Objectives	Skills	Assignments	Assessment Methods
ICU, CCU, CARDIAC OT.	2	• To Gain proficiency in ICU nursing • Develop advance skill in special procedures used in critical care unit. • Identify potential problem and provide accordingly • Skill in setting and handling ventilator • Administer injection in infusion pump • Record accurately findings and medications. • Develop IPR with family members. • Acquint with OT technique.	• Assist in arterial puncture for blood gas analysis • Perform ECG and interpret accordingly • Conduct and analysis pulse oximetry. • Care with artificial airway • Assist in endotracheal intubations • Setting up Ventilator. • Giving care in ventilator • Drug sheet, • Observation of special procedure in OT.	• Arterial puncture-5 • Taking out ECG Stripe-5 • Tracheal suction –5 • For all assigned patients. • Oxygen administration by CPAP mask and use Ambu bag. • Assessment for all assigned Patients • Nursing care in ventilator • Drug sheet	• Record book • Checking with supervisor
Neuro ICU, ITU, OT	2	• Develop skill in neurological assessment • Give care to the patient with head injury and spinal injury • Care with chest surgery and cranial surgery	• Assess neurological status • Implement care to head injury, spinal injury • Drug sheet • Pre and postoperative care with neuro surgery Patients	• Assessment for all assigned patients • Nursing care plan-2 • Drug sheet	• Record book • Observation check list
Burns and plastic Reconstructive surgery	2	• Assess the severity of burns • Administer rehydration Therapy, • Observe reconstructive surgery	• Nursing care		

Areas	Duration- (in week)	Objectives	Skills	Assignments	Assessment Methods
OT Leptosomic orthopedic Eye ENT	3	• Identify instruments • Assist in OT set UP • Supervise sterilization • Assist in OT table lay out • Observe immediately after operation • Supervise infection control		• Assist –5 cases	• Record Book,

COMMUNITY HEALTH NURSING –I

Placement: Second Year

Time: Theory- 90 hrs.
Practical - 135hrs.

Course description: This course is designed for to appreciate the principles of promotion and maintenance of health.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	2	• Describe concept and dimensions of health	**Introduction** • Community health nursing • Definition concept and dimensions of health • Promotion of health • Maintenance of health	• Lecture discussion	• Short answers
II	20	• Describe determinants of health	**Determinants of health** • Eugenics • Environment: ❑ Physical: Air, light, Ventilation, Water, Housing Sanitation; disposal of waste, disposal of dead bodies Forestation, Noise, Climate, Communication: infrastructure facilities and Linkages ❑ Acts regulating the environment: National pollution, control board ❑ Bacterial & viral: Agents, host carriers and immunity ❑ Arthropods and Rodents • Food hygiene: Production, Preservation, Purchase Preparation, Consumption • Acts Regulating food hygiene-prevention of food adulteration act, Drugs and cosmetic act • Socio – cultural ❑ Customs, taboos ❑ Marriage system ❑ Status of special groups; Females, children, Elderly, challenged group and sick persons • Life Style • Hygiene • Physical activity ❑ Recreation and sleep ❑ Sexual life	• Lecture discussion • Explain using charts, graphs • Models, films, Slides • Visits to water supply, sewage disposal, milk plants slaughter house etc.	• Essay type • Short answers

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Spiritual life philosophy ❑ Self reliance ❑ Dietary pattern ❑ Education ❑ Occupation • Financial Management ❑ Income ❑ Budget ❑ Purchasing power ❑ Security		
III	10	• Describe concept, scope, uses methods and approaches of Epidemiology	**Epidemiology** • Definition, concept, aims, scope, uses and terminology used in Epidemiology • Dynamics of disease transmission: epidemiological triad • Morbidity and mortality: measurements • Levels of Prevention • Methods of Epidemiology of ❑ Descriptive ❑ Analytical: Epidemic investigation ❑ Experimental	• Lecture discussion • Explain using Chart, graphs • Models, films slides	• Essay type • Short answers
IV	25	• Describe Epidemiology and nursing management of common Communicable diseases	**Epidemiology and nursing management of common Communicable Diseases** • Respiratory infections • Small Pox • Chicken Pox • Measles • Influenza • Rubella • ARI & Pneumonia • Mumps • Diphtheria • Whooping cough • Meningococcal meningitis • Tuberculosis • SARS • Intestinal Infections ❑ Poliomyelitis ❑ Viral Hepatitis ❑ Cholera ❑ Diarrhoeal diseases ❑ Typhoid fever ❑ Food poisoning ❑ Amoebiasis ❑ Hook worm infection	• Lecture discussion • Explain using Chart, graphs • Models, films slides • Seminar • Supervised field practice – Health centers, clinics and homes • Group projects/ Health education	• Essay type • Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Ascariasis ❑ Dracunculiasis • Arthropod infections ❑ Dengue ❑ Malaria ❑ Filariasis • Zoonoses **Viral** ❑ Rabies ❑ Yellow fever ❑ Japanese encephalitis ❑ Kyasnur forest disease • Bacterial ❑ Brucellosis ❑ Plague ❑ Human Salmonellosis ❑ Anthrax ❑ Leptospirosis • Rickettsial diseases ❑ Rickettsial Zoo noses ❑ Scrub typhus ❑ Tick typhus ❑ Q Fever • Parasitic Zoo noses ❑ Taeniasis ❑ Hydatid disease ❑ Leishmaniasis • Surface infection ❑ Tetanus ❑ Trachoma. ❑ Leprosy ❑ STD & RTI ❑ Yaws ❑ HIV/AIDS Any other		
V	10	• Describe Epidemiology and nursing management of common Non-communicable Diseases	**Epidemiology and Nursing management of Non-Communicable diseases** • Malnutrition: under nutrition, over nutrition, nutritional deficiencies • Anemia • Hypertension • Stroke • Rheumatic heart Disease • Coronary heart disease. • Cancer • Diabetes mellitus • Blindness • Accidents • Mental illness	• Lecture discussion • Explain using Chart, graphs • Models, films slides • Seminar • Supervised field practice – Health centers, clinics and homes • Group projects/ Health education	• Essay type • Short answers • Objective type • Assessment of Survey report

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Obesity • Iodine Deficiency • Fluorosis • Epilepsy		
VI	6	• Describe the concepts and scope of demography • Describe methods of data collection, analysis and interpretation of demographic data	**Demography** • Definition, concept and scope • Methods of collection, analysis and interpretation of demographic data • Demographic rates and rations	• Lecture discussion • Community identification survey	• Essay type • Short answers • Objective type • Assessment of Survey report
VII	17	• Identity the impact of population explosion in India • Describe methods of population control	**Population and its control** • Population explosion and its impact on social, economic development of individual, society and country • Population control: ❑ Overall development: Women empowerment, social, economic and educational development • Limiting family size: ❑ Promotion of small family norm ❑ Methods: Spacing (natural, biological, chemical mechanical methods etc), ❑ Terminal: Surgical methods ❑ Emergency contraception	• Lecture discussion • Population survey • Counseling • Demonstration • Practice session • Supervised field practice	• Essay type • Short answers • Objective type • Assessment of Survey report

COMMUNITY HEALTH NURSING
I - PRACTICAL

Placement: Second Year **Time:** Practical –135 hrs.

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessment Methods
Community health Nursing	2 wks urban and 2 wks rural	• Build and Maintain rapport • Identify demographic characteristics, health determinates and community health resources • Diagnose health needs of individual and families • Provide primary care in health Center • Counsel and educate individual, family and community	• Use Techniques of interpersonal relationship • Identification of health determination of community • History taking • Physical examination • Collect specimens - sputum, malaria smear • Perform simple lab tests at Centre-blood for Hemoglobin and sugar, urine for albumin and sugar • Administer vaccines and medications to adults • Counsel and teach individual, Family and community ❑ Nutrition ❑ Hygiene ❑ Self health monitoring ❑ Seeking health services ❑ Healthy life style ❑ Family welfare methods ❑ Health promotion	• To work with 2 assigned families each families each in urban and rural • Family study-1 • Observation report of community –1 • Health talks2 (1in urban and in rural)	• Assess clinical performance with rating scale • Assess each skill with checklist • Evaluation of family study, observation report and health talk • Completion of activity record.

COMMUNICATION & EDUCATIONAL TECHNOLOGY

Placement: Second year **Time:** Theory-90 Hrs.

Course Description: This course is designed to help the students acquire an understanding of the principles and methods of communication and teaching. It helps to develop skill in communicating effectively, maintaining effective interpersonal relations, teaching individuals and groups in clinical, and community health and education settings.

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
I	5		• Describe the communication on process • Identify techniques of effective communication.	**Review of Communications Process** • Process; elements and channel • Facilitators • Barriers and methods of overcoming • Techniques	• Lecture Discussion • Role Plays • Exercises with audio/ video tapes	• Respond to critical incidents • Short answers • Objective type
II	5		• Establish effective inter-personal relations with patient families & co-workers	**Interpersonal relations** • Purpose & types • Phases • Barriers & methods of overcoming • Johari Window	• Lecture Discussion • Role Plays • Exercises with audio/ video tapes • Process recording	• Short answers • Objective type
III	5		• Develop effective human relations in context of nursing	**Human relations** • Understanding self • Social behavior, motivation, social attitudes • Individual and groups • Groups & individual • Human relations in context of Nursing • Group dynamics • Team work	• Lecture Discussion • Sociometry • Group games • Psychometric Exercises followed by Discussion	• Short Answer • Objective type • Respond to test based on critical incidents
IV	10	5	• Develop basic skill of Counselling and guidance	**Guidance & Counseling** • Definition • Purpose, scope and need • Basic principles • Organization of Counseling services • Types of Counseling approaches	• Lecture Discussion • Role play on Counselling in different situations followed by discussion	• Short answers • Objective type • Assess performance in role play situations

Unit	Time hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
				• Role and preparation of counselor • Issues for counseling in nursing: students and practitioners • Counselling process-steps & techniques, tools of counselor • Managing disciplinary Problem • Management of crisis & referral		
V	5		• Describe the philosophy & principles of education • Explain the teaching learning process	**Principles of education & teaching learning process** Education: meaning philosophy, aims, functions & principles • Nature and characteristics of learning • Principles and maxims of teaching • Formulating objectives; general and specific • Lesson planning • Classroom managements	• Lecture Discussion • Prepare lesson plan • Micro teaching • Exercises on Writing objectives	• Short Answer • Objective type • Assess lesson plans and teaching sessions
VI	10	10	• Demonstrate teaching skills using various teaching methods in clinical, classroom and community setting	**Methods of teaching** • Lecture, demonstration, group discussion, seminar, symposium, panel discussion, role-play, project, field trip, workshop, exhibition, programmed instruction in computer assisted learning, microteaching problem based learning • Self-instructional module and simulation etc. • Clinical teaching methods: case method, nursing round & reports, bedside clinic, conference (individual & group) process recording	• Lecture Discussion • Conduct 5 teaching sessions using different methods & media	• Short Answer • Objective type • Assess teaching sessions
VII	10	8	• Prepare and use different types of educational media effectively	**Educational media** • Purpose & types of A.V. Aids, principles and sources etc. • Graphic aids: chalk board, chart, graph,	• Lecture discussion • Demonstration •	• Short Answer • Objective type •

Unit	Time hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
				• poster, flash cards, flannel graph, bulletin, cartoon • Three dimensional aids: Objects, specimens, models, puppets • Printed aid: pamphlets & leaflets • Projected aids: Slides, overhead Projector, films, TV ,VCR/VCD ,camera, microscope, LCD • Audio aids: tape recorder, public address system • Computer	• Prepare different teaching aids- projected & non projected	• Assess teaching aids prepared
VIII	5	7	• Prepare different types of questions of assessment of knowledge, skills and attitudes	**Assessment** • Purpose & scope of evaluation & assessment • Criteria for selection of assessment techniques and methods • Assessment of knowledge: essay type questions (SAQ), Multiple choice questions (MCQ) • Assessment of skills: observation checklist, practical exam, Viva, Objective structured clinical examination (OSCE) Assessment of attitudes: attitude scales	• Lecture discussion • Exercise on Writing different types of assessment tools	• Short Answer • Objective type • Assess the strategies used in practice teaching sessions and exercise sessions
IX	5		• Teach individuals, groups and communities about health with their active participation	**Information, Education & communication for health (IEC)** • Health behavior & health Education • Planning for health education • Health education with individuals, groups, & communities. • Communicating health messages • Methods & media for communicating health messages • Using mass media	• Lecture discussion • Plan & conduct health education sessions for individuals, group & communities	• Short Answer • Objective type • Assess the planning & conduct of the educationa l session

MEDICAL SURGICAL NURSING – II
(ADULT INCLUDING GERIATRICS)

Placement: Third Year

Time: Theory -120 hrs.
Practical –270 hrs.

Course Description: The purpose of this course is to acquire knowledge and develop proficiency in caring for patients with medical and surgical disorders in varieties of health care settings and at home.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	15	• Describe the etiology, pathopsiology, clinical manifestations, diagnostic measures and management of patients with Disorders of Ear Nose and throat	**Nursing management of patient with disorders of ear, nose & throat** • Review of anatomy and physiology of the Ear, Nose and Throat • Nursing Assessment – History and Physical assessment • Etiology, Pathophysiology, Clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of Ear Nose and Throat disorders: ❑ External ear: deformities otalgia, foreign bodies, and tumours ❑ Middle Ear-Impacted wax, Tympanic membrane perforation, otitis media, otosclerosis, mastoid its, tumours ❑ Inner ear-Meniere's Disease, labyrinthitis, ototoxicity, tumours ❑ Upper airway infections – Common cold, sinusitis, ethinitis, rhinitis, pharyngitis, tonsillitis and adenoiditis, peritonosilar abscess, laryngitis. • Upper respiratory airway - epistaxis, • Nasal obstruction, laryngeal obstruction, cancer of the larynx • Cancer of the oral cavity • Speech defects and speech therapy • Deafness – Prevention, Control	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

			and rehabilitation • Hearing Aids, implanted hearing devices Special therapies Nursing procedures Drugs used in treatment of disorders of Ear Nose and throat Role of nurse Communicating with hearing impaired and muteness		

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
II	15	• Describe the etiology, pathophysi-ology, clinical manifestatio ns, diagnostic measures and management of patient with disorders of eye	**Nursing management of patient with disorders of eye** • Review of anatomy and physiology of the eye • Nursing Assessment –History and Physical assessment • Etiology, Pathophysiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of eye disorders: ❑ Refractive errors ❑ Eyelids-infection, tumours and deformities ❑ Conjunctiva-inflammation and infection, bleeding ❑ Cornea-inflammation and infection ❑ Lens-Cataracts ❑ Glaucoma ❑ Disorder of the uveal tract, ❑ Ocular tumours Disorders of posterior chamber and retina: Retinal and vitreous problems. ❑ Retinal detachment • Ocular emergencies and their prevention • Blindness • National blindness control program ❑ Eye Banking ❑ Eye prostheses and Rehabilitation Role of a nurse-Communication with visually impaired patient, Eye camps special therapies Nursing procedures Drugs used in treatment of disorders of eye	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation • Visit to eye bank • Participation in eye-camps	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
III	16	• Describe the etiology, patho physiology, clinical manifestation diagnostic measures and nursing management of patients with neurological disorders	**Nursing management of patient with neurological disorders** • Review of anatomy and physiology of the neurological system • Nursing Assessment – History, Physical and neurological assessment and Glasgow coma scale • Etiology, Pathophysiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of neurological disorders • Congenital malformations • Headache • Head injuries • Spinal Injuries: ❑ Paraplegia ❑ Hemiplegia ❑ Quadriplegia • Spinal cord compression-herniation of intervertebral disc • Tumors of the brain & spinal cord • Intra cranial and cerebral aneurysms • Infections: ❑ Meningitis, Encephalitis, Brain abscess, neurocysticercosis • Movement disorders ❑ Chorea ❑ Seizures ❑ Epilepsies • Cerebro Vascular Accidents (CVA) • Cranial, Spinal Neuropathies- Bell's palsy, trigeminal neuralgia • Peripheral Neuropathies; Guillain -Barr' e Syndrome • Myasthenia gravis • Multiple sclerosis • Degenerative diseases o Delirium o Dementia o Alzheimer's disease o Parkinson's disease	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation • Visit to rehabilitation Centre	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Management of unconscious patients and patients with stroke ❑ Role of the nurse in communicating with patient having neurological deficit • Rehabilitation of patients with neurological deficit Role of nurse in long stay facility (institutions) and at home Special therapies Nursing procedure Drugs used in treatment of neurological disorders		
IV	16	• Describe the etiology, patho-physiology, manifestations, diagnostic measures and nursing Management of patients with disorders of female reproductive system • Describe concept of reproductive health and family welfare programme	**Nursing management of patients with disorders of female reproductive system** • Review of anatomy and physiology of the female reproductive system • Nursing Assessment – History and Physical assessment • Breast Self Examination • Etiology, Patho physiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of disorders of female reproductive system • Congenital abnormalities of female reproductive system • Sexuality and Reproductive Health • Sexual Health Assessment • Menstrual Disorder; dysmenorrhea, Amenorrhea, Premenstrual Syndrome • Abnormal Uterine Bleeding; Menorrhagia, Metrorrhagia • Pelvic Inflammatory Disease- • Ovarian and fallopian tube disorders; infections, cysts, tumours • Uterine and cervical disorders; Endometriosis, polyps, fibroids, Cervical and uterine tumors, uterine displacement, Cystocele/Urethrocele/Rectocele • Vaginal disorders; Infections and Discharges, Fistulas • Vulvur disorders; Infections, cysts, tumours	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Diseases of breasts; Deformities, Infections, Cysts and Tumours • Menopause and Hormonal Replacement Therapy • Infertility • Contraception; Types, Methods, Risk and effectiveness ❑ Spacing Methods - Barrier methods, Intera Uterine Devices, Hormonal, Post conceptional Methods, etc. ❑ Terminal methods - Sterilization • Emergency Contraception methods • Abortion – Natural, medical and surgical abortion – MTP Act • Toxic Shock Syndrome • Injuries and Trauma; Sexual violence Special therapies Nursing procedures Drugs used in treatment of gynecological Disorders National family welfare Programme		
V	10	Describe the etiology, patho-physiology, clinical manifestations diagnostic measures and nursing management of patient with Burns, reconstructive and cosmetic surgery	**Nursing management of patients with Burns, reconstructive and cosmetic surgery** • Review of anatomy and physiology of the skin and connective tissues and various deformities • Nursing Assessment-History and physical assessment and assessment of burns and fluid an electrolyte loss • Etiology, classification, Pathophysiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of Burns and Re-constrictive and Cosmetic surgery;	• Lecture discussion • Explain using Charts, graphs • Model's films, slides • Demonstration • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book/ Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Type of Re-Constructive and cosmetic surgery of burns, congenital deformities, injuries and cosmetic purposes. • Role of nurse • Legal aspects • Rehabilitation • Special therapies ❑ Psycho social aspects Nursing procedures Drugs used in treatment of Burns, reconstructive and cosmetic surgery		
VI	10	• Describe the etiology, patho-physiology clinical manifestations, diagnostic measures and nursing Management of patients with oncology	**Nursing management of patients with oncological conditions** • Structure & characteristics of normal & cancer cells • Nursing Assessment-History and Physical assessment • Prevention, screening, Early detection, Warning signs of cancer • Epidemiology, Etiology, Classification, Pathophysiology, Staging, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of oncological conditions • Common malignancies of various body system; Oral, larynx, lung, Stomach and Colon, Liver, Leukemias and lymphomas, Breast, Cervix, Ovary, Uterus, Sarcoma, Brain, Renal, Bladder, Prostate etc • Oncological emergences • Modalities of treatment ❑ Immunotherapy ❑ Chemotherapy ❑ Radiotherapy ❑ Surgical Interventions ❑ Stem cell and bone marrow transplants ❑ Gene therapy ❑ Other forms of treatment • Psychosocial aspects of cancer • Rehabilitation • Palliative care; symptom and pain management, nutritional Support • Home care • Hospital care	• Lecture discussion • Explain using Charts, graphs • Model's films, slides • Demonstration • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Stomal therapy • Special therapies ❑ Psycho Social aspects • Nursing procedures		

VII	10	• Describe organization of emergency and disaster care services
		• Describe the role of nurse in disaster management
		• Describe the role of nurse in management of common Emergencies
			Nursing management of patient in EMERGENCY & Disaster situations
			Disaster Nursing:
			• Concepts and principles of Disaster Nursing
			• Causes and Types of Disaster: Natural and Man-made
			  ❑ Earthquakes, Floods, Epidemics, Cyclones
			  ❑ Fire, Explosion, Accidents
			  ❑ Violence, Terrorism; bio-chemical, War
			  ❑ Policies related to emergency/disaster management'; International, national, state, institutional
			• Disaster preparedness:
			• Team, Guidelines, protocols, Equipments, Resources
			• Coordination and involvement of; community, various govt. departments, non-govt. organizations and International agencies
			• Role of nurse: working
			• Legal Aspects of Disaster Nursing
			• Impact on Health and after effect; Post Traumatic Stress Disorder
			• Rehabilitation; physical, psychosocial, Financial, Relocation Emergency Nursing
			• Concept, priorities, principles and Scope of emergency nursing
			• Organization of emergency services: physical setup, staffing equipment and supplies, protocols, Concepts of triage and role of triage nurse.
			• Coordination and involvement of different departments & facilities
			• Nursing Assessment – History and Physical assessment
				• Lecture discussion
				• Explain using Charts, graphs
				• Model's films, slides
				• Demonstration
				• Practice session
				• Case discussion /seminar
				• Health education
				• Supervised clinical practice
				• Disaster management Drills
				• Drug book / Presentation
					• Essay type
					• Short answers
					• Objective type
					• Assessment of skills with check list
					• Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Etiology, Pathophysiology, clinical manifestation, diagnosis, treatment modalities and medical & surgical nursing management of patient with medical and surgical Emergency • Principles of emergency management • Common emergencies; • Respiratory Emergencies • Cardiac Emergencies • Shock and Hemorrhage • Pain • Poly-Trauma, road accidents, crush injuries, wound • Bites • Poisoning; Food, Gas, Drugs & chemical poisoning • Seizures • Thermal Emergencies; Heat stroked & Cold injuries • Pediatric Emergencies • Psychiatric Emergencies • Obstetrical Emergencies • Violence, Abuse, Sexual assault • Cardio Pulmonary Resuscitation • Crisis Intervention • Role of the nurse; Communication and Inter Personal Relations • Medico-Legal Aspects;		
VIII	10	• Explain the concept and problems of ageing • Describe nursing care of the elderly	**Nursing care of the elderly** • Nursing Assessment – History and Physical assessment • Ageing; • Demography; Myths and realities • Concepts and theories of ageing • Cognitive Aspects of Ageing • Normal biological ageing • Age related body systems changes • Psychosocial Aspects of aging • Medications and elderly • Stress & coping in older adults • Common Health Problems & Nursing management; • Cardiovascular, Respiratory, Musculosketetal,	• Lecture discussion • Explain using Charts, graphs • Models, films, slides. • Demonstration • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book / Presentation • Visit to old age home	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

			• Endocrine, genito-urinary, gastrointestinal • Neurological, skin and other Sensory organs ❑ Psychosocial and Sexual ❑ Abuse of elderly • Role of nurse for care of elderly: ambulation, nutritional, communicational, psychosocial and spiritual • Role of nurse for caregivers of elderly.		
			• Role of family and formal and non formal caregivers • Use of aids and prosthesis (hearing aids, dentures), • Legal & Ethical Issues • Provisions and Programmes for elderly; privileges, community programmes and health services; • Home and institutional care		
IX	10	• Describe organization of critical care units • Describe the role of nurse in management of patients critical care units	**Nursing management of patient in critical care units** • Nursing Assessment – History and Physical assessment • Classification • Principles of critical care nursing • Organization; physical setup, policies, staffing norms, • Protocols, equipment; and supplies • Special equipments; ventilation, cardiac monitors, defibrillators. • Resuscitation equipments • Infection Control Protocols • Nursing management of critically ill patient; • Monitoring of critically ill patient • CPR-Advance cardiac life support • Treatments and procedures • Transitional care • Ethical and Legal Aspects • Communication with patient and family • Intensive care records • Crisis Intervention • Death and Dying – coping with • Drugs used in critical care unit	• Lecture discussion • Explain using Charts, graphs • Model's films, slides • Demonstration • Role plays • Counseling • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient - management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
X	8	• Describe the etiology, Pathophysiology, clinical manifestations,Assessment, diagnostic Measures and management of patients with occupational and industrial health disorder	**Nursing management of patient's adults including elderly with Occupational and Industrial disorders.** • Nursing Assessment-History and Physical assessment • Etiology, Pathophysiology, Clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of occupational and industrial health disorders • Role of nurse Special therapies, alternative therapies • Nursing procedures • Drugs used in treatment of Occupational and industrial disorders		

MEDICAL SURGICAL NURSING – II
(ADULT AND GERIATRICS) PRACTICAL

Placements: Third year

Time:Theory-120 hrs.
Practical-270 hrs.
Internship – 430 hrs.

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
ENT	1	• Provide care to patients with ENT disorders • Counsel and educate patient and families	• Perform examination of ear, nose and throat • Assist with diagnostic procedures • Assist with therapeutic procedures • Instillation of drops • Perform/assist with irrigations. • Apply ear bandage • Perform tracheostomy care • Teach patients and families	• Provide care to 2-3 assigned patients • Nursing care plan- I • Observation reports of OPD • Maintain Drug book	• Asses each skill with checklist • Assess performance with rating scale • Evaluation of observation report of OPD • Completion of activity record
Ophthal mology	1	• Provide care to patients with Eye discarders • Counsel and educate patient and families	• Perform examination of eye • Assist with diagnostic procedures • Assist with therapeutic procedures • Perform/assist with irrigations • Apply eye bandage • Apply eye drops/ointments • Assist with foreign body removal • Teach patients and families	• Provide care to 2-3 assigned patients • Nursing care plan- I • Observation reports of OPD & Eye bank • Maintain Drug book	• Asses each skill with checklist • Assess performance with rating scale • Evaluation of observation report of OPD or eye bank • Completion of activity record
Neurolo -gy	2	• Provide care to patients with neurologica l disorders Counsel and educate patient and families •	• Perform Neurological Examination • Use Glasgow Coma scale • Assist with diagnostic procedures • Assist with therapeutic procedure • Teach patients & families	• Provide care to assigned 2-3 patients with neurologic al disorders	• Asses each skill with checklist • Assess performance with rating scale • Evaluation of case study

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
		• Counsel and educate	• Participate in rehabilitation program	• Case study/ Case presentation –I • Maintains drug book • Health Teaching –I	& Health teaching • Completion of activity record
Gynecology Ward	1	• Provide care to patients with gynecological disorders. • Counsel and educate patients and families	• Assist with gynecological Examination • Assist with diagnostic procedures • Assist with therapeutic procedures • Teach patients and families • Teaching self breast examination • Assist with PAP smear collection	• Provide care to 2-3 assigned patients • Nursing care plan- I • Maintain Drug book	• Asses each skill with check list • Assess performance with rating scale • Evaluation of care plan • Completion of activity record
Burns Unit	1	• Provide care to patients with Burns • Counsel and educate patients and families	• Assessment of the burn patient ❑ Percentage of burns ❑ Degree of burns • Fluid & electrolyte replacement therapy ❑ Assess ❑ Calculate ❑ Replace ❑ Record intake/output • Care of Burn wounds ❑ Bathing ❑ Dressing • Perform active & passive exercise • Practice medical & surgical asepsis • Counsel & teach patients and families • Participate in rehabilitation Programme	• Provide care to 1-3 assigned patients • Nursing care plan- I • Observation reports of Burns unit	• Asses each skill with check list • Assess performance with rating scale • Evaluation of care plan and observation report • Completion of activity record
Oncology Unit	1	• Provide care to patients with cancer • Counsel and educate patient and families	• Screen for common cancers - TNM classification • Assist with diagnostic procedures • Biopsies • Pap smear	• Provide care to 2-3 assigned patients • Nursing care plan- I •	• Asses each skill with check list • Assess performance with rating scale

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
			• Bone marrow aspiration. • Breast examination • Assist with therapeutic Procedure • Participates in various modalities of treatment ❑ Chemotherapy ❑ Radiotherapy ❑ Pain management ❑ Stoma therapy ❑ Hormonal therapy ❑ Immuno therapy ❑ Gene therapy ❑ Alternative therapy • Participate in palliative care • Counsel and teach patients families ❑ Self Breast Examination ❑ Warning sings • Participate in rehabilitation Programme	• Observation Reports of cancer unit	• Evaluation of care plan and observation report. • Completion of activity record.
Critical Care unit	2	• Provide care to critically ill patients • Counsel patient and families for grief and bereavement	• Monitoring of patients in ICU • Maintain flow sheet • Care of patients on ventilators • Perform endotracheal suctions • Demonstrates use of ventilators, cardiac monitors etc. • Collect specimens and interprets ABG analysis • Assist with arterial puncture • Maintain CVP line • Pulse oximetry • CPR-ALS • Defibrillators • Pace makers • Bag-mask ventilation • Emergency tray/trolley-crash cart • Administration of drugs ❑ Infusion pump ❑ Epidural ❑ Intrathecal	• Provide care to 1 assigned patient • Observation report of Critical care unit • Drugs book	• Assess each skill with check list • Assess performance with rating scale • Evaluation of observation report • Completion of activity record

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
			❑ Intracardiac • Total parenteral therapy • Chest physiotherapy • Perform active & passive exercises • Counsel the patient and family in dealing with grieving and bereavement		
Casualty / Emerge-ncy	1	• Provide care to patients in emergency and disaster situation • Counsel patient and families for grief and bereavement	• Practice "triage" • Assist with assessment examination, investigations & their interpretations, in emergency and disaster situations • Assist in documentations • Assist in legal procedures in emergency unit • Participate in managing crowd • Counsel patient and families in grief and bereavement	• Observation report of Emergency unit	• Assess performance with rating scale • Evaluation of observation report • Completion of activity record

Placement-Internship

Time: 430 hours (9 weeks)

Area	Duration (In week)	Objectives	Skills	Assignments
Medical Ward	2	Provide comprehensive care to patients with medical and surgical conditions including emergencies	Integrated practice	Assess clinical Performance with rating sale
Surgical Ward	2			
Critical care unit/ICCU	1			
Casualty/Emergency	2			
Operation Theatre (Eye, ENT, Neuro)	2	Assist with common operations		

CHILD HEALTH NURSING

Placements: Third year

Time:Theory-90 hrs.
Practical-270 hrs.
Internship – 145 hrs

Course Description: This course is designed for developing an understanding of the modern approach to child-care, identification, prevention and nursing management of common health problems of neonates and children.

Unit	Time (hrs.)	Learning Objective	Content	Teaching Learning Activities	Assessment Methods
I	15	• Explain the modern concept of child care & principles of child health nursing • Describe national policy programmes and legislation in relation to child health and welfare • List major causes of death during infancy, early& late childhood • Describe the major functions and role of the Paediatric nurse in caring for a hospitalized child. • Describe the principles of child health nursing	**Introduction** **Modern Concepts of childcare** • Internationally accepted rights of the child • National policy and legislations in relation to child health and welfare • National programmes related to child health and welfare • Agencies related to welfare services to the children • Changing trends in hospital care, preventive, promotive and curative aspects of child health • Child morbidity and mortality rates. • Differences between an adult and child • Hospital environment for a sick child • Impact of hospitalisation on the child and family. • Grief and bereavement • The role of a child health nurse in caring for a hospitalized child • Principles of pre and post operative care of infants and children • Child health nursing procedures	• Lecture Discussion • Demonstration of common pediatric procedures	• Short answers • Objective type • Assessment of skills with check list

Unit	Time (hrs.)	Learning Objective	Content	Teaching Learning Activities	Assessment Methods
II	20	• Describe the normal growth & development of children at different ages • Identify the needs of children and different ages and provide parental guidance • Identify the nutritional needs of children at different age and ways of meeting the needs • Appreciate the role of play for normal and sick children • Appreciate the preventive measures and strategies for children	**The healthy child** • Principles of growth and development • Factors affecting growth & development • Growth and development from birth to adolescence • The needs of normal children through the stages of developmental and parental guidance • Nutritional needs of children & infants: breast-feeding exclusive breast-feeding supplementary/artificial feeding and weaning. • Baby friendly hospital concept • Accidents: causes and prevention • Value of play and selection of play material • Preventive immunization, immunization programme and cold chain • Preventive pediatrics • Care of under five & under five clinics/well baby clinics	• Lecture Discussion • Developmental study of infant and children • Observation study of normal and sick child • Field visit to Anganwadi, child guidance clinic • Film show on breast feeding • Clinical practice / field	• Short answers • Objective type • Assessment of field visits and developmental Study reports
III	15	• Provide care to normal & high risk neonates • Perform neonatal resuscitation • Recognize and manage common neonatal problems	**Nursing care of a neonate** • Nursing care of a normal newborn/Essential newborn care • Neonatal resuscitation • Nursing management of a low birth weight baby. • Kangaroo mother care • Nursing management of common neonatal disorders • Organization of neonatal unit • Identification & nursing management of common congenital malformations.	• Lecture Discussion • Workshop on neonatal resuscitation • Demonstration • Practice session • Clinical practice	• Short answers • Objective type • Assessment of skills with check list
IV	10		**Integrated management of neonatal and childhood illnesses (IMNCI)**		

Unit	Time (hrs.)	Learning Objective	Content	Teaching Learning Activities	Assessment Methods
V	20	• Provide nursing care in common childhood diseases • Identify measures to prevent common childhood diseases including immunization	**Nursing management in common childhood diseases** • Nutritional deficiency disorders • Respiratory disorders and infections • Gastrointestinal infections, infestations and congenital disorders • Cardio vascular problem: congenital defects and rheumatic fever, rheumatic heart disease • Genito-urinary disorders: acute glomerulus's nephritis, Nephrotic syndrome, Wilm's tumor, infection and congenital disorders. • Neurological infections and disorders: convulsions, epilepsy, meningitis, hydrocephalus, and spina bifida. • Hematological disorders: Anemias, thalassemia, ITP, Leukemia, hemophilia • Endocrine disorders: Juvenile Diabetes Mellitus • Orthopedic disorders: club feet, hip dislocation and fracture. • Disorders of skin, eye, and ears • Common communicable diseases in children, their identification, nursing management in hospital and home and prevention. • Child health emergencies: poisoning, foreign bodies, hemorrhage, burns and drowning • Nursing care of infant and children with HIV/AIDS	• Lecture Discussion • Demonstration • Practice session • Clinical Practice	• Short answers • Objective type • Assessment of skills with check list
VI	10	• Manage the child with behavioral & social problems • Identify the social & welfare services for challenged children	**Management of behavioural & social problems in children** • Management of common behavioural disorders • Management of common psychiatric problems • Management of challenged children: Mentally, Physically, & Socially challenged • Welfare services for challenged children in India. • Child guidance clinics	• Lecture discussion • Field visits to child guidance clinics, school for mentally & physically socially, challenged	• Short answers • Objective types • Assessment of field reports

CHILD HEALTH NURSING-PRACTICAL

Placements: Third year
Fourth Year

Time: Practical -270 hrs.(9 Weeks)
Internship – 145 hrs (3 Weeks)

Areas	Duration (in weeks)	Objectives	Skills	Assignments	Assessment methods
Pediatric Medicine Ward	3	• Provide nursing care to children with various medical disorders. • Counsel and educate parents.	• Taking Pediatric History • Physical examination and assessment of children • Administer of oral, I/M & IV medicine/fluids • Calculation of fluid requirements • Prepare different strengths of I.V. fluids • Apply restraints • Administer O_2 inhalation by different methods • Give baby bath • feed children by katori spoon, etc • Collect specimens for common investigations • Assist with common diagnostic procedures • Teach mothers/parents ❑ Malnutrition ❑ Oral rehydration therapy ❑ Feeding & Weaning ❑ Immunization schedule ❑ Play therapy ❑ Specific Disease conditions	• Give care to three assigned Pediatric patients • Nursing Care Plan-1 • Case study/ presentation -1 • Health Talk – 1	• Assess clinical performance with rating scale • Assess each skill with check list OSCE/ OSPE • Evaluation of case study/ presentation and health education session • Completion of activity record.
Pediatric Surgery Ward	3	• Recognize different pediatric surgical conditions / malformations	• Calculate, prepare and administer I/V fluids • Do bowel wash • Care for ostomies ❑ Colostomy Irrigation	• Give care to three assigned pediatric surgical patients • Nursing Care Plan-1	• Assess clinical performance with rating scale • Assess each skill with check list OSCE/OSPE

Areas	Durati -on (in weeks)	Objectives	Skills	Assignments	Assessment methods
		• Provide pre and post operative care to children with common Paediatric surgical conditions / malformation • Counsel and educate parents	❑ Ureterostomy ❑ Gastrostomy ❑ Enterostomy • Urinary catheterization and drainage • Feeding ❑ Naso-gastric ❑ Gastrostomy ❑ Jejunostomy • Care of surgical wounds ❑ Dressing ❑ Suture removal	• Nursing Care Plan-1 • Case study/ Presentation-1	• Evaluation of case study/ presentation • Completion of Activity record
Pediatric OPD/ Immunization room	1	• Perform assessment of children Health, Development and Anthropo metric • Perform Immunization • Give Health Education /Nutritional Education	• Assessment of children ❑ Health assessment ❑ Developmental assessment ❑ Anthropometric assessment • Immunization • Health/ Nutritional • Education	• Developmental study-1	• Assess clinical performance with rating scale • Completion of activity record.
Pediatric medicine and surgery ICU	1+1	• Provide nursing care to critically ill children	• Care of a baby in incubator/warmer • Care of a child on ventilator • Endotracheal suction • Chest physiotherapy • Administer fluids with infusion pump • Total parenteral nutrition • Photo therapy • Monitoring of babies • Cardio Pulmonary resuscitation	• Nursing care plan-1 • Observation report –1	• Assess clinical performance with rating scale • Completion of activity record • Evaluation of observation report

Internship

Area	Duration (in weeks)	Objective	Skill	Assessment
Paediatric medicine ward/ICU	1	• Provide comprehensive care to children with medical conditions	• Integrated Practice	• Assess clinical performance with rating sale
Paediatric surgery ward/ICU	1	• Provide comprehensive care to children with surgical conditions	• Integrated Practice	• Assess clinical performance with rating scale
NICU	1	• Provide intensive care to neonates	• Integrated Practice	• Assess clinical performance with rating scale

MENTAL HEALTH NURSING

Placement: Third year

Time: Theory - 90 hrs.
Practical - 270 hrs.
Internship – 95 hrs (2 weeks)

Course Description: This course is designed for developing an understanding of the modern approach to mental health care, identification, prevention and nursing management of common mental health problems with special emphasis on therapeutic interventions for individuals, family and community.

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
I	5	• Describes the historical development & current trends in mental health nursing • Describe the Epidemiology of mental health problem • Describe the National Mental Health Act, programmes and mental health policy • Discusses the scope of mental health nursing • Describe the concept of normal & abnormal behavior	**Introduction** • Perspectives of Mental Health and Mental Health nursing: evolution of mental health services, treatments and nursing practices. • Prevalence and incidence of mental health problems and disorders • Mental Health Act • National Mental health policy vis a vis National Health Policy • National Mental Health programme • Mental health team • Nature and scope of mental health nursing • Role and functions of mental health nurse in various setting and factors affecting the level of nursing practice • Concepts of normal and abnormal behavior	• Lecture Discussion	• Objective types • Short answer • Assessment of the field visit reports
II	5	• Define the various terms used in mental health Nursing • Explains the classification of mental disorders • Explain psychodynamics of maladaptive behavior • Discuss the etiological factors,	**Principles and concepts of Mental Health Nursing** • Definition: mental health nursing and terminology used • Classification of mental disorders: ICD • Review of personality development, defense mechanisms • Maladaptive behavior of individuals and groups; stress, crisis and disasters • Etiology; bio-psycho-social factors	• Lecture discussion • Explain using Charts • Review of personality developments	• Essay type • Short answer • Objective type

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
		Psychopathology of mental disorders • Explain the Principles and standards of mental health Nursing • Describe the conceptual models of mental health nursing	• Psychopathology of mental disorders; review of structure and function of brain, limbic system and abnormal neuro transmission • Principles of Mental health nursing • Standards of mental health nursing practice • Conceptual models and the role of nurse: ❑ Existential Model ❑ Psycho-analytical models ❑ Behavioral model ❑ Interpersonal Model		
III	8	• Describe the nature, purpose, and process of assessment of mental health status	**Assessment of mental health status** • History taking • Mental status examination • Mini mental status examination • Neurological examination: Review • Investigations: Related Blood chemistry, EEG, CT & MRI • Psychological tests Role and responsibilities of nurse	• Lecture discussion • Demonstration • Practice session • Clinical practice	• Short answer • Objective type • Assessment of skills with check list
IV	6	• Identify therapeutic communication techniques • Describe therapeutic relationship • Describe therapeutic impasse and its intervention	**Therapeutic communication and nurse-patient relationship** • Therapeutic communication: Types, techniques, characteristics • Types of relationship, • Ethics and responsibilities • Elements of nurse patient contract • Review of technique of IPR - Johari window • Goals, phases, tasks, therapeutic techniques • Therapeutic impasse and its intervention	• Lecture discussion • Demonstration • Role play • Process recording	• Short answer • Objective type
V	14	• Explain treatment modalities and therapies used in mental disorders and role of the nurse	**Treatment modalities and therapies used in mental disorders** • Psycho Pharmacology Psychological therapies: Therapeutic community, psycho therapy-Individual: psycho-analytical, cognitive and supportive, Family, Group Behavioural, Play, Psycho- drama, Music, Dance,	• Lecture discussion • Demonstration • Group work • Practice session • Clinical practice	• Essay type • Short answer • Objective type

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
			Recreational and Light therapy, Relaxation therapies; Yoga, Meditation, bio feedback • Alternative systems of medicine • Occupational therapy • Physical Therapy: electro convulsive therapy • Geriatric considerations Role of nurse in above therapies		
VI	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with Schizophrenia, and other psychotic disorders	**Nursing management of patient with Schizophrenia, and other psychotic disorders** • Classification: ICD • Etiology, psycho-pathology, types, clinical manifestations, diagnosis • Nursing Assessment – History, Physical and mental assessment • Treatment modalities and nursing management of patient with Schizophrenia and other psychotic disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patient management problems
VII	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with mood disorders	**Nursing management of patient with mood disorders** • Mood disorder: Bipolar affective disorders, Mania depression and dysthamia etc. • Etiology psychopathology, clinical manifestations, diagnosis. • Nursing Assessment- History, Physical and mental assessment • Treatment modalities and nursing management of patients with mood disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
VIII	8	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of	**Nursing management of patient with neurotic, stress related and somatization disorders** Anxiety disorder, Phobias, Dissociation and Conversion	• Lecture discussion • Case discussion	• Essay type • Short answer • Assessment of patients management

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
		Patients with neurotic, stress related and somatization disorders	Disorder, Obsessive compulsive disorder, Somatoform disorders, Post traumatic stress disorder • Etiology, psycho-pathology, clinical manifestations, diagnosis • Nursing Assessment – History, Physical and mental assessment • Treatment modalities and nursing management of patients with neurotic, stress related and somatization disorders • Geriatric considerations • Follow – up and home care and rehabilitation	• Case presentation • Clinical practice	problems
IX	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with substance use disorders	**Nursing management of patient with neurotic, stress related and summarization disorder:** • Commonly used psychotropic substance: Classification, forms, routes, action, • Etiology of dependence: tolerance, psychological and physical dependence, withdrawal syndrome, diagnosis, • Nursing Assessment – History, Physical, mental assessment and drug assay • Treatment (detoxification, antabuse and narcotic antagonist therapy and harm reduction) and nursing management of patients with substance use disorders • Geriatric considerations • Follow –up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
X	4	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with personality Sexual and Eating disorders	**Nursing management of patient with personality, Sexual and Eating disorders** • Classification of disorders • Etiology, psycho-pathology, characteristics, diagnosis, • Nursing Assessment-history, Physical and mental assessment • Treatment modalities and nursing management of patients with Personality, Sexual and Eating disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patient management problems

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
XI	6	• Describe the etiology, psychopathology, clinical manifestations diagnostic criteria and management of childhood and adolescent disorders including mental deficiency	**Nursing management of Childhood and adolescent disorders including mental deficiency** • Classification • Etiology, psycho-pathology, characteristics, diagnosis, Nursing Assessment-History, Physical, mental and IQ assessment Treatment modalities and nursing management of childhood disorders including mental deficiency • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
XII	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of organic brain disorders.	**Nursing management of organic brain disorders** • Classification: ICD • Etiology, psycho-pathology, clinical features, diagnosis and Differential diagnosis (Parkinson's and Alzheimer's) • Nursing assessment – History, Physical, mental and neurological assessment • Treatment modalities and nursing management of organic brain disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
XIII	6	• Identify psychiatric emergencies and carry out crisis intervention	**Psychiatric emergencies and crisis intervention** • Types of psychiatric emergencies and their management • Stress adaptation Model: stress and stressor, coping, resources and mechanism • Grief: Theories of grieving process, principles, techniques of counseling • Types of crisis • Crisis Intervention: Principles, Techniques and process • Geriatric considerations Role and responsibilities of nurse	• Short answer • Objective type •	• Lecture discussion • Demonstration • Practice session Clinical practice
XIV	4	• Explain legal aspects applied in mental	**Legal issues in Mental Health Nursing** • The Mental Health Act 1987: Act, Sections, Articles and their	• Lecture discussion • Case discussion	• Short answers • Objective types

		health	implications etc.		

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
		settings and role of the nurse	• Indian Lunacy Act. 1912 • Rights of mentally ill clients • Forensic psychiatry • Acts related to narcotic and psychotropic substances and illegal drug trafficking • Admission and discharge procedures Role and responsibilities of nurse		
XV	4	• Describe the model of preventive psychiatry • Describes Community Mental health services and role of the nurse	**Community Mental Health Nursing** • Development of Community Mental Health Services: • National Metal Health programme • Institutionalization versus Deinstiutionalization • Model of preventive psychiatry: levels of prevention • Mental Health Services available at the primary, secondary, tertiary levels including rehabilitation and Role of nurse • Mental Health Agencies: Government and voluntary, national and International • Mental Health nursing issues for special populations: Children, adolescence, Women, Elderly, Victims of violence and abuse, Handicapped, HIV/AIDS etc.	• Lecture discussion • Clinical /field practice • Field visits to mental health services agencies	• Short answer • Objective type • Assessment of the field visit reports

MENTAL HEALTH NURSING – PRACTICAL

Placements: Third year

Time: Practical – 270 hrs (9 weeks)
Fourth year **Internship** – 95 hrs (2 weeks)

Areas	Durati-on (in weeks)	Objectives	Skills	Assignments	Assessment Methods
Psychiatric OPD	1	• Assess patients with mental health problems • Observe and assist in therapies • Counsel and educate patient, and families	• History taking • Perform mental status examination (MSE) • Assist in Psychometric assessment • Perform Neurological examination • Observe and assist in therapies • Teach patients and family members	• History taking and mental status examination-2 • Health education –1 • Observation report of OPD	• Assess performance with rating scale • Assess each skill with checklist • Evaluation of health education • Assessment of observation report • Completion of activity record.
Child Guidance clinic	1	• Assessme nt of children with various mental health problem • Counsel and educate children, families and significant others	• History taking • Assist in psychometric assessment • Observe and assist in various therapies • Teach family and significant others	• Case work-1 • Observation report of different therapies -1	• Assess performance with rating scale • Assess each skill with checklist • Evaluation of Observation report
Inpatient ward	6	• Assess patients with mental health problems • To provide nursing care for patients	• History taking • Perform mental status examination (MSE) • Perform Neurological examination • Assist in psychometric assessment • Record therapeutic communication • Administer medications	• Give care to 2 –3 patients with Various mental disorders • Case study-1 • Care plan-2 • Clinical Presentation 1 •	• Assess performance with rating scale • Assess each skill with checklist • Evaluation of the case study, care

Areas	Durati	Objectives	Skills	Assignments	Assessment

	-on (in weeks)				Methods
		with various mental health problems • Assist in various therapies • Counsel and educate Patients, families and significant others	• Assist in Electro Convulsive Therapy (ECT) • Participate in all therapies • Prepare patients for Activities of Daily living (ADL) • Conduct admission and discharge counseling • Counsel and teach patients and families	• Process recording –2 • Maintain drug book.	plan, clinical presentation, process recording • Completion of activity record
Community psychiatry	1	• To identify patients with various mental disorders • To motivate patients for early treatment and follow up • To assist in follow up clinic • Counsel and educate patient, family and community	• Conduct case work • Identify individuals with mental health problems • Assists in mental health camps and clinics • Counsel and Teach family members, patients and community	• Case Work –1 • Observation report on field visits	• Assess performance with rating scale • Evaluation of case work and observation report • Completion of activity record

Internship

Time: 95 hrs (2 Weeks)

Area	Duration	Objective	Skills	Assessment
Psychiatry ward	2 Weeks	Provide comprehensive care to patients with mental health problems	Integrated Practice	Assess clinical performance with rating scale

MIDWIFERY AND OBSTETRICAL NURSING

Placement: Third year

Time: Theory - 90 hrs.
Practical - 180 hrs.

Course Description: This course is designed for students to appreciate the concepts and principles of midwifery and obstetrical nursing. It helps them to acquire knowledge and skills in rendering nursing care to normal and high risk pregnant woman during antenatal, natal and post natal period in hospitals and community settings. It also helps to develop skills in managing normal and high-risk neonates and participate in family welfare programme.

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
I	4	• Recognize the trends and issues in midwifery and obstetrical nursing	**Introduction to midwifery and obstetrical Nursing** • Introduction to concepts of midwifery and obstetrical nursing • Trends in midwifery and obstetrical nursing ❑ Historical perspectives and current trends ❑ Legal and ethical aspects ❑ Pre-conception care and preparing for parenthood ❑ Role of nurse in midwifery and obstetrical care. ❑ National policy and legislation in relation to maternal health and welfare. ❑ Maternal, morbidity, mortality and fertility rates. ❑ Prenatal, morbidity and mortality rates	• Lecture discussion • Explain using Charts and graphs	• Short answers • Objective types
II	8	• Describe the anatomy and physiology of female reproductive system	**Review of anatomy and physiology of female reproductive system and foetal development** • Female pelvis-general description of the bones joints, ligaments, planes of the pelvis, diameters of the true pelvis, important landmarks, and variations in pelvis shape. • Female organs of reproduction-external genitalia, internal genital organs and their anatomical relations, musculature-blood-supply, nerves, lymphatic, pelvic cellular tissue, pelvic peritoneum. • Physiology of menstrual cycle	• Lecture discussion • Review with charts and models	• Short answers • Objective types

Unit	Time	Learning	Content	Teaching	Assessment

	Hrs.	Objective		learning Activities	method
			• Human sexuality • Foetal development ❑ Conception Review of fertilization, implantation (embedding of the ovum), Development of the embryo and Placenta at term ,Functions, Abnormalities of the foetal sac, amniotic fluid and umbilical cord, ❑ Foetal circulation, foetal skull, bones, sutures and measurements. • Review of Genetics		
III	8	• Describe the Diagnosis and management of woman during antenatal period	**Assessment and management of pregnancy (ante-natal)** • Normal pregnancy • Physiological changes during pregnancy ❑ Reproductive system ❑ Cardio vascular system ❑ Respiratory system ❑ Urinary system ❑ Gastro intestinal system ❑ Metabolic changes ❑ Skeletal changes ❑ Skin changes ❑ Endocrine system ❑ Psychological changes ❑ Discomforts of pregnancy • Diagnosis of pregnancy ❑ Signs ❑ Differential diagnosis ❑ Confirmatory test • Ante-natal care ❑ Objectives ❑ Assessment - History and physical examination - Antenatal Examination - Signs of previous child-birth ❑ Relationship of fetus to uterus and pelvis: Lie, Attitude, Presentation, position ❑ Per-vaginal examination. • Screening and assessment for high risk;	• Lecture discussion • Demonstration • Case discussion/ presentation • Health talk. • Practice session. • Counseling session. • Supervised clinical practice.	• Short answers • Objective types • Assessment of skills with check list • Assessment of patients manageme nt problems

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
			• Risk approach • History and Physical Examination • Modalities of diagnosis; Invasive & Non-Invasive, ultrasonic, cardiotomography, NST, CST • Antenatal preparation ❑ Antenatal counseling ❑ Antenatal exercises ❑ Diet ❑ Substance use ❑ Education for child-birth ❑ Husband and families ❑ Preparation for safe-confinement • Prevention from radiation • Psycho-social and cultural aspects of pregnancy ❑ Adjustment to pregnancy ❑ Unwed mother ❑ Single parent ❑ Teenage pregnancy ❑ Sexual violence • Adoption		
IV	12	• Describe the physiology and stages of labour • Describe the management of women during Intranatal period	**Assessment and management of intra-natal period** • Physiology of labour, mechanism of labour • Management of labour ❑ First stage - Signs and symptoms of onset of labour; normal and abnormal - Duration - Preparation of; □□ Labour room □□ Woman - Assessment and observation of women in labour; partogram-maternal and foetal monitoring - Active management of labour, Induction of labour - Pain relief and comfort in labour • Second stage ❑ Signs and symptoms; normal and abnormal ❑ Duration	• Lecture discussion • Demonstration • Case discussion presentation • Simulated practice • Supervised Clinical practice	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patients management problems

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
			❑ Conduct of delivery; Principles and techniques ❑ Episiotomies (only if required) ❑ Receiving the new born - Neonatal resuscitation; initial steps and subsequent resuscitation - Care of umbilical cord - Immediate assessment including screening for congenital anomalies - Identification - Bonding - Initiate feeding - Screening and transportation of the neonate • Third stage ❑ Signs and symptoms; normal and abnormal ❑ Duration ❑ Method of placental expulsion Management; Principles and Technique ❑ Examination of the placenta ❑ Examination of perineum • Maintaining records and report. • Fourth Stage		
V	6	• Describe the physiology of puerperium • Describe the management of woman during postnatal period	**Assessment and management of women during post natal period** • Normal puerperium; Physiology, Duration • Postnatal assessment and management ❑ Promoting physical and emotional well-being ❑ Lactation management ❑ Immunization • Family dynamics after childbirth. • Family welfare services; methods, counseling • Follow-up • Records and reports	• Lecture discussion • Demonstration • Heath talk • Practice Session • Supervised Clinical practice	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patient manageme nt problems
VI	7	• Describe the assessment and management of normal neonate	**Assessment and management of normal neonates** • Normal neonate; ❑ Physiological adaptation; ❑ Initial & Daily assessment ❑	• Lecture discussion • Demonstration • Practice Session	• Essay types • Short answers • Objective types

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
			❑ Essential newborn care; Thermal control, ❑ Breast feeding, prevention of infections • Immunization • Minor disorders of newborn and its management • Levels of neonatal care (level I, II, & III) • At primary, secondary and tertiary levels • Maintenance of Reports and Records	• Supervised Clinical practice	• Assessment of skills with check list • Assessment of patient managemen t problems
VII	10	• Describe the identification and management of woman with high risk pregnancy	**High – risk pregnancy – assessment & management** • Screening and assessment ❑ Ultrasonics, cardiotomography, NST, CST, non-invasive & invasive, ❑ Newer modalities of diagnosis • High-risk approach • Levels of care; primary, secondary and tertiary levels • Disorders of pregnancy Hyper-emesis gravidarum, bleeding in early pregnancy, Abortion, ectopic Pregnancy, vesicular mole, ❑ Ante-partum hemorrhage. • Uterine abnormality and displacement. • Diseases complicating pregnancy ❑ Medical and surgical conditions ❑ Infections, RTI (STD), UTI, HIV, TORCH ❑ Gynecological diseases complicating pregnancy ❑ Pregnancy induced hypertension & diabetes, toxemia of pregnancy, hydramnios. ❑ Rh incompatibility ❑ Mental disorders • Adolescent pregnancy, elderly primi and grand multipara. • Multiple pregnancy • Abnormalities of placenta & cord	• Lecture discussion • Demonstrate using video films, scan reports, partograph etc. • Case discussion/ presentation • Health talk Practice session • Supervised Clinical prentice	• Essay types • Short answers • Objective types • Assessmen t of skills with check list. • Assessmen t of patients manageme nt problems

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
			• Intra-uterine growth-retardation • Nursing management of mothers with high-risk pregnancy Maintenance of records and report		

MIDWIFERY AND OBSTETRICAL NURSING

Placement: Third Year
Fourth year

Time: Practical – 180 hrs (Third year)
Internship - 240 hrs.

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessments Methods
Antenatal clinic /OPD	2	• Assessment of pregnant women	• Antenatal history taking • Physical examination • Recording of Weight & B.P. • Hb & Urine testing for sugar and albumin • Antenatal examination-abdomen and breast • Immunization • Assessment of risk status • Teaching antenatal mothers • Maintenance of Antenatal records	• Conduct antenatal examinations-30 • Health talk-1 • Case book recordings	• Verification of findings of Antenatal examinations • Completion of casebook recordings
Labour room O.T	4	• Assess woman in labour • Carry out per-vaginal examination • Conduct normal deliveries • Perform Episiotomy and suture it • Resuscitate newborns • Assist with Caesarean Sections, MTP and other surgical procedure.	• Assessment of Woman in labour • Pervaginal examinations and interpretation • Monitoring and caring of woman in labour • Maintenance of partograph • Conduct normal delivery • New born assessment and immediate care • Resuscitation of newborns • Assessment of risk status of newborn • Episiotomy and suturing • Maintenance of labour and birth records • Arrange for and assist with caesarean section and care for woman & baby during Caesarean • Arrange for and assist with MTP and other surgical procedure	• *Conduct normal deliveries –20 • * Pervaginal examinations-5 • Perform and Suture the episiotomies –5 • *Resuscitate newborns-5 • *Assist with Caesarean Section-2 • *Witness abnormal deliveries –5 • Assist MTP and other surgical procedures-1 • Case book recordings	• Assessment of clinical performance with rating scale • Assessment of each skill with checklists • Completion of Case book recordings

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessments Methods
Post natal ward	4	• Provide nursing care to post natal mother and baby • Counsel and teach mother and family for parent hood	• Examination and assessment of mother and Baby • Identification of deviations • Care of postnatal mother and baby • Perineal care • Lactation management • Breast feeding • Baby bath • Immunization • Teaching postnatal mother: ❑ Mother craft ❑ Post natal care & Exercises ❑ Immunization	• *Give care to post natal mothers-20 • Health talk-1 • Casestudy-1 • Case presentation –1 • Case book recordings	• Assessment of clinical performance • Assessment of each skill with checklist • Completion of case book recording • Evaluation of case study and presentation and health education sessions
New born nursery	2	• Provide nursing care to newborn at risk	• Newborn assessment • Admission of neonates • Feeding of at risk neonates ❑ Katori spoon, paladi, tube feeding, total parenteral nutrition • Thermal management of neonates-kangaroo mother care, care of baby in incubator • Monitoring and care of neonates • Administering medications • Intravenous therapy • Assisting with diagnostic procedure • Assisting with exchange transfusion • Care of baby on ventilator • Photo therapy • Infection control protocols in the nursery • Teaching and Counselling of parents • Maintenance of neonatal records	• Case study-1 • Observation study-1	• Assessment of clinical performanc e • Assessment of each skill with checklists • Evaluation and observation study
Family planning clinic	Rotation from post natal ward I -	• Counsel for and provide family welfare	• Counselling techniques • Insertion of IUD • Teaching on use of family planning	• *** IUD insertion-5** • Observation study –1	• Assessment of each skill with checklist

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessments Methods
	week	• services	• methods • Arrange for and assist with family planning operations • Maintenance of record and reports	• Counselling-2 • Simulation exercise on recording and reporting –1 •	• Evaluation of and observation study

* Essential Requirements for registration as midwife

- ♦ Antenatal examination 30
- ♦ Conducting normal deliveries in hospital/home/health center 20
- ♦ Vaginal examination 5
- ♦ Episiotomy and suturing 5
- ♦ Neonatal resuscitation 5

- ♦ Assist with Caesarean Section 2
- ♦ Witness/Assist abnormal deliveries 5
- ♦ Postnatal cases nursed in hospital/home/health center. 20
- ♦ Insertion of IUD 5

Note: All casebooks must be certified by teacher on completion of essential requirements**.**

Internship Obstetrical Nursing

Internship Duration – 5 weeks

Area	Duration (In Weeks)	Objective	Skills	Assignment	Assessment methods
Labour ward Neonatal intensive care unit/NICU Antenatal	2 1 2	• Provide comprehensive care to mothers and neonates	• Integrated practice	• Completion of other essential requirement • Case book recordings.	• Assess clinical performance with rating scale • Completion of case book recording

NURSING RESEARCH AND STATISTICS

Placements: Fourth year — **Time:** Theory - 45 hrs.

Internship — Practical - 45 hrs.

Course Description: This course is designed to enable students to develop an understanding of basic concepts of research, research process and statistics. It is further, structured to conduct/ participate in need based research studies in various setting and utilize the research findings to provide quality-nursing care. The hours for practical will be utilized for conducting individual/group research project.

Unit	Time hrs.	Learning Objectives	Content	Training Learning Activities	Assessment Methods
I	4	• Describe the concept of research, terms, need and areas of research in nursing • Explain the steps of research process.	**Research and research process** • Introduction and need for nursing research • Definition of Research & nursing research • Steps of scientific method • Characteristics of good research • Steps of Research process-overview	• Lecture Discussion • Narrate steps of research process followed from examples of published studies	• Short answer • Objective type
II	3	• Identify and state the research problem and objectives	**Research Problems/Question** • Identification of problem area • Problem statement • Criteria of a good research problem. • Writing objective	• Lecture discussion • Exercise on writing statement of problem and objectives	• Short answer • Objective type
III	3	• Review the related literature	**Review of Literature** • Location • Sources • On line search; CINHAL, COCHRANE etc. • Purposes • Method of review	• Lecture discussion • Exercise on reviewing one research report/ article for a selected research problem • Prepare annotated bibliography	• Short answer • Objective type
IV	4	• Describe the research approaches and designs	**Research approaches and designs** • Historical, survey and experimental • Qualitative and Quantitative designs	• Lecture discussion • Explain types of research approaches used from examples of published and unpublished research studies with rationale.	• Short answer • Objective type
V	8	• Explain the	**Sampling and data**	• Lecture discussion	• Short

		sampling process • Describe the	**collection** • Definition of population, sample, Sampling criteria,	• Reading assignment on examples of data	answer • Objective type

Unit	Time hrs.	Learning Objectives	Content	Training Learning Activities	Assessment Methods
		methods of data collection	factors influencing sampling Process, types of sampling Techniques. • Data- why, what, from, whom, when and where to collect. • Data Collection methods and instruments: ❑ Methods of data collection ❑ Questioning, interviewing ❑ Observations, record analysis and measurement ❑ Types of instruments ❑ Validity & Reliability of the Instrument ❑ Pilot study ❑ Data collection procedure	collection tools Preparation of sample data collection tool • Conduct group research project	
VI	4	Analyze, Interpret and summarize the research data	**Analysis of data:** • Compilation, Tabulation, classification, summarization, presentation, interpretation of data	• Lecture discussion • Preparation of sample table.	• Short answer • Objective type
VII	15	• Explain the use of statistics, scales of measurement and graphical presentation of data • Describe the measures of central tendency and variability and methods of correlation.	**Introduction to statistics** • Definition, use of statistics, scales of measurement. • Frequency distribution and graphical presentation of data • Mean, Median, Mode, Standard deviation • Normal probability and tests of significance • Co-efficient of correlation. • Statistical packages and its application	• Lecture discussion • Practice on graphical presentations • Practice on computation of measures of central tendency, variability & correlation	• Short answer • Objective type
VIII	4	• Communicate and utilize the research findings	**Communication and utilization of Research** • Communication of research findings ❑ Verbal report ❑ Writing research report ❑ Writing scientific article/paper - Critical review of published research	• Lecture discussion • Read/Presentations of a sample published/ unpublished research report • Writing group research project	• Short answer • Objective type • Oral presentation • Assessment of group research

			- Utilization of research findings		project

MIDWIFERY AND OBSTETRICAL NURSING

Placement: Fourth Year

Time: Theory – 45Hours
Practical - 180 hrs.

Course Description: This course is designed for students to appreciate the concepts and principles of midwifery and obstetrical nursing. It helps them to acquire knowledge and skills in rendering nursing care to normal and high risk pregnant woman during antenatal, natal and post natal period in hospitals and community settings. It also helps to develop skills in managing normal and high-risk neonates and participate in family welfare programme.

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
1	10	• Describe the identification and management of woman with high risk pregnancy	**High – risk pregnancy – assessment & management** • Screening and assessment ❑ Ultrasonics, cardiotomography, NST, CST, non-invasive & invasive, ❑ Newer modalities of diagnosis • High-risk approach • Levels of care; primary, secondary and tertiary levels • Disorders of pregnancy Hyper-emesis gravidarum, bleeding in early pregnancy, Abortion, ectopic Pregnancy, vesicular mole, ❑ Ante-partum hemorrhage. • Uterine abnormality and displacement. • Diseases complicating pregnancy ❑ Medical and surgical conditions ❑ Infections, RTI (STD), UTI, HIV, TORCH ❑ Gynecological diseases complicating pregnancy ❑ Pregnancy induced hypertension & diabetes, toxemia of pregnancy, hydramnios. ❑ Rh incompatibility ❑ Mental disorders • Adolescent pregnancy, elderly primi and grand multipara. • Multiple pregnancy • Abnormalities of placenta & cord • Intra-uterine growth-retardation • Nursing management of mothers with high –risk pregnancy • Maintenance of Records and	• Lecture discussion • Demonstrate using video films, scan reports, partograph etc. • Case discussion/ presentation • Health talk Practice session • Supervised Clinical prentice	• Essay types • Short answers • Objective types • Assessment of skills with check list. • Assessment of patients management problems

			Reports		
II	10	• Describe management of abnormal labour And obstetrical emergencies	**Abnormal Labour-assessment and management** • Disorders in labour ❑ CPD and contracted pelvis ❑ Malpositions and malpresentations ❑ Premature labour, disorders of uterine actions-precipitate labour, prolonged labour ❑ Complications of third stage: Injuries to birth canal • Obstetrical emergencies and their management; ❑ Presentation and prolapse of cord, Vasa praevia, amniotic fluid embolism, rupture of uterus, shoulder dystocia, obstetrical shock • Obstetrical procedures and operations; ❑ Induction of labour, forceps, vacuum, version, manual removal of placenta, caesarean section, destructive operations Nursing management of women Undergoing Obstetrical operations and procedures	• Lecture discussion • Demonstration • Case discussion/ presentation • Practice Session • Supervised Clinical pactice	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patients management problem
III	3	Describe management of post natal complications	**Abnormalities during Postnatal Periods** • Assessment and management of woman with postnatal complications ❑ Puerperal infections, breast engorgement & infections, UTI, thrombo-Embolic disorders, post - partum hemorrhage, Eclampsia and sub involution. ❑ Psychological complications: - Post partum Blues - Post partum Depression - Post partum Psychosis	• Lecture discussion • Demonstration • Case discussion/ presentation • Supervised Clinical practice.	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patients management problem
IV	8	• Identify the high risk neonates	**Assessment and management of High risk newborn** • Admission of neonates in the	• Lecture discussion • Demonstration	• Essay types • Short answers
		and their nursing management	• neonatal intensive care units – protocols • Nursing management of**:** ❑ Low birth weight babies ❑ Infections	• Case discussion/ presentation • Practice Session • Supervised Clinical prentice	• Objective types • Assessment of skills with check list

			❑ Respiratory problems ❑ Hemolytic disorders ❑ Birth injuries ❑ Malformations • Monitoring of high risk neonates • Feeding of high risk neonates • Organization and management of neonatal intensive care units • Infection control in neonatal intensive care units Maintenance of reports and records		• Assessment of patients management problem
V	4	• Describe indication, dosage action, side effects and nurses responsibilities in the administration of drugs for mothers	**Pharmaco-therapeutics in Obstetrics** • Indication, dosage, action, contra-indication and side effects of drugs • Effect of drugs on pregnancy, labour & puerperium, • Nursing responsibilities in the administration of drug in obstetrics – Oxytocins, antihypertensives, diuretics, tocolytic agents, anticonvulsants, • Analgesics and anesthetics in obstetrics. Effects of maternal medication Fetus and neonate	• Lecture discussion • Drug presentation • Drug book.	• Short answers • Objective types
VI	10	• Appreciate the importance of family welfare programme • Describe the methods of contraception and role of nurse in family welfare programme	**Family Welfare programme** • Population trends and problems in India • Concepts, aims, importance and history of family welfare programme • National Population: dynamics, policy and education • National family welfare programme; RCH, ICDS, MCH. Safe motherhood • Organization and administration; at national, state, district, block and village levels • Methods of contraception; spacing, temporary and permanent, Emergency contraception • Infertility and its management • Counseling for family welfare • Latest research in contraception • Maintenance of vital statistics • Role of national, international and voluntary organizations • Role of a nurse in family welfare programme • Training/supervision/Collaboration with other functionaries in community like ANMs. LHVs. Anganwadi workers, TBAs (Traditional birth attendant Dai)	• Lecture discussion • Demonstration • Practice Session • Supervised practice • Group project • Counseling session • Field visits	• Essay types • Short answers • Objective types • Assessment of skills with check list • Project and field visits reports

COMMUNITY HEALTH NURSING-II

Placement: Fourth Year

Time: Theory – 90 Hours
Practical - 135 hrs.

Course Description: This course is designed for student to practice community health nursing for the individual, family and groups at both urban and rural settings by using concept and principles of health and community health nursing.

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
1	4	Define concepts, scope, principles and historical development of community Health and community health Nursing	Introduction • Definition, concept & scope of community Health and community Health and Community Health Nursing • Historical development of • Community health • Community health Nursing • Pre-independence • Post -independence	• Lecture discussion	• Essay types • Short answers
II	6	Describe health plans, policies, various health committees and health problems in India	Health planning and policies and problems • National health planning in India- Five Year Plans • Various committees and commissions on health and family welfare • Central council for health and family welfare (CCH and FW) • National health policies (1983, 2002) • National population policy • Health problems in India	• Lecture discussion • Panel discussion	• Essay types • hort answers
111	15	Describe the system of delivery of community health services in rural and urban areas • List the functions of various levels and their staffing pattern • Explain the components of health	**Delivery of community health services** • Planning, budgeting and material management of SCs, PHC and, CHC • **Rural:** Organization, staffing and functions of rural health services provided by government at: • Village • Sub-centre • Primary health centre • Community health centre/sub divisional • Hospitals • District • State • Centre • **Urban:** organization, staffing	• Lecture discussion • Visits of various health delivery system • Supervised field practice • Panel discussion	Eassy type Short answers

		services • Describe alternative systems of health promotion and health maintenance. • Describe the chain of referral system	and functions of urban health services provided by grvernment at: • Slums • Dispensaries • Maternal and child health cetres • Special clinics • Hospital • Corporation/municipality/board • Components of health services • Environmental sanitation • Health education • Vial statics • MCH-antenatal, natal, postnatal, ,MTP Act, female feticide act, child adoption act • Family Welfare • National health programme • School health services • Occupational health • Defenses services • Institutional services • Systems of medicine and health care • Allopathy • Indian system of medicine and homeopathy • Alternative health care systems like yoga, meditation, social and spiritual healing etc. • Referral system • Systems of medicine and health care • Allopathy • Indian system of medicine and homeopathy • Alternative health care systems like yoga meditation social and spiritual healing etr. • Referral system		
IV	25	Describe Community Health Nursing approaches and concepts Describe the roles and	**Community health nursing approaches, concepts and roles and responsibilities of nursing personnel** • Approaches • Nursing theories and process • Epidemiological approach	•	

		responsibilities of community health nursing personnel	• Problem solving approach • Evidence based approach • Empowering people to care for themselves • Concepts of primary health care: • Equitable distribution • Community participation • Focus on prevention • Use of appropriate technology • Multi-sect oral approach • Roles and responsibilities of community health nursing personnel in • Family health services • Information education community health nursing • Management informational system(MIS): Maintenance of record & reports • Training and supervision of various categories of health workers • National Health Programmes • Environmental sanitation • Maternal and child health and family welfare • Treatment of Minor ailments • School Health services • Occupational Health • Organization of clinics, camps: Types, Preparation, Planning conduct and evaluation • Waste management in the center, clinics etc. • Home visit: concept, principles, process, techniques: Bag technique home visit • Qualities of community health nurse • Job Description of Community health nursing personnel		
V	15	Describe and appreciate the activities of community health nurse in assisting individuals and groups to promote and	**Assisting individuals and group promote and maintain their health** • Empowerment for self-care of individuals, families and groups in- ▪ Assessment of self and family ▪ Monitoring growth and development ▪ Mile stones	Lecture discussion Demonstration Practice session Supervised field	Essay type Short answers

		maintain their health	▪ Weight measurement ▪ Social development ▪ Temperature and Blood pressure monitoring ▪ Menstrual cycle ▪ Best self –examination and testicles ▪ Warning signs of various diseases ▪ Tests: Urine for sugar and albumin, blood sugar B Seek health services for ▪ Routine check-up ▪ Immunization ▪ Counseling ▪ Diagnosis ▪ Treatment ▪ Follow up C Maintenance of health records for self and family D Continue medical care and follow up in community for various diseases and disabilities E Carryout therapeutic procedures as prescribed/required for self and family F Waste Management ▪ Collection and disposable of waste at home and community G Sensitize and handle social issues affecting health and development for self and Family ▪ Women Empowerment ▪ Women and child abuse ▪ abuse of elders ▪ Female Foeticide ▪ Commercial sex workers ▪ Food adulteration ▪ Substance abuse H. Utilize community resources for self and family • Trauma services • Old age homes • Orphanage • Homes for physically and mentally challenged individuals • Homes for destitute	practice Individual/group/family/community health education	
IV	20	Describe national health and family welfare programmes	**National health and family welfare programmes and the role of a nuse** 1)National ARI programme 2)Revised National tuberculosis Control Programme(RNTCP)	20 point programme	

		and role of a nurse. Describe the various health schemes in India	3)National Anti-Malaria programme 4)National Filaria control programme 5)National Guinea worm eradication programme 6)National Leprosy eradication programme 7)National AIDS control programme 8)STD control programme 9)National program me for control of blindness 10)lodine deficiency disorder progamme 11)Expanded programme on immunization 12)National Family Welfare Programme-RCH programme historical development organization, administration, research constraints 13)National water supply and sanitation programme 14)Minimum Need programme 15)National Diabetics control programme 16)Polio Eradication: Pulse Polio Programme 17)National Cancer Control Programme 18)Yaws Eardication Programme 19)National Nutrition Anemia Prophylaxis programme 20)20 points programme 21) ICDS Programme 22) Mid-day meal applied nutritional programme 23) National mental health programme • Health schemes • ESI • CGHS • Health insurance		
VII	5	Explain the roles and functions of various national and international health agencies	▪ **Health Agencies International** WHO, UNFPA, UNDP, World Bank, FAO, UNICEF, DANIDA, European Commission(EC), Red cross, USAID, UNESCO, Colombo Plan, ILO, CARE etc. National-India Red Cross, Indian Council for child welfare, Family Planning Association of India(FPAI), Tuberculosis Association of India, Hindu Kusht	Lecture discussion Field visits	Eassy type Short answers

			Nivaran Sangh, Central Social Welfare Board, All India womes's conference, Blind Association of India etc.		

COMMUNITY HEALTH NURSING-II

Placement: Fourth Year

Time: Practical -135 hours
Internship -195 hours

Area	Duration (in wks)	Objective	Skills	Assignments	Assessment method
Community health nursing	I week for urban 4 week for rural	* Identify community Profile * Identify prevalent communicable and non communicable diseases * Diagnose health needs of Individual, families and community * Plan, provide & evaluate care * Participate in school health programme * participate in national health programme * organize group for self –help & involve clients in their own health activities * Maintain Records & Reports.	• Community health survey • Community diagnosis • Family care: home adaption of common rocedures • Home visit: Bat gechnique • Organize and conduct flinics-antenatal, postnatal, well baby clinic, camps etc. • Screen manages and referrals for: • Screen manages and referrals for: ▪ High risk mothers and neonates ▪ Accidents and emergencies ▪ Illnesses: Physical and mental ▪ Disabilities • Conduct delivery at centre/home:episiotomy and sururing • Resuscitate new born • School Health Programme ▪ Screen, manage, refer children • Collaborate with health and alied agencies • Train and Supervise health workers • Provide family werfare services: insertion of IUD • Counsel and teach individual, family & community about: HIV, TB, Diabetes, Hypertension, Mental health, adolescents, elderly health, • Physically and mentally challenged individuals etc. • Collect and calculate Vital health statistics • Document and maintain ▪ Individual, family and administrative records.	* Community survey report-1 *Family care study -1 * Project -1 * Health talk -1 *Case book recording	* Asses clinical performance with rating scale *Evaluation of community survey report , family care study, project and health ialk * Completion of activity record. * Completion of case book recording

			▪ Write reports centre, disease, national health programme/projects		

Placement : Internship Time: 4 weeks

Area	Duration (in wks)	Objective	Skills	Assignments method
Urban	4 week	*Provide comprehensive care to individual, family and community.	• Integrated Practice and group project-1 in each rural and urban	* Assess clinical performance with gating scale * Evaluation of project

Note : During the rural posting they should stay in health centre under the supervision of teache

MANAGEMENT OF NURSING SERVICES AND EDUCATION

Placement: Fourth year **Time:** Theory - 90 hrs.

Course Description: This course is designed to enable students to acquire understanding of management of clinical and community health nursing services, nursing educational programmes. This is also designed to enable students to acquire understanding of the professional responsibilities, prospects and contribution to the growth of the profession.

Unit	Time (hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				
I	4		Explain the principles and functions of management	**Introduction to management in nursing** • Definition, concepts and theories • Functions of management • Principles of management • Role of nurse as a manager	• Lecture Discussion • Explain using organization chart	• Short answers
II	5		• Describe the elements and process of management	**Management process** • Planning; mission, philosophy, objectives, operational plan • Staffing: philosophy, staffing study, norms, activities, patient classification systems, scheduling. • Human resource management; recruiting, selecting, deployment, retaining, promoting, super annuation etc. • Budgeting: concept, principles, types, cost benefit analysis, audit • Material management: equipment and supplies • Directing process (Leading) • Controlling: Quality management • Program Evaluation Review Technique (PERT), Bench marking, Activity plan (Gantt Chart).	• Lecture Discussion • Simulated Exercises • Case studies	• Essay type • Short answers

Unit	Time (hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				

III	8	20	• Describe the Management of nursing service in the hospital and Community	**Management of nursing services in the hospital and Community** • Planning: ❑ Hospital and patient care units including ward management ❑ Emergency and disaster management • Human resource Management: ❑ Recruiting, selecting, deployment, retaining, promoting, superannuation etc. ❑ Categories of nursing personnel including job description of all levels ❑ Patient/population classification systems ❑ Patients/ population assignment and nursing care responsibilities ❑ Staff development and welfare • Budgeting: proposal, projecting requirements for staff, equipments and supplies for - ❑ Hospital and patient care units ❑ Emergency and disaster management • Material Management; procurement, inventory control, auditing and maintenance in - ❑ Hospital and patient care units ❑ Emergency and disaster management • Directing and leading: delegation, participatory management - ❑ Assignments, rotations, delegations ❑ Supervision & guidance ❑ Staff development and welfare	• Lecture Discussion • Demonstration • Simulated Exercises • Case studies • Supervised practice in ward – writing indents, preparing duty roaster, ward supervision • Assignment on duties and responsibilities of ward sister • Writing report	• Essay type • Short answers • Assessment of problem solving Exercises, • Assessment of the assignment • Performance evaluation by ward sister with rating scale

Unit	Time (Hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				
				❑ Maintenance of discipline • Controlling/Evaluation: ❑ Nursing Rounds/Visits, nursing protocols, manuals ❑ Quality Assurance Model, documentation ❑ Records and reports performance appraisal		
IV	5		• Describe the concepts, theories and techniques of Organizational behaviour and human relations	**Organizational behaviour and human relations** • Concepts and theories of organizational behaviour • Review of Channels of Communication • Leadership styles • Review of Motivation; concepts and theories • Group dynamics • Techniques of; ❑ Communication; and ❑ Interpersonal relationships ❑ Human relations; • Public relations in Context of nursing • Relations with professional associations and employee unions and Collective bargaining	• Lecture Discussion • Role plays • Group games • Self Assessment • Case discussion • Practice Session	• Essay type • Short answers • Assessment of problem solving
V	5	5	• Participate in planning and organizing in service education Programme	**In Service education** • Nature & scope of in-service education programme. • Organization of in-service education • Principles of adult learning • Planning for in-service education Programme, • Techniques, methods & Evaluation of staff education Programme, • Preparation of report	• Lecture Discussion • Plan & conduct an education session for in service nursing personnel	• Short Answers • Objective type • Assess the planning & conduct of the educational session
VI	10		• Describe management of Nursing educational institutions	**Management of nursing educational institutions** • Establishment of nursing educational institution – INC norms and guidelines	• Lecture Discussion • Role plays • Counseling session • Group Exercises	• Essay type • Short Answers

Unit	Time (Hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				
				• Co-ordination with- ❑ Regulatory bodies ❑ Accreditation ❑ Affiliation - Philosophy/ Objectives - Organization ❑ Structure ❑ Committees - Physical facilities ❑ College/School ❑ Hostel - Students ❑ Selection ❑ Admission ❑ Guidance and Counseling ❑ Maintaining discipline - Faculty and staff ❑ Selection ❑ Recruitment ❑ Job description ❑ Placement ❑ Performance appraisal ❑ Development and welfare • Budgeting • Equipments and supplies: audiovisual equipments, laboratory equipment, books, journals etc. • Curriculum; Planning, implementation and evaluation, • Clinical facilities • Transport facilities • Institutional Records and reports – Administrative, faculty, staff and students		
VII	10		• Describe the ethical and legal responsibilities of a professional nurse • Explain the nursing practice standards	**Nursing as a profession** • Nursing as a profession ❑ Philosophy; nursing practice ❑ Aims and objectives Characteristics of a Professional nurse ❑ Regulatory bodies; INC, SNC Acts: -constitution, functions ❑ Current trends and issues in nursing	• Lecture discussion • Case discussion • Panel discussion • Role plays Critical incidents	• Short Answers • Assessment of critical incidents

Unit	Time (Hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th.	Pr.				
				• Professional ethics ❑ Code of ethics; INC, ICN ❑ Code of Professional conduct; INC, ICN • Practice standards for Nursing; INC • Consumer protection act • Legal Aspects in nursing ❑ Legal terms related to practice; registration and licensing ❑ Laws related to nursing practice; Breach and penalties ❑ Malpractice and negligence	• Visit to INC/ SNRCs	
VIII	3		• Explain the various Opportunities for professional advancement	**Professional Advancement:** • Continuing education • Career Opportunities • Collective bargaining • Membership with professional organizations; National and International • Participation in research activities • Publications; Journals, Newspapers etc.	• Lecture Discussion • Review/presentation of published articles • Group work on maintenance of bulletin board	• Short Answers • Assessment of critical incidents

----

CONTENTS

PHILOSOPHY

INC believes that:

Health is a state of well-being that enables a person to lead a psychologically, socially and economically productive life. Health is a right of all the people. Individuals, families and communities responsibility towards maintaining their health.

Nursing contributes to the health services in a vital and significant way in the health care delivery system. It recognizes national health goals and is committed to participate in the implementation of National Health policies and programmes. It aims at identifying health processionals and community groups.

Scope of nursing practice encompasses provision of promotive, preventive, curative and rehabilitative aspects of care to people across their life span in wide variety of health care settings. Practice of nursing is based upon application of basic concepts and principles derived from the physical, biological and behavioral sciences, medicine and nursing.

Nursing is based on values of caring, and aims to help individuals to attain independence in self-care. It necessitates development of compassion and understanding of human behaviour among its practitioners to provide care with respect and dignity and protect the rights of individuals & groups.

Undergraduate nursing program is broad based education within an academic framework specifically directed to the development of critical thinking skills, competencies & standards required for practice of professional nursing and midwifery as envisaged in National Health Policy 2002.

The teachers have the responsibility to be role models and create learning environment that enables students to acquire inquiry driven, self directed learning and foster an attitude of life long learning.

Under graduate nursing education program prepares its graduates to become exemplary citizen by adhering to code of ethics and professional conduct at all times in fulfilling personal. Social and professional obligations so as to respond to national aspirations.

AIM

The aim of the undergraduate nursing program is to:

- Prepare graduates to assume responsibilities as professional, competent nurses and midwives in providing promotive, preventive, curative, and rehabilitative services.

- Prepare nurses who can make independent decisions in nursing situations, protect the rights of and facilitate individuals and groups in pursuit of health, function in the hospital, community-nursing services, and conduct research studies in the areas of nursing practice. They are also expected to assume the role of teacher, supervisor, and manager in a clinical / public health setting.

OBJECTIVES

On completion of the four year B. Sc Nursing program the graduate will be able to:-

14. Apply Knowledge from physical, biological and behavioral sciences, medicine including alternative systems and nursing in providing nursing care to individuals, families and communities.
15. Demonstrate understanding of life style and other factors, which affect health of individuals and groups.
16. Provide nursing care based on steps of nursing process in collaboration with the individuals
17. Demonstrate critical thinking skill in making decisions in all situations in order to provide quality care.
18. Utilize the latest trends and technology in providing health care.
19. Provide promotive preventive and restorative health services in line with the national health policies and programmes.
20. Practice within the framework of code of ethics and professional conduct, and acceptable student of practice within the legal boundaries.
21. Communicate effectively with individuals and groups, and members of the health team in order to promote effective interpersonal relationships and teamwork.
22. Demonstrate skills in teaching to individuals and groups in clinical/community health settings.
23. Participate effectively as members of the health team in health care delivery system.
24. Demonstrate leadership and managerial skills in clinical/community health settings.
25. Conduct need based research student in various settings and utilize the research findings to improve the quality of care.
26. Demonstrate awareness, interest, and contribute towards advancement of self and of the profession.

ADMISSION REQUIREMENTS

3. The minimum age for admission shall be 17 years on or before 31st Dec. of the year of admission.

4. The minimum educational requirements shall be the passing of:

   Higher Secondary school certificate Examination (12 year course)

   Or

   Senior School certificate Examination (10+2), Pre degree Examination (10+2)

   Or

   An equivalent with 12 years schooling from a recognized board or university with Sciences (Physics, Chemistry, Biology) and English with minimum of 50 % aggregate marks (PCBE).

3. Candidate shall be medically fit.

Entrance / selection test

- Selection of the candidates should be based on the merit of the entrance examination held by University or competent authority.

Duration

Duration of the course shall be four years including internship

Vacation

8 Weeks vacation shall be given in each year.

DURATION

Course Duration	=	**4 Years**
Weeks available per year	=	52 weeks
Vacation	=	8 weeks
Gazetted holidays	=	3 weeks
Examination (Including preparatory)	=	4 weeks
Available weeks	=	37 weeks
Hours per week	=	40
Practical	=	30 hours per week
Theory	=	10 hours per week
Internship	=	48 hours per week
Hours available per academic year	=	1480 (37 week x 40 hours)

COURSE OF INSTRUCTION

FIRST YEAR

Subject	Theory in hrs. (Class and lab)	Practical in hrs. (Clinical)	In hrs.
13. English	60		
14. Anatomy	60		
15. Physiology	60		
16. Nutrition	60		
17. Biochemistry	30		
18. Nursing Foundations	265+200	450	
19. Psychology	60		
20. Microbiology	60		
21. Introduction of computers	45		
22. **Hindi / regional language	30		
23. Library work / self Study			50
24. Co- curricular Activities			50
Total Hours	**930**	**450**	**100**
Total hours =1480 Hrs.			

(** Optional)

SECOND YEAR

Subject	Theory in hrs. (Class and lab)	Practical in hrs. (Clinical)	In hrs.
10. Sociology	60		
11. Pharmacology	45		
12. Pathology & 13. Genetics	30 15		
14. Medical Surgical nursing (Adult including geriatrics)-I	210	720	
15. Community Health nursing –I	90	135	
16. Communication and Educational Technology	60+30		
17. Library work/ self Study			50
18. Co-curricular activities			35
Total Hours	**540**	**855**	**85**
Total hours = 1480 hrs.			

THIRD YEAR

Subject	Theory in hrs. (Class and lab)	Practical in hrs. (Clinical)	(In hrs)
7. Medical –Surgical nursing (Adult including geriatrics)-II	120	270	
8. Child Health Nursing	90	270	
9. Mental Health Nursing	90	270	
10. Midwifery and Obstetrical nursing	90	180	
11. Library work/ self Study			50
12. Co-curricular activities			50
Total Hours	**390**	**990**	**100**
Total hours = 1480 hrs.			

FOURTH YEAR

Subject	Theory in hrs. (Class & lab)	Practical in hrs. (Clinical)	(In hrs)
1. Midwifery and Obstetrical nursing		180	
2. Community Health nursing –II	90	135	
3. Nursing Research & Statistics	45		
4. Management of Nursing Services and education	60+30		
Total Hours	**225**	**315**	
Total hours = 540 hrs.			

- Project work to be carried out during internship.

Practical =30 hours per week

Intern –Ship (Integrated Practice)

Subject	Theory	Practical (In hrs.)	In weeks
7. Midwifery and Obstetrical nursing		240	5
8. Community Health nursing –II		195	4
9. Medical Surgical Nursing (Adult and geriatric)		430	9
10. Child Health		145	3
11. Mental Health		95	2
12. Research Project		45	1
Total Hours		**1150**	**24**
Total hours =1480 hrs.			

Note:

5. Internship means 8 hours of integrated clinical duties in which 2 weeks of evening and night shift duties are included.

6. Internship should be carried out as 8 hours per day @ 48 hours per week.

7. Students during internship will be supervised by nursing teachers.

8. Fourth year final examination to be held only after completing internship.

SCHEME OF EXAMINATION

FIRST YEAR

Subject	Assessment			
	Hours	Internal	External	Total
Theory				
20. Anatomy & Physiology	3	25	75	100
21. Nutrition & Biochemistry	3	25	75	100
22. Nursing Foundations	3	25	75	100
23. Psychology	3	25	75	100
24. Microbiology	3	25	75	100
25. English	3	25	75	100
26. Introduction of computers		25	75	100
Practical and Viva Voce				
1. Nursing Foundations		100	100	200

SECOND YEAR

Subject	Assessment			
	Hours	Internal	External	Total
Theory				
27. Sociology	3	25	75	100
28. Medical Surgical nursing-I	3	25	75	100
29. Pharmacology, Pathology, Genetics	3	25	75	100
30. Community Health nursing –I	3	25	75	100
31. Communication and Educational Technology	3	25	75	100
Practical and Viva Voce				
2. Medical –Surgical Nursing-I		100	100	200

THIRD YEAR

Subject	Assessment			
Theory	**Hours**	**Internal**	**External**	**Total**
32. Medical –Surgical nursing-II	3	25	75	100
33. Child Health Nursing	3	25	75	100
34. Mental Health Nursing	3	25	75	100
Practical and Viva Voce				
3. Medical –Surgical nursing-II		50	50	100
4. Child Health Nursing		50	50	100
5. Mental Health Nursing		50	50	100

FOURTH YEAR

Subject	Assessment			
Theory	**Hours**	**Internal**	**External**	**Total**
35. Midwifery and Obstetrical nursing	3	25	75	100
36. Community Health nursing – II	3	25	75	100
37. Nursing Research & Statistics	3	25	75	100
38. Management and Nursing Services and education	3	25	75	100
Practical and Viva Voce				
6. Midwifery and Obstetrical nursing	3	50	50	100
7. Community Health nursing	3	50	50	100

Note: -

20. Anatomy and physiology –Question paper will consist of Section A Anatomy of 37 marks and B Physiology should be of 38 marks.

21. Nutrition and Biochemistry and –Question paper will consist of Section A Nutrition of 45 marks and Section B of Biochemistry of 30 marks.

22. Pharmacology, genetics, and pathology: Section A of Pharmacology with 38 marks, Section B of Pharmacology of 25 and Genetics with 12 marks.

23. Nursing Research & Statistics-Nursing Research Should be of 50 marks and Statistics of 25 marks.

24. Minimum pass mark shall be 40% for English only.

25. Theory and Practical exams for Introduction to computer to be conducted as College exam and marks to be sent to University for inclusion in the marks sheet.

26. Minimum pass marks shall be 50% in each of the theory and practical papers separately.

27. A candidate must have minimum of 80% attendance (irrespective of the kind of absence) in theory and practical in each subject for appearing for examination.

28. A candidate must have 100% attendance in each of the practical area before award of degree.

29. A Candidate has to pass in theory and practical exam separately in each of the paper.

30. If a candidate fails in either theory or practical paper he/she has re-appear for both the papers (Theory and Practical)

31. Maximum number of attempts permitted for each is 3 including first attempt

32. A Candidate failing in more then two subjects will not be prompted to the next year.

33. Candidate shall not be admitted to the subsequent higher examination unless the candidate has passed the previous examination.

34. The maximum period to complete the course successfully should not exceed 8 years

35. Maximum number of candidate for practical examination should note exceed 20 per day

36. All practical examinations must be held in the respective clinical areas.

37. One internal and one external examiner should jointly conduct practical examination for each student.

38. An examiner should be a lecture or above in a college of nursing with M. Sc (N) in concerned subject and minimum of 3 year of teaching experience. To be an examiner for nursing foundations faculty having M. Sc (N) with any specialty shall be considered.

ENGLISH

Placement -: first Year **Time:** theory –60 hours

Course Description: The Course is designed to enable students to enhance ability to comprehend spoken and written English (and use English) required for effective communication in their professional work students will practice their skills in verbal and written English during clinical and classroom experiences.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	10	• Speak and write grammatically correct English	• Review of Grammar • Remedial study of Grammar • Building Vocabulary • Phonetics • Public Speaking	• Demonstrate use of dictionary • Class-room conversation • Exercise on use if Grammar • Practice in public speaking	• Objective type • Fill in the blanks • Para - phrasing
II	30	• Develop ability to read, understand and express meaningfully the prescribed text	• Read and comprehend prescribed course books	• Exercise on: ❑ Reading ❑ Summarizing ❑ Comprehension	• Short Answers • Essay types
III	10	• Develop writing skills	• Various forms of composition ❑ Letter writing ❑ Note taking ❑ Precise writing ❑ Nurses notes ❑ Anecdotal records ❑ Diary writing ❑ Reports on health problems etc. ❑ Resume/CV	• Exercise on writing ❑ Letter writing ❑ Nurses Notes ❑ Precise ❑ Diary ❑ Anecdote ❑ Health problems ❑ Story writing ❑ Resume /CV • Essay writing ❑ Discussion on written reports/ documents	• Assessment of the skills based on the check list
IV	6	• Develop skill in spoken English	• **Spoken English** ❑ Oral ❑ Discussion ❑ Debate ❑ Telephonic conversation	• Exercise on: ❑ Debating ❑ Participating in Seminar, panel, symposium ❑ Telephonic conversation	• Assessment of the skills based on the check list
V	4	• Develop skill in the listening comprehension	• **Listening Comprehension** ❑ Media, audio, Video, speeches etc.	• Exercise on: ❑ Listening to audio, video tapes and Identify the key points	• Assessment of the skills based on the check list

ANATOMY

Placement: First Year **Time:** Theory –60 Hours

Course Description: The Course is designed to enable students to acquire knowledge of the normal structure of various human body systems and understand the alterations in anatomical structures in disease and practice of nursing:

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	5	• Describe the anatomical terms, organization of human body and structure of cell, tissues, membranes and glands	**Introduction to Anatomical terms organization of the human body** • Human Cell structure • Tissues-Definition, Types characteristics, classification, location, functions and formation • Membranes and glands – classification and structure Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, microscopic slides, Skeleton & torso • Demonstrate cell, types of tissues membranes and glands • Record book	• Short answer questions • Objective types
II	6	• Describe the structure & function of bones and joints	**The Skeletal System** • Bones –types, structure, Axial & Appendicular Skeleton, • Bone formation and growth • Description of bones • Joints- classification & structure Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, Skeleton loose bones, and joints • Record book	• Short answer questions • Objective type
III	7	• Describe the structure and function of muscles	**The Muscular system** • Types and structure of muscles • Muscle groups Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, models and films • Demonstrate muscular movements • Record book	• Short answer questions • Objective type
IV	6	• Describe the structure & function of nervous system	**The Nervous System** • Structure of neuralgia & neurons • Somatic Nervous systems ❑ Structure of brain, spinal chord, cranial nerves, spinal nerves, peripheral nerves • Autonomic Nervous system – sympathetic, parasympathetic ❑ Structure, location Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, torso, models, slides specimens • Record book	• Short answer questions • Objective types

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
V	6	• Explain the structure & function of sensory organs	**The Sensory Organs** • Structure of skin, eye, ear, nose, tongue, (Auditory and olfactory apparatus) Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, torso, models, slides specimens • Record book	• Short answer questions • Objective type
VI	7	• Describe the structure & function of circulatory and lymphatic system	**Circulatory and lymphatic system** • The Circulatory system ❑ Blood-Microscopic structure ❑ Structure of Heart ❑ Structure of blood vessels-Arterial & Venous System, ❑ Circulation: systemic, pulmonary, coronary • Lymphatic system ❑ Lymphatic vessels and lymph ❑ Lymphatic tissues - Thymus gland - Lymph nodes - Spleen - Lymphatic nodules Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using charts, models, slides, specimens • Record book	• Short answer questions • Objective type
VII	5	• Describe the structure & functions of Respiratory system	**The Respiratory System** • Structure of the organs of respiration • Muscles of respiration: Intercostals and Diaphragm Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type
VIII	6	• Describe the structure & functions of digestive system	**The digestive System** • Structure of Alimentary tract and accessory organs of digestion Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type
IX	4	• Describe the structure & functions of Excretory system	**The Excretory System (Urinary)** • Structure of organs of urinary System: Kidney, ureters, urinary bladder, urethra, structure of skin Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
X	4	• Describe the structure & functions of endocrine system	**The Endocrine System** • Structure of pituitary, Pancreas, Thyroid, Parathyroid, thymus and adrenal glands Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type
XI	4	• Describe the structure & functions of reproductive system	**The Reproductive System** • Structure of female reproductive organs • Structure of male reproductive organs • Structure of breast • Structure in disease Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using model, torso, charts, slides, Specimens • Record book	• Short answer questions • Objective type

PHYSIOLOGY

Placement: first year **Time:** theory 60-Hours

Course description: The course is designed to assist the students to acquire knowledge of the normal physiology of various human body systems and understand the alterations in physiology in diseases and practice of Nursing.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	4	• Describe the physiology of cell, tissues membranes and glands	**Cell Physiology** • Tissue- formation repair • Membranes & glands- functions Alterations in disease Application and implications in nursing	• Lecture Discussion	• Short answer questions • Objective type
II	4	• Describe the bone formation and growth and movements of skeleton system	**Skeletal System** • Bone formation & growth • Bones-Functions and movements of bones of axial and Appendicular skeleton, bone healing • Joints and joint movement Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, models and films • Demonstration of joint movements	• Short answer questions • Objective type
III	4	• Describe the muscle movements and tone and demonstrate muscle contraction and tone	**Muscular System** • Muscle movements, muscle tone, Physiology of muscle contraction, levels and maintenance of posture Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, models, slides, specimen and films • Demonstration of muscle movements, tone and contraction	• Short answer questions • Objective type
IV	7	• Describe the physiology of never stimulus, reflexes, brain, cranial and spinal nerves	**Nervous System** • Functions of Neuralgia & neurons • Stimulus & nerve-impulse- definitions and mechanism • Functions of brain, spinal, cord, cranial and spinal nerves • Cerebrospinal fluid- Composition, circulation and function • Reflex arc, reflex action and reflexes	• Lecture discussion • Explain using Charts, models and films • Demonstrate nerve stimulus, reflex action, reflexes	• Short answer questions • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			• Autonomic functions- ▫ Pain: somatic, visceral, and referred ▫ Autonomic learning and biofeedback Alterations in disease • Application and implications in nursing		
V	8	Describe the physiology of blood and function of Heart Demonstrate blood cell Count, coagulation, grouping, Hb: BP and pulse monitoring	**Circulatory System** • Blood formation, composition, blood groups, blood coagulation • Hemoglobin: Structure, Synthesis, and breakdown, Variation of molecules, estimation • Functions of Heart, Conduction, Cardiac cycle, circulation- Principles, control, factors, influencing BP and Pulse Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, models and films • Demonstration of Blood cell count, coagulation, grouping/ Hemoglobin estimation, Heart conduction systems. • Measurement of Pulse, BP	• Short answer questions • Objective type
VI	6	• Describe the physiology and Mechanisms of respiration • Demonstrates spirometry	**The Respiratory System** • Functions of respiratory organs • Physiology of respiration • Pulmonary ventilation, Volume • Mechanics of respiration • Gaseous exchange in lungs • Carriage of oxygen &carbon-dioxide • Exchange of gases in tissues • Regulation of respiration Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films • Demonstration of Spirometry	• Short answer questions • Objective type
VII	6	• Describes the physiology digestive system • Demonstrates BMR	**The Digestive Systems** • Functions of organs of digestive tract. Movements of alimentary tract, Digestion in mouth, stomach, small intestines, Large intestines, Absorption of food, Functions of liver, gall bladder and pancreas • Metabolism of carbohydrates, protein and fat.	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
VIII	5	• Describes the physiology of excretory System	**The Excretory System** • Functions of kidneys, ureters, urinary bladder & urethra • Composition of urine • Mechanism of urine formation • Functions of skin • Regulation of body temperature • Fluid and electrolyte balance, Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective types
IX	4	• Describes the Physiology of sensory organs	**The Sensory Organs** • Functions of skin, eye, ear, nose, tongue Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective type
X	5	• Describe the physiology of endocrine glands	**The Endocrine System** • Functions of Pituitary, Pineal body, thymus, Thyroid, Parathyroid, pancreas, Suprarenal, Placenta and ovaries & Testes Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, films • Demonstration of BMR	• Short answer questions • Objective type
XI	5	• Describe the physiology of Male & female reproductive system	**The Reproductive System** • Reproduction of cells- DNA, Mitosis, Meiosis, spermatogenesis, oogenesis • Function of female reproductive organs; Functions of Breast, Female sexual cycle. • Introduction to embryology • Functions of male reproductive organs, male function in reproduction, Male fertility system, Alterations in disease Application and implications in nursing	• Lecture discussion • Explain using Charts, and films, models, specimens	• Short answer questions • Objective type
XII	2	• Describe the physiology of Lymphatic and Immunologi c-al System	**Lymphatic and Immunological System** • Circulation of lymph • Immunity ❑ Formation of T-Cells, B Cells ❑ Types of Immune response ❑ Antigens ❑ Cytokines ❑ Antibodies	• Lecture discussion • Explain using Charts, films	• Short answer questions • Objective type

NUTRITION

Placement: First Year Time: Theory 60 hours

Course Description: The Course is designed to assist the students to acquire knowledge of nutrition for maintenance of optimum health at different stages of life and its application for practice of nursing.

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
I	4		• Describe the relationship between nutrition & Health	Introduction • Nutrition: ❑ History ❑ Concepts • Role of nutrition in maintaining health • Nutritional problems in India • National nutritional policy • Factors affecting food and nutrition: socio-economic, cultural, tradition, production, system of distribution, life style and food habits etc. • Role of food and its medicinal value • Classification of foods • Food standards • Elements of nutrition: Macro and micro • Calorie, BMR	• Lecture Discussion • Explaining using charts • Panel discussion	• Short answer • Objective type
II	2		• Describe the classification functions, sources and recommended daily allowances (RDA) of carbohydrates	**Carbohydrates** • Classification • Caloric value • Recommended Daily allowances • Dietary sources • Functions, • Digestion, absorption and storage, metabolism of carbohydrates • Malnutrition: Deficiencies and Over consumption	• Lecture Discussion • Explaining using charts	• Short answer • Objective type
III	2		• Describe the classification functions,	**Fats** • Classification,	• Lecture Discussion	• Short answer

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
			sources and recommended daily allowances (RDA) of Fats	• Caloric value • Recommended Daily allowances • Dietary sources • Functions, • Digestion, absorption and storage, metabolism • Malnutrition: Deficiencies and Over consumption	• Explaining using charts	• Objective type
IV	2		• Describe the classification, functions, sources and recommended daily allowances (RDA) of proteins	**Proteins** • Classification • Caloric value • Recommended Daily allowances • Dietary sources • Functions • Digestion, absorption, metabolism and storage • Malnutrition: Deficiencies and Over consumption	• Lecture Discussion • Explaining using charts	• Short answers • Objective type
V	3		• Describe the daily calorie requirement for different categories of people	**Energy** • Unit of Energy- Kcal • Energy requirements of different categories of People • Measurements of energy • Body mass index (BMI) and basic metabolism • Basal Metabolic rate (BMR) –determination and factors affecting	• Lecture Discussion • Explaining using charts • Exercise • Demonstration	• Short answers • Objective type
VI	4		• Describe the classification, functions, sources and recommended daily Allowances (RDA) of Vitamins	**Vitamins** • Classification • Recommended Daily allowances • Dietary sources • Functions • Absorption, synthesis, metabolism storage and excretion • Deficiencies • Hypervitaminosis	• Lecture Discussion • Explaining using charts	• Short answers • Objective type

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
VII	4		• Describe the classification, functions, sources and recommended daily Allowances (RDA) of Minerals	**Minerals** • Classification • Recommended daily allowances • Dietary sources • Functions, • Absorption, synthesis, metabolism storage and excretion • Deficiencies • Over consumption and toxicity	• Lecture Discussion • Explaining using charts	• Short answers • Objective type
VIII	3		• Describe the sources, functions and requirements of Water & electrolytes	**Water & Electrolytes** • Water: Daily Requirement, regulation of water metabolism, distribution of body water, • Electrolytes: Types, sources, composition of body fluids • Maintenance of fluid & electrolyte balance • Over hydration, dehydration and water intoxication • Electrolyte imbalances	• Lecture Discussion • Explaining using charts	• Short answers • Objective type
IX	5	15	• Describe the Cookery rules and preservation of nutrients • Prepare and serve simple beverages and different types of foods	**Cookery rules and preservation of nutrients** • Principles, methods of cooking and serving ❑ Preservation of nutrients • Safe food handling-toxicity • Storage of food Food preservation, Food additives and its principles • Preservation of food Adulteration Act (PFA) • Food standards • Preparation of simple beverages and different types of food	• Lecture discussion • Demonstration • Practice session	• Short answers • Objective type • Assessment of practice sessions
X	7	5	• Describe and plan balanced	**Balance diet** • Elements	• Lecture Discussion	• Short answers

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
			Diet for different categories of people	• Food groups • Recommended Daily Allowance • Nutritive value of foods • Calculation of balanced diet for different categories of people • Planning menu • Budgeting of food • Introduction to therapeutic diets: Naturopathy-Diet	• Explaining using charts • Practice session • Meal planning	• Objective type • Exercise on menu planning
XI	4		• Describe various national programmes related to nutrition • Describe the role of nurse in assessment of nutritional status and nutrition education	**Role of nurse in nutritional programmes** • National Programmes related to nutrition • Vitamin A deficiency Programme • National iodine deficiency disorders (IDD) Programme • Mid-day meal Programme • Integrated child development scheme (ICDS) • National and International agencies working towards food/ nutrition • Assessment of nutritional status • Nutrition education and role of nurse	• Lecture Discussion • Explaining with • Slide/Film shows • Demonstration of Assessment of nutritional status	• Short answers • Objective type

BIOCHEMISTRY

Placement: First Year Time: Theory –30 Hours

Course Descriptions: The Course is designed to assist the students to acquire knowledge of the normal biochemical composition and functioning of human body and understand the alterations in biochemistry in diseases for practice of nursing.

Unit	Time (hrs.)	Objectives	Content	Teaching Learning Activity	Assessment Methods
I	3	• Describe the structure Composition and functions of cell • Differentiate between prokaryote and Eukaryote cell • Identify techniques of Microscopy	**Introduction** • Definition and significance in nursing • Review of structure, Composition and functions of cell • Prokaryote and Eukaryote cell organization • Microscopy	• Lecture discussion using charts, slides • Demonstrate use of microscope	• Short answer questions • Objective type
II	6	• Describe the structure and functions of Cell membrane	**Structure and functions of cell membrane** • Fluid mosaic model tight junction, Cytoskeleton • Transport mechanism: diffusion, osmosis, filtration, active channel, sodium pump • Acid base balance –maintenance & diagnostic tests ❑ PH buffers	• Lecture discussion	• Short answer questions • Objective type
III	6	• Describe the metabolism of carbohydrates	**Composition and metabolism of Carbohydrates** • Types, structure, composition and uses – Monosaccarides, Disaccharides, polysaccharides, Oligosaccharides, • Metabolism ❑ Pathways of glucose: – Glycolysis – Gluconeogenesis: Cori's cycle, Tricarboxylic acid (TCA) cycle – Glycogenolysis – Pentose phosphate pathways (Hexose mono phosphate) ❑ Regulation of blood	• Lecture discussion using charts, slides • Demonstration of blood glucose monitoring	• Short answer questions • Objective type

Unit	Time (hrs.)	Objectives	Content	Teaching Learning Activity	Assessment Methods
			glucose level Investigations and their interpretations		
IV	4	• Explain the metabolism of Lipids	**Composition and metabolism of Lipids** • Types, structure, composition and uses of fatty acids ❑ Nomenclature, Roles and Prostaglandins • Metabolism of fatty acid ❑ Breakdown ❑ Synthesis • Metabolism of triacylglycerols • Cholesterol metabolism ❑ Biosynthesis and its regulation – Bile salts and bilirubin – Vitamin D – Steroid hormones • Lipoproteins and their functions: ❑ VLDs -IDLs, LDLs and HDLs ❑ Transport of lipids ❑ Atherosclerosis, Investigations and their interpretations • Enzymes and c o-enzymes ❑ Classification ❑ Properties	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type
V	6	• Explain the metabolism of Amino acids and Proteins	**Composition and metabolism of Amino acids and Proteins** • Types, structure,, composition and uses of Amino acids and Proteins • Metabolism of Amino acids and Proteins ❑ Protein Synthesis, targeting and glycosylation ❑ Chromatography ❑ Electrophoresis ❑ Sequencing • Metabolism of Nitrogen ❑ Fixation and assimilation ❑ Urea Cycle ❑ Hemes and chlorophylls ❑ Kinetics and inhibition ❑ Control ❑ Investigations and their interpretations	• Lecture discussion using charts • Demonstration of laboratory tests	• Short answer questions • Objective type

Unit	Time (hrs.)	Objectives	Content	Teaching Learning Activity	Assessment Methods
VI	2	• Describe types, composition and utilization of Vitamins & minerals	**Composition of vitamins and minerals** • Vitamins and minerals: ❑ Structure ❑ Classification ❑ Properties ❑ Absorption ❑ Storage & transporting ❑ Normal concentration investigations and their interpretations	• Lecture Discussion using chart • Demonstration of laboratory tests	• Short answer questions • Objective type
VII	3	• Describe Immuno-chemistry	**ImmunoChemistry** • Immune response, • Structure and classification of Immunoglobins • Mechanism of antibody production • Antigens: HLA Typing • Free radical and antioxidants • Specialized Protein: Collagen, Elastin, Keratin, Myosin, and Lens Protein. • Electrophoretic and Quantitative determination of immunolobins –ELISA etc. Investigations and their interpretations	• Lecture discussion • Demonstrate laboratory tests	• Short answer Questions • Objective type

NURSING FOUNDATIONS

Placement: First Year **Time:** Theory-265 hours

Practical –650 hours
(200 lab and 450 clinical)

Course Description: This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of nursing in various Supervised Clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of nursing and practice them in Supervised Clinical settings.

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
I	10	• Describe the concept of health, illness and health care agencies	**Introduction** • Concept of Health: Health Illness continuum • Factors influencing health • Causes and risk factors for developing illness • Body defences; Immunity and immunization • Illness and illness Behavior • Impact of illness on patient and family • Health Care Services: Health promotion and prevention, Primary care, Diagnoses, Treatment, Rehabilitation and continuing. Care. • Health care teams • Types of health care agencies • Hospitals: Types, Organization, and functions • Health Promotion and Levels of Disease Prevention • Primary health care and its delivery: Role of nurse	• Lecture discussion • Visit to health care agencies	• Essay type • Short Answers • Objective type
II	16	• Explain concept and scope of nursing • Describe values, code of ethics and professional conduct for nurses in India	**Nursing as a profession** • Definition and characteristics of a profession • Nursing: ❑ Definition, Concepts, Philosophy, Objectives ❑ Characteristics, nature and scope of nursing practice ❑ Functions of nurses ❑ Qualities of a nurse ❑ Categories of nursing personnel	• Lecture discussion • Case discussion • Role plays	• Essay type • Short Answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			❑ Nursing as a profession ❑ History of Nursing in India • Values: Definition, Types. Values Clarification and values in professional Nursing: Caring and Advocacy • Ethics: ❑ Definition and Ethical principles ❑ Code of ethics and professional conduct for nurses		
III	4	• Explain admission and discharge procedure • Performs admission discharge procedure	**Hospital admission and discharge** • Admission to the hospital ❑ Unit and its preparation admission bed ❑ Admission procedure ❑ Special considerations ❑ Medico-legal issues ❑ Roles and responsibilities of the nurse • Discharge from the Hospital ❑ Types: Planned discharge, LAMA and abscond, referrals and transfers ❑ Discharge planning ❑ Discharge procedure ❑ Special considerations ❑ Medico-legal issues ❑ Role and Responsibilities the nurse ❑ Care of the unit after discharge	• Lecture discussion • Demonstration • Lab practice • Supervised Clinical practice	• Essay type • Short Answers • Objective type • Assess skills with check list examination
IV	10	• Communicate effectively with patient, families and team members and maintain effective human relations (projecting professional image)	**Community and Nurse patient relationship** • Communication: Levels, Elements, Types, Modes, Process, Factors influencing communication ❑ Methods of Effective communication, ▪ Attending skills Rapport building Skills ▪ Empathy skills	• Lecture Discussion • Role play and video film on the nurses interacting with the patient • Practice Session on patient teaching • Supervised Clinical practice	• Essay type • Short Answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
		• Appreciate the importance of patient teaching in nursing	❑ Barriers to effective communication, • Helping Relationships (NPR) Dimensions of Helping relationship, • Communicating effectively with patient, families and team member and maintain effective human relations with special reference to communicating with vulnerable group (children, women, physically and mentally challenged and elderly) • Patient Teaching: Importance, Purposes, Process, role of nurse and Integrating teaching in Nursing Process		
V	15	• Explain the concept, uses, format and steps of nursing process • Documents nursing process as per the format	**The Nursing Process** • Critical Thinking and Nursing judgment ❑ Critical Thinking: Thinking and Learning ❑ Competencies, Attitudes for Critical thinking, levels of critical thinking in Nursing • Nursing Process Overview: Application in Practice. ❑ Nursing process format: INC, current format ❑ Assessment ▪ Collection of Data: Types sources, Methods ▪ Formulating Nursing judgment: Data interpretation ❑ Nursing diagnosis ▪ Identification of client problems ▪ Nursing diagnosis statement ▪ Difference between medical and nursing diagnosis ❑ Planning ▪ Establishing Priorities ▪ Establishing Goals and expected Out comes.	• Lecture discussion • Demonstration • Exercise • Supervised Clinical practice	• Essay type • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			▪ Selection of intervention: protocols and standing Orders ▪ Writing the Nursing Care Plan ❑ Implementation ▪ Implementing the plan of care ❑ Evaluation ▪ Outcome of care ▪ Review and Modify ❑ Documentation and Reporting		
VI	4	• Describe the purposes, types, and techniques of recording and reporting	**Documentation and Reporting** • Documentation: purposes of recording and reporting • Communication within the Health Care Team, • Types of records; ward records, medical /nursing records • Common Record- keeping forms, computerized documentation • Guidelines for Reporting: Factual Basis, Accuracy, Completeness, current ness, Organization, confidentiality • Methods of recording • Reporting: Change of shift reports: Transfer reports, Incident reports • Minimizing legal Liability through effective record keeping	• Lecture discussion • Demonstration • Practice Session • Supervised Clinical practice	• Essay type • Short answers • Objective type
VII	15	• Describe principles and techniques of monitoring and maintaining vital sings • Monitor and Maintain vital sings	**Vital sings** • Guidelines for taking vital signs: • Body temperature**:** ❑ Physiology, Regulation, Factors affecting body Temperature ❑ Assessment of body temperature: Sites equipments and technique, special considerations ❑ Temperature alterations: Hyperthermia, Heatstroke, Hypothermia ❑ Hot and cold applications	• Lecture discussion • Demonstration • Practice • Supervised Clinical practice	• Essay type • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			• **Pulse:** ❑ Physiology and regulation, Characteristics of the pulse, factors affecting pulse ❑ Assessment of pulse: Sites, location, equipments and technique, special considerations ❑ Alterations in pulse: • **Respiration:** ❑ Physiology and regulation mechanics of breathing Characteristics of the respiration, Factors affecting respiration ❑ Assessment of respirations: technique, special considerations ❑ Alterations in respiration • **Blood pressure:** ❑ Physiology and Regulation, Characteristics of the blood pressure, Factors affecting blood pressure ❑ Assessment of blood pressure: Sites, equipments and technique, special considerations ❑ Alterations in blood pressure • Recording of vital signs		
VIII	30	• Describe Purpose and process of health assessment • Describe the health assessment of each body system • Perform health assessment of each body system	**Health assessment** • Purposes • Process of Health assessment ❑ Health history ❑ Physical examination: ▪ Methods-Inspection, palpation, percussion Auscultation, Olfaction ▪ Preparation for examination: patient and unit ▪ General assessment ▪ Assessment of each body system ▪ Recording of health assessment	• Lecture discussion • Demonstration • Practice on simulators • Supervised Clinical practice	• Essay type • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
IX	5	• Identifies the various machinery, equipment and linen and their care	**Machinery, Equipment and Linen** • Types: Disposables and reusable-Linen, rubber goods, glass ware, metal, plastics, furniture machinery • Introduction ❑ Indent ❑ Maintenance ❑ Inventory	• Lecture discussion • Demonstration	• Essay type • Short answers • Objective type
X	60	• Describe the basic, physiological and psychosocial needs of patients • Describe the principles and techniques for meeting basic, physiological and psychosocial needs of patient • Perform plan, implement and evaluate the care for meeting basic. Physiological need of patient	**Meeting needs of patient** • Basic needs (activities of daily living) ❑ Providing safe and clean environment: ▪ Physical –environment: Temperature, Humidity, Noise, Ventilation, light, Odour, Pests control ▪ Reduction of physical hazards: fire, accidents ▪ Safety devices: Restraints, side rails, airways, trapez, etc. ▪ Role of nurse in providing safe and clean environment ❑ Hygiene:- ▪ Factors Influencing Hygienic practice ▪ Hygienic care: Care of the skin-Bath and pressure point, feet and nail, Oral cavity, Hair Care, Eyes Ears, and nose o Assessment, principles, types, Equipment procedure, Special considerations ▪ Patient environment: Room Equipment and linen, making patient beds	• Lecture discussion • Demonstration • Practice sessions • Supervised practice • Clinical practice	• Essay type • Short answer • Objective types • Assess with check list and clinical examination

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			○ Types of beds and bed making ❑ Comfort; ▪ Factors influencing comfort ▪ Comfort devices • Physiological needs: ❑ Sleep and Rest: ▪ Physiology of sleep ▪ Factors affecting sleep ▪ Promoting Rest and sleep ▪ Sleep Disorders ❑ Nutrition: - ▪ Importance ▪ Factors affecting nutritional needs: Principles, equipments, procedure and special considerations ○ Oral ○ Enteral: Naso/ Orogastric, Gastrostomy ○ Parenteral ❑ Urinary Elimination ▪ Review of physiology of Urine Elimination, Composition and characteristics of urine ▪ Factors influencing Urination ▪ Alteration in Urinary Elimination ▪ Types and Collection of urine specimen: Observation, urine testing ▪ Facilitating urine elimination: assessment, types, equipments, procedures and special considerations ❑ Providing urinal /bed pan. ▪ Care of urinary drainage ▪ Care of urinary diversions		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			▪ Bladder irrigation ❑ Bowel Elimination ▪ Review of Physiology of Bowel Elimination, composition and characteristics of Faeces ▪ Factors affecting Bowel elimination ▪ Alteration in bowel elimination ▪ Type and Collection of specimen of Faeces: Observation ▪ Facilitating bowel Elimination: Assessment, equipments, procedures and, special considerations ▪ Passing of flatus tube o Enemas o Suppository o Sitz both o Bowel wash o Care of ostomies ❑ Mobility and Immobility ▪ Principles of Body Alignment and mobility ▪ Factors affecting body Alignment and mobility ▪ Hazards associated with immobility ▪ Alteration in body Alignment and Mobility: Nursing intervention for impaired Body alignment and mobility: Assessment, types, devices used, method and special considerations rehabilitation aspects		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			○ Rang of motion exercises ○ Maintaining body alignment: positions ○ Moving ○ Lifting ○ Transferring ○ Walking ○ Restraints ❑ Oxygenation ▪ Review of Cardiovascular and respiratory physiology ▪ Factors Affecting Oxygenation ▪ Alterations in oxygenation ▪ Nursing interventions in oxygenation: assessment, types, equipments used, procedure and special considerations ○ Maintenance of patent airway ○ Oxygen administration ○ Suction ○ Inhalations: dry and moist ○ Chest physiotherapy and postural drainage ○ Care of chest drainage ○ Pulse oximetry ○ CPR-Basic life support ❑ Fluid, Electrolyte, and Acid -Base Balances Review of physiological Regulation of fluid, Electrolyte, acid- Base balances ▪ Factors affecting Fluid, Electrolyte, and Acid – Base Balances ▪ Alterations in Fluid, Electrolyte, and Acid-Base Balances		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			▪ Nursing interventions in Fluid, Electrolyte, and Acid Base Imbalances: assessments, types, equipments procedure and special considerations o Measuring fluid intake and Output o Correcting Fluid, Electrolyte Imbalance: ✓Replacement of fluids: Oral and parenteral venipuncture, IV flow rates,changing IV solutions and tubing, changing IV dressing, ✓Administering Blood transfusion ✓Restriction of fluids • Psychosocial Needs ❑ Concepts of Cultural Diversity, Stress and Adaptation, self-concept, Sexuality, Spiritual Health, Coping with loss, death and grieving ❑ Assessment of psychosocial needs ❑ Nursing intervention for psychosocial needs o Assist with coping and adaptation o Creating therapeutic environment ✓ Recreational and divers ional therapies		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
XI	20	• Describe principles and techniques for infection control and biomedical waste management in Supervised Clinical settings	**Infection control in Clinical settings** • Infection control ❑ Nature of infection ❑ Chain of infection transmission ❑ Defenses against infection: natural and acquired infection, ❑ Hospital acquired infection (Nosocomial infection) • Concept of asepsis: medical asepsis, and surgical asepsis • Isolation precautions (Barrier nursing) Hand washing: simple, hand antisepsis and surgical antisepsis (scrub) ❑ Isolation: source and protective ❑ Personal protecting equipment: types, uses and technique of wearing and removing ❑ Decontamination of equipment and unit ❑ Transportation of infected patients ❑ Standard safety precautions (Universal precautions) ❑ Transmission based precautions • Biomedical waste management: ❑ Importance ❑ Types of hospital waste ❑ Hazards associated with hospital waste ❑ Decontamination of hospital waste ❑ Segregation and Transportation and disposal	• Lecture discussion • Demonstration • Practice session • Supervised Clinical practice	
XII	40	• Explain the principles, routes, effects of administration of medications • Calculate conversions of	**Administration of Medications** • General Principles /Considerations ❑ Purposes of Medication Principles: 5 rights, Special Considerations, Prescriptions, Safety in	• Lecture discussion • Demonstration • Practice session	• Essay type • Short answers • Objective type • Assess with check

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
		drugs and dosages within and between systems of measurements • Administer drugs by the following routes –oral, Intradermal, Subcutaneous Intramuscular, Intra Venous topical, inhalation	Administering medications and Medication Errors ❑ Drug forms ❑ Routes of administration ❑ Storage and maintenance of drugs and Nurses responsibility ❑ Broad classification of drugs ❑ Therapeutic Effect, side effect, Toxic effects, Idiosyncratic Reactions, Allergic Reactions, Drug, Tolerance, Drug Interactions, ❑ Factors influencing drug actions ❑ Systems of drug Measurement: Metric System, Apothecary Systems, Household Measurements, Solutions ❑ Converting Measurements Units: Conversion within one systems, Conversion between systems, Dosage Calculation ❑ Terminologies and abbreviations used in prescriptions of medications • Oral Drugs Administrations: Oral, Sublingual and Buccal: Equipment, procedure • Parenteral ❑ General Principles: decontamination and disposal of syringes and needles ❑ Types of parenteral therapies ❑ Types of syringes, needles, canula, and infusion sets ❑ Protection from needlestick Injuries: Giving Medications with a safety syringes ❑ Routes of parenteral therapies	• Supervised Clinical practice	list and clinical practical Examination

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			- Intradermal: Purpose, site, equipment, procedure, special considerations - Subcutaneous: purpose, site, equipment, procedure, special considerations - Intramuscular: Purpose, site, equipments, - Procedure, special considerations - Intra Venous: purpose, site, equipment, procedure, special considerations • Advanced techniques: epidural, intrathecal, intraosseous, intraperitonial, intraplural intraarterial- Role of nurse • Topical Administration: purposes, site, equipment, procedure special considerations for ❑ Application to Skin ❑ Application to mucous membrane - Direct application of liquids-Gargle and swabbing the throat - Insertion of Drug into body cavity: Suppository/ medication packing in rectum/ vagina - Instillations: Ear, Eye, Nasal, Bladder, and Rectal - Irrigations: Eye, Ear, Bladder, Vaginal and Rectal - Spraying: Nose and throat • Inhalation: Nasal, oral, endo-tracheal / tracheal (steam, oxygen and medications)- purposes, types, equipment, procedure, special considerations Recording and reporting of		

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			medications administered		
XIII	10	• Describe the pre and post operative post operative care of patients • Explain the process of wound healing • Explain the principles and techniques of wound care • Perform care of wounds	**Meeting needs of Perioperative patients** • Definition and concept of Perioperative Nursing • Perioperative Phase ❑ Preparation of patient for surgery • Intraoperative ❑ Operation theatre Set up and environment ❑ Role of nurse • Postoperative Phase ❑ Recovery unit ❑ Post operative unit, ❑ Post operative care • Wounds: types, Classifications, wound Healing Process, Factors affecting Wound ,complications of wound healing • Surgical asepsis • Care of the wound: types, equipment, procedure and special considerations ❑ Dressings, Suture Care, ❑ Care of Drainage ❑ Application of Bandages, Binders, Splints & Slings • Heat and Cold Therapy	• Lecture discussion • Demonstration • Practice session • Supervised clinical practice	• Essay type • Short answers • Objective type • Assess with check list and clinical practical Examination
XIV	15	• Explain care of patents having alterations in body functioning	**Meeting special needs of the patient** • Care of patients having alteration in ❒ Temperature (hyper and hypothermia); Types Assessment, Management ❒ **Sensorium** (Unconsciousness); Assessment, Management ❑ Urinary elimination (Retention and incontinence) assessment & management ❑ Functioning of sensory organs: (Visual & hearing impairment)	• Lecture discussion • Case discussion • Supervised Clinical practice	• Essay types • Short answers • Objective type

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			❑ Assessment of Self-Care ability ❑ Communication Methods and special considerations ❑ Mobility (physically challenged, cast), assessment of self care ability: Communication Methods and special considerations ❑ Mental state (mentally challenged), assessment of self-Care ability; ❑ Communication Methods and special considerations ❑ Respiration (distress); Types, Assessment, Management ❑ Comfort- (Pain) – Nature, Types, Factors influencing pain, Coping, Assessment, Management: • Treatments related to gastrointestinal System: naso-gastric suction, gastric irrigation, gastric analysis		
XV	5	• Explain care of terminally ill patient	**Care Terminally ill Patient** ❑ Concepts of Loss, grief, grieving Process ❑ Signs of clinical death ❑ Care of dying patient: special considerations - Advance directives: euthanasia, will, dying declaration, organ donation etc. ❑ Medico-legal issues ❑ Care of dead body: equipment, procedure and care of unit ❑ Autopsy ❑ Embalming	• Lecture discussion • Demonstration • Case discussion /Role play • Practices session • Supervised Clinical practice	• Essay type • Short answers • Objective type
XVI	6	• Explain the basic concepts of conceptual and theoretical models of nursing	**Professional Nursing concepts and practices** • Conceptual and theoretical models of nursing practice: Introduction to model- Holistic model,	• Lecture discussion	• Essay types • Short answers

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Methods
			heath belief model, health promotion model etc. • Introduction to Theories in Nursing; Peplau's, Henderson's Orem's, Neuman's, Roger's and Roy's Linking theories with nursing process		

NURSING FOUNDATIONS –PRACTICAL

Placement: First Year

Time: Practical –650 hours
(200 lab and 450 clinical)

Course Description: This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of nursing in various clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of nursing and practice them in clinical settings.

Areas	Time Hrs.	Objectives	Skills	Assignments	Assessment methods
Demonst-ration Lab General Medical and surgery ward	200 450 Minimum practice time in clinical area	• Performs admission and discharge procedure	**Hospital admission and discharge (III)** • Admission • Prepare Unit for new patient • Prepare admission bed • Performs admission procedure ❑ New patient ❑ Transfer in • Prepare patient records **Discharge / Transfer out** • Gives discharge counseling • Perform discharge procedure (Planned discharge, LAMA and abscond, Referrals and transfers) • Prepare records of discharge / transfer • Dismantle, and disinfect unit and equipment after discharge / transfer	• Practice in Unit / Hospital	• Evaluate with checklist • Assessment of clinical performance with rating scale • Completion of Practical record
		• Prepares nursing care plan as per the nursing process format	**Perform assessment:** • History taking, Nursing diagnosis, Problem list, Prioritization, Goals & Expected Outcomes, Selection of interventions • Write Nursing Care Plan • Gives care as per the plan	• Write nursing process records of patient • Simulated –I • Actual –I	• Assessment of nursing process records with checklist • Assessment of actual care given with rating scale

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
		• Communicate effectively with patient, families and team members and • Maintain effective human relations • Develops plan for patient teaching • Prepare patient reports • Presents reports • Monitor vital signs • Perform health assessment of each body systems • Provide basic nursing care to patients	**Communication** • Use verbal and non verbal communication techniques **Prepare a plan for patient teaching session** **Write patients report** • Change-of shift reports, Transfer reports, Incident reports etc. • Presents patient • Report **Vital signs** • Measure, Records and interpret alterations in body temperature pulse respiration and blood pressure **Health assessment** • Health history taking • Perform assessment: ❑ General ❑ Body Systems • Use various methods of physical examination • Inspection, Palpation, Percussion, Auscultation, Olfaction • Identification of system wise deviations **Prepare Patient's unit:** • Prepare Beds: ❑ Open, closed, occupied operation, amputation, • Cardiac, fracture, burn, Divided, Fowlers, renal bed • Pain assessment and provision for comfort	• Role – plays in simulated situations on communication techniques -I • Health talk-I • Write Nurses notes and present the patient report of 2-3 assigned patient • Lab Practices • Measure Vital signs of assigned pati • Practice in lab & hospital • Simulated exercise on CPR manikin	• Assess role plays with the check-list on communication techniques • Assess health talk with the check list • Assessment of communication techniques by rating scale • Assessment of performance with rating scale • Assessment of each skill with check list • Completion of activity record • Assessment of each skill with rating scale • Completion of activity record

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
			Use comfort devices **Hygienic care:** • Oral hygiene: • Baths and care of pressure points • Hair wash, Pediculosis treatment **Feeding:** • Oral, Enteral, Naso/Orogastric, gastrostomy and parenteral feeding • Naso-gastric insertion, suction, and irrigation **Assisting patient in urinary elimination** • Provides urinal/bed pan • Condom drainage • Perineal care • Catheterization • Care of urinary drainage **Bladder irrigation** **Assisting bowel Elimination:** • Insertion of Flatus tube • Enemas • Insertion of Suppository **Bowel wash** **Body Alignment and Mobility:** ❑ Range of motion exercises ❑ Positioning: Recumbent, Lateral (rt/lt), Fowlers, Sims, Lithotomy, Prone, Trendelenburg position ❑ Assist patients in Moving,lifting, transferring, walking ❑ Restraints **Oxygen administration** **Suctioning:** **Oropharyngeal, nasopharyngeal** **Chest physiotherapy and postural drainage** **Care of Chest drainage**		

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
			CPR – Basic life support **Intravenous therapy** **Blood and blood component therapy** **Collect/assist for collection of specimens for investigations: Urine, sputum, faeces, Vomitus, blood and other body fluids** **Perform lab tests:** • Urine: sugar, albumin, acetone • Blood: sugar (with strip/gluco-meter) **Hot and cold application:** Local and general sitz bath **Communicating and assisting with self-care of visually & hearing impaired Patients** **Communicating and assisting with self-care of mentally challenged/disturbed patients** **Recreational and diversional therapies** **Caring of patient with alteration in Sensorium** **Infection control** • Perform following procedures: ❑ Hand washing techniques ❑ (Simple, hand antisepsis and surgical antisepsis (scrub) ❑ Prepare isolation unit in lab/ward ❑ Practice technique of wearing and removing Personal Protective equipment (PPE) Practice Standard safety precautions (Universal precautions)		
		• Perform infection control procedures		• Observation study-2 • Department of infection control & CSSD • Visits CSSD write observation report –1 • Collection of samples for culture • Do clinical posting in infection Control	• Assess observation study with checklist • Evaluate all procedures with checklist

Areas	Time Hrs.	Objectives	Skills	Assignments	Assessment methods
			Decontamination of equipment and unit: • Surgical asepsis: ❑ Sterilization ❑ Handling sterilized equipment ❑ Calculate strengths of lotions, ❑ Prepare lotions Care of articles	department and write report • Practice in lab/ ward	
	100	• Provide care to pre and post operative patients • Perform procedures for care of wounds • Administer drugs	**Pre and post operative care:** • Skin preparations for surgery: Local • Preparation of post operative unit • Pre & post operative teaching and counseling • Pre and post operative monitoring • Care of the wound: • Dressings, suture Care, care of Drainage, Application of Bandages, Binders, Splints & Slings • Bandaging of various body parts **Administration of medications** • Administer Medications in different forms and routes • Oral, Sublingual and Buccal • Parenteral: Intradermal, subcutaneous, Intramuscular etc. • Assist with Intra Venous medications • Drug measurements and dose calculations • Preparation of lotions and solution • Administers topical applications • Insertion of drug into body cavity:		

Areas	Time (Hrs.)	Objectives	Skills	Assignments	Assessment methods
		• Provide care to dying and dead • Counsel and support relatives	Suppository & medicated packing etc. • Instillation of medicines and spray into Ear, Eye, Nose and throat • Irrigations: Eye, Ear, Bladder, Vagina and Rectum • Inhalations: dry and moist **Care of dying patient** • Caring and packing of dead body • Counseling and supporting grieving relatives • Terminal care of the unit		

PSYCHOLOGY

Placement: First year Time: Theory - 60 hrs.

Course Description: The course is designed to assist the students to acquire knowledge of fundamentals of psychology and develop an insight into behaviour of self and others, Further it is aimed at helping them to practice the principles of mental hygiene for promoting mental health in nursing practice.

Unit	Time (Hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment method
I	2	• Describe the history, scope and methods of psychology	**Introduction** • History and origin of science of psychology • Definitions & Scope of Psychology • Relevance to nursing • Methods of Psychology	• Lecture discussion	• Essay type • Short answers
II	4	• Explain the biology of Human behaviour	**Biology of behaviour** • Body mind relationship modulation process in health and illness • Genetics and behaviour: Heredity and environment • Brain and behaviour: Nervous system, Neurons and synapse, • Association cortex, Rt and Lt Hemispheres • Psychology of Sensations • Muscular and glandular controls of behaviour • Nature of behaviour of an organism/Integrated responses	• Lecture discussion	• Essay type • Short answers
III	20	• Describe various cognitive processes and their applications	**Cognitive processes** • Attention: Types, determinants, Duration & degree, alterations • Perception: Meaning, Principles, factors affecting, Errors, • Learning: Nature, Types, learner and learning, Factors influencing, laws and theories, process, transfer, study habits • Memory: Meaning, Types, Nature, factors influencing, Development Theories and methods of memorizing and Forgetting • Thinking: Types and levels, stages of development,	• Lecture Discussion • Psychometric assessment: • Practice sessions	• Essay type • Short answers

Unit	Time Hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment method
			Relationship with language and communication • Intelligence: Meaning, classification, uses, theories • Aptitude: Concept, types Individual differences and variability • Psychometric assessment of cognitive processes • Alterations in cognitive processes • Applications		
IV	8	• Describe motivation, emotions, stress, attitudes and their influence on behaviour	**Motivation and Emotional Processes** • Motivation: Meaning, concepts, Types, Theories, Motives and behaviour, Conflicts and frustration, conflict resolution • Emotions & stress ❑ Emotion: Definition, components, Changes in emotions, theories, emotional adjustments, emotions in health and illness ❑ Stress: stressors, cycle, effect, adaptation & coping • Attitude: Meaning, nature, development, factors affecting, ❑ Behaviour and attitudes ❑ Attitudinal change • Psychometric assessments of emotions and attitudes • Alterations in emotions • Application	• Lecture Discussion • Role plays • Case Discussion • Demonstrai on	• Essay type • Short answers
V	**7**	• Explain the concepts of personality and its influence on behavior	**Personality** • Definitions, topography, types, theories • Psychometric assessments of personality • Alterations in personality • Applications	• Lecture Discussion • Demonstratio n	• Essay type • Short answers
VI	7	• Describe psychology of people during the life cycle	**Development Psychology** • Psychology of people at different ages from infancy to old age • Psychology of vulnerable	• Lecture Discussion • Case Discussion	• Essay type • Short answers

Unit	Time Hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment method
			individuals – challenged, women, sick, etc. • Psychology of groups		
VII	8	• Describe the characteristics of • Mentally healthy person • Explain ego defense mechanisms	**Metal hygiene and mental Health** • Concepts of mental hygiene and mental health • Characteristics of mentally healthy person • Warning signs of poor mental health • Promotive and preventive mental health strategies and services • Ego Defense mechanisms and implications • Personal and social adjustments • Guidance and counseling • Role of nurse	• Lecture Discussion • Case Discussion • Role Play • Demonstration	• Essay type • Short answers
VIII	4	• Explain the psychology assessments and role of nurse	**Psychological assessment & tests** • Types, development, Characteristics, Principles, Uses, Interpretations and role of nurse in psychological assessment	• Lecture Discussion • Demonstration • Practice sessions	• Assessment of practice

MICROBIOLOGY

Placements: First year

Time: Theory - 60 hrs.
(Theory 45+15 lab)

Course Description: This Course is designed to enable students to acquire understanding of fundamentals of Microbiology and identification of various micro-organisms. It also provides opportunities for practicing infection control measures in hospital and community settings.

Unit	Time (Hrs.)		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
I	5		• Explain concepts and principles of microbiology and their importance in nursing	**Introduction:** • Importance and relevance to nursing • Historical perspective • Concepts and terminology • Principles of microbiology	• Lecture Discussion	• Short answers • Objective type
II	10	5	• Describe structure classification morphology and growth of bacteria • Identify Microorganisms	**General characteristics of Microbes** • Structure and classification of microbes • Morphological types • Size and form of bacteria • Motility • Colonization • Growth and nutrition of microbes ❑ Temperature ❑ Moisture ❑ Blood and body fluids • Laboratory methods for Identification of Microorganisms • Staining techniques, Gram staining, Acid fast staining, Hanging drop preparation • Culture; various medias	• Lecture Discussion • Demonstration	• Short answers • Objective type
III	10	2	• Describe the methods of infection control • Identify the role of nurse in hospital infection Control Programme	**Infection control** • Infection: Sources, portals of entry and exit, transmission • Asepsis • Disaffection; Types and methods • Sterilization; Types and methods • Chemotherapy and antibiotics • Standard safety measures	• Lecture Discussion • Demonstration • Visits to CSSD • Clinical practice	• Short answers • Objective type

Unit	Time (Hrs.)		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
				• Biomedical waste management • Role of Nurse • Hospital acquired infection • Hospital infection control programme ❑ Protocols, collection of samples, preparation of report and status of rate of infection in the unit/ hospital, nurse's accountability, continuing education etc.		
IV	12	4	• Describe the different disease producing organisms	**Pathogenic organisms** • Micro-organism ❑ Cocci-gram positive and gram negative ❑ Bacilli-gram positive and gram negative ❑ Spirochete ❑ Mycoplasma ❑ Rickettsiae ❑ Chalmydiae • Viruses • Fungi-Superficial and Deep mycoses • Parasites • Rodents & vectors Characteristics, Source, portal of entry, transmission of infection Identification of disease Producing micro-organisms • Collection, handling and transportation of various specimens	• Lecture Discussion • Demonstration • Clinical practice	• Short answers • Objective type
V	8	4	• Explain the concept of immunity, hyper sensitivity and immunization	**Immunity** • Immunity – Types, classification • Antigen and antibody reaction • Hypersensitivity – Skin test • Serological test • Immunoprophylaxis • Vaccines & sera-Types & classification, storage and handling, cold chain • Immunization for various diseases • Immunization Schedule	• Lecture Discussion • Demonstration • Clinical practice	• Short answers • Objective type

INTRODUCTION TO COMPUTERS

Placements: First year Time: Theory – 45 hrs.

Course Description: This course is designed for students to develop basic understanding of uses of computer and its applications in nursing.

Unit	Time (Hrs.)		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
I	3		• Identify & define various concepts used in computer • Identify application of computer in nursing	**Introduction:** • Concepts of computers • Hardware and software; trends and technology • Application of computer in nursing	• Lecture Discussion • Demonstration	• Short answers • Objective type
II	6	20	• Describe and Use the Disk Operating System • Demonstrate skill in the use of MS Office	• Introduction to disk operating system ❑ DOS ❑ Windows (all version) • Introduction ❑ MS-Word ❑ MS-Excel with pictorial presentation ❑ MS-Access ❑ MS-Power Point	• Lecture Discussion • Demonstration • Practice session	• Short answers • Objective type • Practical Exam
III	2	3	• Demonstrate skill in using multi-media • Identify features of computer aided teaching and testing	• Multimedia; types & uses • Computer aided teaching & testing	• Lecture Discussion • Demonstration	• Short answers • Objective type • Practical Exam and Viva Voce
IV	1	3	• Demonstrate use of Internet and Email	• Use of Internet and e-mail	• Lecture Discussion • Demonstration • Practice session	• Short answers • Objective type • Practical Exam and Viva Voce

Unit	Time Hrs.		Learning Objectives	Content	Teaching Learning Activities	Assessment method
	Th.	Pr.				
V	2	2	• Describe and use the statistical packages	• Statistical packages: Types and their features	• Lecture Discussion • Demonstration • Practice session	• Short answers • Objective type • Practical Exam and Viva Voce
VI	1	2	• Describe the use of Hospital Management System	• Hospital Management system: Types and uses	• Lecture Discussion • Demonstration	• Short answers • Objective type • Practical Exam and Viva Voce

SOCIOLOGY

Placement: Second Year Time: Theory 60 hrs.

Course Description: This course is designed to introduce the concepts of sociology related to community and social institutions in India and relationship with health, illness and nursing.

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	1	• State the importance of sociology in Nursing	**Introduction** • Definition of Sociology • Nature and Scope of the discipline • Importance and application of Sociology in Nursing	• Lecture Discussion	• Essay type • Short answers
II	3	• Describe the inter relation ship of individual in society and community	**Individual & Society** • Society and Community • Nature of Society • Difference between Society and community • Process of Socialization and individualization	• Lecture Discussion	• Essay type • Short answers
III	3	• Describe the influence of culture and on health and disease	**Culture** • Nature of culture • Evolution of culture • Diversity and uniformity of Culture • Culture and socialization • Trans cultural society • Influence on health and disease	• Lecture Discussion • Panel Discussion	• Essay type • Short answers
IV	4	• Identify various social groups and their interactions	**Social groups and Processes** • The meaning and classification of groups • Primary & Secondary Group • In-group V/S. out-group, class Tribe, Caste • Economic, political, Religious groups, Mob, Crowd public and Audience Interaction & Social Processes • Co-operation, Competition, Conflict • Accommodation, Assimilation & Isolation	• Lecture Discussion	• Essay type • Short answers

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
V	6	• Explain the growth of population in	**Population** • Society and population • Population distribution in India Demographic characteristics	• Lecture Discussion • Community Identification	• Essay type • Short answers
		India and its impact on health	• Malthusian theory of Populations • Populations explosion in India and its impact on health status • Family welfare programmes		• Assessment of report on community identification
VI	5	• Describe the institutions of family and marriage in India	**Family and Marriage** • Family – functions • Types –joint, Nuclear, Blended and extended family: Characteristics • The modern family- changes Problems- Dowry etc. Welfare Services. • Changes & legislations on family and marriage in India – marriage acts. • Marriage: Forms and functions of marriage, • Marriage and family problems in India • Family, marriage and their influence on health and health practices	• Lecture Discussion • Family Case study	• Essay type • Short Answers • Assessment of family case study
VII	7	• Describe the class and caste system and their influence on health and health practices	**Social Stratification** • Meaning & types of social stratification • The Indian Caste System- origin & features • Features of Caste in India Today • Social Class system and status • Social Mobility-Meaning & types • Race as a biological concept, criteria of racial classification • Salient features of Primary races racism • Influence of Class, Caste and Race on health and health practices.	• Lecture Discussion • Community survey	• Essay type • Short answers • Assessment of report on community survey

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
VIII	6	• Describe the communities in India, their Practices and	**Types of Communities in India (Rural, Urban and Regional)**	• Lecture Discussion • Visits of rural and urban	• Essay type • Short Answers
		the impact on health	• Features of village community & characteristics of Indian Villages-panchayat Systems, social dynamics • Community Development project & planning • Change in Indian Rural Life • Availability of health facilities in rural and its impact on health and health practices • Urban –Community – features • The growth of cities: Urbanization and its impact on health and health practices • Major Urban problems – Urban Slums • Region: Problems and impact on Health	community • Communit y survey	• Assessment of report on community survey
IX	4	• Explain the process of Social Change	**Social Change** • Nature and process of Social Change • Factors influencing Social change: cultural change, Cultural lag. • Introduction to theories of social change: Linear, Cyclical, Marxian, Functional Role of nurse-Change agents	• Lecture Discussion	• Essay type • Short Answers
X	4	• Describe the Social system and inter-relationship of social organizations	**Social organization and social system** • Social organization: elements, types • Democratic and authoritarian modes of Participation, • Voluntary associations • Social system: Definition and Types of social system • Role and status as structural elements of social system • Inter- relationship of institutions	• Lecture Discussion • Observation visits	• Essay type • Short Answers • Assessment of visit reports

Unit	Time (hrs.)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
XI	2	• Explain the nature and process of social control	**Social Control** • Nature and process of social control • Political, Legal, Religious, Educational ,Economic, Industrial and Technological systems, Norms & Values-folkways & Mores Customs, Laws and fashion • Role of nurse	• Lecture Discussion • Community survey	• Essay type • Short Answers • Assessment of report on community survey
XII	15	• Describe the role of the nurse in dealing with social Problem in India	**Social Problems** • Social disorganization • Control & planning: poverty housing, illiteracy, food supplies prostitution, rights of women & children, vulnerable groups: Elderly, handicapped, minority groups, other marginalized groups and child labour, child abuse, delinquency and crime substance abuse, HIV/AIDS. • Social Welfare programmes in India Role of nurse	• Lecture Discussion • Institutional Visits	• Essay type • Short Answers • Assessment of visit reports

PHARMACOLOGY

Placement: Second Year **Time:** Theory –4hrs.

Course Description: This course is designed to enable students to acquire understanding of Pharmaco-dynamics, pharmacokintics, principles of therapeutics and nursing implications.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	3	• Describe Pharmaco-dynamics, Pharmaco – kinetics classification and the principles of drug administration	**Introduction to pharmacology** • Definitions • Sources • Terminology used • Types: Classification • Pharmacodynamics: Actions, therapeutic, • Adverse, toxic • Pharmacokinetics: absorption distribution, metabolism, interaction, excretion • Review: Routes and principles of administration of drugs • Indian pharmacopoeia: Legal issues • Rational use of drugs • Principles of therapeutics	• Lecture Discussio n	• Short answers • Objective types
II	6	• Explain chemotherapy of specific infections and infestations and nurse's responsibilities	**Chemotherapy** • Pharmacology of commonly used; ❑ Penicillin ❑ Cephalosporins ❑ Amino- glycosides ❑ Macrolide& Broad spectrum Antibiotics ❑ Sulfonamides ❑ Quinolones ❑ Antiamoebic ❑ Antimalarials ❑ Anthelminitics ❑ Antiscabies agents ❑ Antiviral & anti- fungal agents ❑ Antitubercular drugs ❑ Anti leprosy drugs ❑ Anticancer drugs ❑ Immuno-suppressants Composition, action, dosage, route, indications, contraindications, drug interactions side effects, adverse effects, toxicity role of nurse	• Lecture Discussion • Drug Study/ presentatio n	• Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activities	Assessment Method
III	2	• Describe antiseptics, disinfectants, insecticides and nurse's responsibilities	**Pharmacology of commonly used antiseptics, disinfectants and insecticides** • Antiseptics; composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse • Disinfectants • Insecticides	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
IV	2	• Describe Drugs acting on Gastro Intestinal system and nurse's responsibilities	**Drugs acting on G.I. System** • Pharmacology of commonly used ❑ Antiemetics, ❑ Emetics ❑ Purgatives ❑ Antacids ❑ Cholinergic ❑ Anticholinergics ❑ Fluid and electrolyte therapy ❑ Anti diarrhoeals ❑ Histamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effectives, toxicity and role of nurse	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
V	2	• Describe Drugs used on Respiratory System and nurse's responsibilities	**Drugs used on Respiratory System** • Pharmacology of commonly used- ❑ Antiasthmatics ❑ Mucolytics ❑ Decongestants ❑ Expectorants ❑ Antitussives ❑ Bronchodilators ❑ Broncho constrictors ❑ Antihistamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
VI	2	• Describe Drugs used on Urinary System and Nurse's Responsibilities	**Drugs used on Urinary Systems** • Pharmacology of commonly used- ❑ Diuretics and antidiuretics ❑ Urinary antiseptics ❑ Cholinergic ,Anticholinergics ❑ Acidifiers and alkalanizers Composition, action, dosage, route, indications,	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse		
VII	4	• Describe Drugs used in de - addiction, emergency, deficiency of vitamins & minerals, poisoning, for immunization and immunosuppression and nurse's responsibilities	**Miscellaneous** • Drug used in de-addiction • Drugs used in CPR and emergency • Vitamins and minerals • Immunosuppresants • Antidotes • Antivenom • Vaccines and sera	• Lecture Discussion • Drug Study/ presentation	• Short answers • Objective type
VIII	1	• Describe Drugs used on skin and mucous membranes and nurse's responsibilities	**Drugs used on skin and mucous membranes** • Topical applications for skin, eye, ear, nose and buccal cavity antipruritics Composition, action dosage, route indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	• Lecture Discussion • Drug study/ presentation	• Short answers • Objective type
IX	8	• Describe Drugs used on Nervous Systems and nurse's responsibilities	**Drugs acting on Nervous Systems** • Basic & applied pharmacology of commonly used: • Analgesics and Anesthetics ❑ Analgesics - Non steroidal anti-inflammatory (NSAID) drugs ❑ Antipyretics • Hypnotics and Sedatives - Opioids - Non-Opioids -Tranquilizers -General & local anesthetics -Gases: oxygen, nitrous-oxide, carbon – dioxide • Cholinergic and anti-Cholinergic: ❑ Muscle Relaxants ❑ Major Tranquilizers ❑ Anti-psychotics	• Lecture Discussion • Drug study/ presentation	• Short answers • Objective types

Unit	Time hrs	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Antidepressants ❑ Adrenergics ❑ Noradregenics ❑ Mood stabilizers ❑ Acetylcholine ❑ Stimulants • Composition, action dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse		
X	5	• Describe Drugs used on Cardio vascular System and nurse's responsibilities	**Cardiovascular drugs** • Haematinics • Cardiotonics, • Anti-hypertensives & Vasodilators • Anti-arrhythmics • Plasma Expanders • Coagulants & anticoagulants • Antiplatelets & thrombolytics • Hypolipidemics Composition action, dosage, rout, indications, contraindications, drug interactions, side effects, Adverse effects, toxicity and role of nurse	• Lecture • Discussion • Drug study/presen -tation	• Short answers • Objective type
XI	4	• Describe drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy and nurse's responsibilities	**Drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy** • Insulin's & Oral hypoglycemic • Thyroid supplements and suppressants • Steroids, anabolic • Uterine stimulants and relaxants • Oral contraceptives • Other estrogen-progesterone preparations • Corticotrophine & Gondotropines • Adrenaline • Prostaglandins • Calcitonins • Calcium salts • Calcium regulators Composition, action, dosage,	• Lecture Discussion • Drug study/ presentation	• Short answers • Objective types

Unit	Time hrs	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse.		
II	6	• Demonstrate awareness of the common drugs used in alternative system of medicine	**Introduction to Drugs used in alternative systems of medicine:** Ayurveda, Homeopathy, Unani and Siddha etc.	• Lecture Discussion • Observational Visits	• Short answers • Objective type

Time: theory –45 hours (Pathology 30 & Genetics 15 hrs)

PATHOLOGY AND GENETIC
SECTION A- PATHOLOGY

Placement: Second Year Time: Theory –30 hrs.

Course Description: This course is designed to enable students to acquire knowledge of pathology of various disease conditions and apply this knowledge in practices of nursing.

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
I	3		• Define the common terms used in pathology, • Appreciate the deviations from normal to abnormal structure and functions of the body systems	• **Introduction** ❑ Importance of the study of pathology ❑ Definition of terms ❑ Methods and techniques ❑ Cellular and tissue changes ❑ Infiltration and regeneration ❑ Inflammations and Infections ❑ Wound healing ❑ Vascular changes • Cellular growth, Neoplasms ❑ Normal and Cancer cell ❑ Benign and Malignant growths ❑ In situ carcinoma • Disturbances of fluid and electrolyte imbalance	• Lecture Discussion • Explain using charts	• Short answers • Objective type
II	10	5	Explain pathological changes in disease conditions of various systems	**Special pathology** • Pathological changes in disease conditions of various systems: • Respiratory tract ❑ Tuberculosis, Bronchitis, Pleural effusion and pneumonia ❑ Lung abscess, emphysema, bronchiectasis ❑ Bronchial asthma, Chronic obstructive Pulmonary disease & tumors • Cardio-vascular system ❑ Pericardial effusion ❑ Rheumatic heart disease ❑ Infective endocarditis, atherosclerosis ❑ Ischemia, infarction & aneurysm • Gastro Intestinal Tract ❑ Peptic ulcer, typhoid,	• Lecture Discussion • Explain using charts, slides, specimen, X- rays and Scans • Visit to Pathology lab, endoscopy unit and OT	• Short answers • Objective types

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
				❑ Carcinoma of GI Tract- buccal, Esophageal ❑ Gastric & Intestinal • Liver, Fall bladder & pancreas ❑ Hepatitis, chronic liver abscess, cirrhosis ❑ Tumours of liver, gall bladder and pancreas, ❑ Cholecystitis • Kidneys & Urinary tract ❑ Glomerulonephritis, Pyelonephritis ❑ Calculi, renal failure, renal carcinoma & cystitis • Male genital system ❑ Cryptorchidism testicular atrophy ❑ Prostatic hyperplasia, carcinoma penis & prostate • Female genital system ❑ Fibroids ❑ Carcinoma cervix and Endometrium ❑ Vesicular mole, choricarcinoma ❑ Ectopic gestation ❑ Ovarian cyst & Tumours • Cancer Breast • Central Nervous system ❑ Hydrocephalus, meningitis, encephalitis, ❑ Vascular disorders- thrombosis, embolism ❑ Stroke, paraplegia, quadriplegia ❑ Tumours, menigiomas- gliomas • Metastatic Tumours • Skeletal system ❑ Bone healing, Osteoporosis, osteomyelitis ❑ Arthritis & Tumours		
III	4	3	• Describe various laboratory test in	**Clinical Pathology** • Various blood and bone marrow tests in assessment and monitoring of disease	• Lecture Discussion	• Short answers

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
			assessment and monitoring of disease conditions	conditions ❑ Hemoglobin ❑ RBC, White cell & platelet counts ❑ Bleeding time, clotting time and prothrombine time ❑ Blood grouping and cross matching ❑ Blood chemistry ❑ Blood culture ❑ Serological and immunological tests ❑ Other blood tests ❑ Examination of Bone marrow ❑ Methods of collection of blood specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values	• Demonstration • Visit to Clinical pathology & Bio-Chemistry lab and Blood bank	• Objective type
IV	2	1	• Describe the laboratory tests for examination of body cavity fluids transudates and exudates	**Examination of body cavity fluids, transudates and exudates** • The laboratories test used in CSF analysis • Examination of other body cavity fluids, transudates and exudates – sputum, wound discharge etc. • Analysis of gastric and duodenal contents • Analysis of semen-sperm count, motility and morphology and their importance in infertility • Methods of collection of CSF and other cavity fluids specimen for various clinical pathology, biochemistry, microbiology test, inference and normal values	• Lecture Discussion • Demonstration	• Short answers • Objective type
V	1	1	• Describe the laboratory tests for examination of urine and	**Urine and Faeces** • Urine ❑ Physical characteristics ❑ Analysis ❑ Culture and sensitivity	• Lecture Discussion • Demonstration	• Short answers • Objective type

Unit	Time Hrs		Objectives	Content	Teaching learning Activities	Assessment methods
	Th.	Pr.				
			Faeces	• Faeces ❑ Characteristics ❑ Stool examination: occult blood, ova, parasite and cyst, reducing substance etc. ❑ Methods of collection for various tests, inference and normal values		

SECTION- B GENETICS

Placement: Second Year **Time**: theory –15 hrs.

Course Description: This course is designed to enable students to acquire understanding of Genetics, its role in causation and management of defects and diseases.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	3	• Explain nature, principles and perspectives of heredity	**Introduction:** • Practical application of genetics in nursing • Impact of genetic condition on families • Review of cellular division mitosis and meiosis. • Characteristics and structure of genes • Chromosomes –sex determination • Chromosomal aberrations patterns of inheritance ❑ Mendalian theory of inheritance ❑ Multiple allots and blood groups ❑ Sex linked inheritance ❑ Mechanism of inheritance ❑ Errors in transmission (Mutation)	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective types
II	3	• Explain Maternal prenatal and genetic influences on development of defects and diseases	**Maternal, prenatal and genetic influences on development of defects and diseases** • Conditions affecting the mother: genetic and infections • Consanguinity atopy • Prenatal nutrition and food allergies. • Maternal Age • Maternal drug therapy • Prenatal testing and diagnosis • Effect of Radiation, drugs and chemicals • Infertility • Spontaneous abortion • Neural Tube Defects and the role of folic acid in lowering the risks • Down syndrome (Trisomy 21)	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective type
III	2	• Explain the screening methods for	**Genetic testing in the neonates and children** • Screening for ❑ Congenital abnormalities	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
		genetic defects and diseases in neonates and children	❑ Developmental delay ❑ Dysmorphism		
IV	2	• Identify genetic disorders in adolescents and adults	**Genetic conditions of adolescents and adults** • Cancer genetics – familial Cancer • Inborn errors of metabolism • Blood group alleles and haematological disorder • Genetic haemochromatosis • Huntington's disease • Mental illness	• Lecture Discussion • Explain using charts, slides	• Short answers • Objective type
V	5	• Describe the role of nurse in genetic services and Counselling	**Services related to Genetics** • Genetic testing • Human genome project • Gene Therapy • The Eugenics movement • Genetic Counselling Legal and Ethical issues Role of nurse	• Lecture Discussion	• Short answers • Objective type

MEDICAL SURGICAL NURSING (ADULT INCLUDING GERIATRICS) - I

Placement: Second Year

Time: Theory – 210 hrs.
Practical – 720 hrs.

Course Description: The purpose of this course is to acquire knowledge and develop proficiency in caring for patients with medical and surgical disorders in carpentries in varieties of health care setting and at home.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	15	• Appreciate the trends in medical and surgical nursing • Describe the role of a nurse in caring for adult patient in hospital and community • Describe the concepts of Medical Surgical asepsis	**Introduction:** • Introduction to medical surgical nursing – Evolution and trends of medical and surgical nursing • Review of Concepts of Health and illness. Disease-concepts, causations, classification-International Classification Diseases (ICD-10 or later version), Acute illness Chronic illness & Terminal illness, stages of illness • Review of concepts of comprehensive nursing care in medical surgical nursing process. • Role of Nurse, patient and family in care of adult patient • Role and responsibilities of a nurse in medical surgical settings: ❑ Outpatient department ❑ In-patient unit ❑ Intensive care unit ❑ Home and Community settings • Introduction to Medical Surgical asepsis ❑ Inflammation and Infection ❑ Immunity ❑ Wound healing • Care of Surgical patient ❑ Pre-operative ❑ Intra Operative ❑ Post Operative	• Lecture Discussion • Demonstration • Practice session • Supervised clinical practice	• Short answers • Objective type • Assessment of skills with check list

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
II	15	• Describe the common sings, symptoms, problems and their • Specific nursing interventions	**Common sings and symptoms and management** • Fluid and electrolyte imbalance • Vomiting • Dyspnea and cough, respiratory obstruction • Fever • Shock • Unconsciousness, Syncope • Pain • Incontinence • Edema • Age related problem – geriatrics	• Lecture Discussion • Seminar • Case discussion	• Short answers • Objective type
III	20	• Describe the etiology, patho-physiology, clinical manifestations, diagnostic measures and management of patients (adults including elderly) with disorders of respiratory systems	**Nursing management of patients (adults including elderly) with respiratory problems** • Review of anatomy and physiology of respiratory system • Nursing Assessment-History and Physical assessment • Etiology, Pathophysiology, Clinical manifestations diagnosis, treatment modalities and medical, surgical, dietetics & nursing management of adults including elderly with- ❑ Upper Respiratory tract infections ❑ Bronchitis ❑ Asthma ❑ Emphysema ❑ Atelectasis ❑ Chronic Obstructive Pulmonary Diseases (COPD) ❑ Bronchiectasis ❑ Pneumonia ❑ Pulmonary tuberculosis ❑ Lung abscess ❑ Pleural effusion ❑ Cysts and Tumours ❑ Chest injuries ❑ Respiratory arrest and insufficiency ❑ Pulmonary embolism Special therapies, alternative therapies Nursing Procedures Drugs used in treatment of respiratory disorders	• Lecture discussion • Explain using Charts, graphs • Models. Films, slides • Demonstration • Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
VI	30	• Describe the etiology, patho-physiology, clinical manifestations, diagnostic measures and management of Patients (adults including elderly) with disorders of digestive system	**Nursing management of patients (adults including elderly) with disorders of digestive system** • Review of anatomy and physiology of digestive system • Nursing Assessment- History and physical assessment • Etiology, patho physiology, clinical manifestations, Diagnosis, treatment modalities & nursing management • Disorders of ❑ Oral cavity- lips, gums, tongue, salivary glands and teeth ❑ Esophagus- inflammation, stricture, obstruction, bleeding and Tumours ❑ Stomach and duodenum- hiatus hernia, gastritis, peptic and duodenal ulcer, bleeding, tumours, pyloric stenosis ❑ Small intestinal disorders- inflammation and infection, enteritis, Malabsorption, obstruction, tumor and perforation ❑ Large intestinal disorders- Colitis, inflammation and infection, obstruction and tumor and lump ❑ Hernias ❑ Appendix-inflammation, mass, abscess, rupture ❑ Anal & Rectum; hemorrhoids, fissures, Fistulas ❑ Peritonitis / acute abdomen ❑ Pancreas-inflammation. Cyst, abscess, cirrhosis, portal hypertension, hepatic failure, tumours ❑ Liver-inflammation, cyst, abscess, cirrhosis, portal hypertension, hepatic failure, tumours ❑ Gall bladder- inflammation, obstructions	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Cases discussion /Seminar • Health education • Supervised • Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			stones and tumours, Special therapies, alternative therapies Nursing procedures Drugs used in treatment of disorders of digestive system		
V	30	• Describe the etiology, path ophysiology clinical manifestations, diagnostic measures and management of patients (adults including elderly) blood and cardio vascular problem • Describes the vascular conditions and its nursing management	**Nursing management of patients (adults including elderly) with blood and cardio vascular problem** • Review of anatomy and physiology of digestive system • Nursing Assessment- History and physical assessment • Etiology, pathophysiology, clinical manifestations, Diagnosis, treatment modalities & nursing management • Vascular system • Hypertension, Hypo tension • Arteriosclerosis • Raynaud's disease • Aneurisms and Peripherial vascular disorders **Heart** • Coronary artery diseases ❑ Ischaemic Heart Diseases ❑ Coronary atherosclerosis ❑ Angina pectoris ❑ Myocardial infarction • Valvular disorders of the heart ❑ Congenital and acquired ❑ Rheumatic Heart diseases • Endocarditis, Pericarditis Myocarditis • Cardio myopathies. • Cardiac dysrhythmias, Heart Block • Congestive cardiac failure Cor pulmonale, pulmonary edema, cardiogenic shock, cardiac tamponade. ❑ Cardiac emergencies and arrest ❑ Cardiac Pulmonary resuscitation (CPR) • Blood ❑ Anaemias ❑ Polycythemia	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation • Visit to blood bank • Participation in blood donation camps • Counselling	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Bleeding disorders; clotting factor defects and platelets defects ❑ Thalassemia ❑ Leukaemias ❑ Leukopenias and agranulocytosis ❑ Lymphomas ❑ Myelomas • Special therapies ❑ Blood transfusion, safety checks, procedure and requirements, management of adverse transfusion reaction, records for blood transfusion. ❑ Management and Counseling of blood donors, phlebotomy procedure, and post donation management. Blood bank functioning and hospital transfusion committee. Bio-safety and waste management in relation to blood transfusion ❑ Role of a nurse in Organ donation, retrieval and banking Alternative therapies Nursing procedures Drugs used in treatment of blood and cardio vascular disorders		
VI	10	Describe the etiology, path ophysiology, clinical manifestations diagnostic measures and management of patients (adults including elderly) with disorders of genito-urinary system	**Nursing management of patient (adults including elderly) with genito-urinary problems** • Review of anatomy and physiology of genito-urinary system • Nursing Assessment –History and Physical assessment Etiology, path ophysiology, clinical manifestations, diagnosis, treatment modalities and medical, surgical dietetics & nursing management of – • Nephritis • Nephrotic syndrome • Nephrosis • Renal calculus • Tumours	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Acute renal failure • Chronic renal failure • End stage renal disease • Dialysis, renal transplant • Congenital disorders, urinary infection • Benign prostate hypertrophy. • Disorder of ureters, urinary bladder and urethera-inflammation, infection, stricture, obstruction, tumour, prostrate Special therapies, alternative therapies. Nursing procedures. Drugs used in treatment of genito-urinary disorders	• Drug book /presentation	
VII	5	• Describe the etiology, path ophysiology, clinical manifestations diagnostic measures and management of patients (adults including elderly) with disorders of male reproductive system	**Nursing management of patient (adults including elderly) with reproductive system** • Review of anatomy and physiology of male reproductive system • Nursing Assessment –History and physical assessment • Etiology, Pathophysiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of disorders of male reproductive system • Congenital malformations; Cryptorchidism • Hypospadiasis, Epispadiasis • Infections • Testis and adjacent structures • Penis • Prostate: inflammation, infection, hypertrophy, tumour • Sexual Dysfunction • Infertility • Contraception • Breast; gynecomastia, tumour • Climacteric changes Special therapies, alternative therapies, Nursing procedures, Drugs used in treatment of disorders of male reproductive system**.**	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
VIII	10	• Describe the etiology, patho-physiology, clinical manifestations diagnostic measures and management of patients (adults including elderly) with disorders of endocrine system	**Nursing management of patient (adults including elderly) with disorders of endocrine system** • Review of anatomy and physiology of endocrine system • Nursing Assessment –History and physical assessment • Etiology, Pathophysiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of – • Disorders of Thyroid and parathyroid • Diabetes mellitus • Diabetes insipidus • Adrenal tumour • Pituitary disorders, Special therapies, alternative, therapies Nursing procedures Drugs used in treatment of disorders of endocrine systems	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Cases discussion /Seminar • Health education • Supervised • Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem
IX	10	• Describe the etiology, patho- -physiology clinical manifestations, diagnostic measures and management of patients (adults including elderly) with disorders of Skin	**Nursing management of patient (adults including elderly) with Integumentary system** • Review of anatomy and physiology of Skin and Its appendages • Nursing Assessment –History and physical assessment • Etiology, Pathophysiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of – disorders of skin and its appendages- ❑ Lesions and abrasions ❑ Infection and infestations; Dermatitis. ❑ Dermatoses; infectious and Non infectious "inflammatory Dermatoses" ❑ Acne Vulgaris ❑ Allergies and Eczema ❑ Psoriasis ❑ Malignant melanoma Alopecia Special therapies, therapies, alternative therapies Nursing procedures drugs used in	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session Cases Discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			treatment of disorders of Intergumentary system		
X	15	• Describe the etiology, path ophysiology clinical manifestations, diagnostic measures and management of patients (adults including elderly) with disorders of Musculoskletal system	**Nursing management of patient (adults including elderly) with Musculoskletal system Systems** • Review of anatomy and physiology of musculoskeletal system. • Nursing Assessment –History and physical assessment • Etiology, Patho physiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of Disorders of: ❑ Muscles, Ligaments and Joints- infection, inflammation, trauma ❑ Bones-inflammation, infection, dislocation, fracture, tumour and trauma ❑ Osteomalacia and osteoporosis ❑ Arthritis ❑ Congenital deformities ❑ Spinal column- defects and deformities, tumor, prolapsed inter vertebral disc, pott's spine ❑ Paget's disease • Amputation • Prosthesis • Transplant & replacement surgeries • Rehabilitation. Special therapies, therapies, alternative therapies Nursing procedures drugs used in treatment of disorders of musculoskletal system	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration Practice session • Cases discussion /Seminar • Health education • Supervised clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem
XI	10	• Describe the etiology, patho-physiology clinical manifestations, diagnostic measures and	**Nursing management of patient (adults including elderly) with Immunological problems** • Review of immune system • Nursing Assessment –History and physical assessment	• Lecture discussion • Explain using Charts, graphs • Models, films, slides Demonstration • Practice session	• Essay type • Short answers • Objective type • Assessment of skills with check list

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
		management of patients (adults including elderly) with Immunological systems	• Etiology, Patho physiology, clinical manifestations diagnosis, treatment modalities, and medical, surgical, dietetics & nursing managements of – • Immunodeficiency disorder • Primary Immuno deficiency • Phagocytic dysfunction • B- cell and T- cell deficiencies • Secondary immunodeficiency • Acquired immunodeficiency syndrome (AIDS) • Incidence of HIV & AIDS • Epidemiology • Transmission-Prevention of Transmission • Standard Safety precautions • Role of Nurse; Counseling • Health education and home care consideration. • National AIDS Control program –NACO, various national and international agencies • Infection control program • Rehabilitation. Special therapies, alternative therapies Nursing procedures Drugs used in treatment of disorders of immunological system	• Cases discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation • Orientation visit to Hospital	• Assessment of patient management problem
XII	20	• Describe the etiology, patho physiology clinical manifestations diagnostic measures and management of patients (adults including elderly) with Communicable Diseases	**Nursing management of patient (adults including elderly) with Communicable Disease** • Overview of infections disease, the infectious process • Nursing Assessment –History and physical assessment • Epidemiology, infectious process, clinical manifestations, diagnosis, treatment, prevention and diagnosis, Control and eradication of common Communicable Diseases- ❑ Tuberculosis ❑ Diarrhoeal diseases ❑ Hepatitis A-E ❑ Herpes ❑ Chickenpox ❑ Smallpox ❑ Typhoid ❑ Meningitis ❑ Gas gangrene	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussion /Seminar • Health education • Supervised Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills With check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Leprosy ❑ Dengue ❑ Plague ❑ Malaria ❑ Diphtheria ❑ Pertussis ❑ Poliomyelitis ❑ Measles ❑ Mumps ❑ Influenza ❑ Yellow fever ❑ Filariasis ❑ HIV, AIDS • Reproductive Tract Infections • Special Infection Control measures: Notification, Isolation, Quarantine, Immunization, Infectious Disease Hospitals Special therapies, alterative therapies Nursing Procedures Drugs used treatment of Communicable diseases		
XIII	25	• Describe the Origination and Physical set up of operation theater • Identify the various instruments and equipments used for used for common surgical procedures • Describe the infection control measures in the Operation theatre Describe the role of the nurse in the peri Operative nursing care	**Peri-operative nursing:** • Organization and Physical set up of the Operation Theatre (OT): • Classifications ❑ O.T. DESIGN ❑ Staffing ❑ Member of the OT term ❑ Duties and responsibilities of nurse in O.T. ❑ Principles of Health and operating room attire. ❑ Instruments, ❑ Sutures and suture materials ❑ Equipments ❑ O.T. tables and sets for common surgical procedures ❑ Scrubbing procedures ❑ Gowning and gloving ❑ Preparation of O.T. sets. • Maintenance of therapeutic environment in O.T. • Standard Safety measures ❑ Infection control; fumigation, disinfection	• Lecture discussion • Explain using Charts, graphs • Models, films, slides • Demonstration • Practice session • Supervised • Clinical practices • Drug book /presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			and sterilisation ❑ Biomedical waste management ❑ Prevention of accidents and hazards in O.T. • Anaesthesia ❑ Types ❑ Methods administration ❑ Effects and stages ❑ Equipments ❑ Drugs • Cardio Pulmonary Resuscitation (CPR) • Pain management techniques • Legal Aspects		

MEDICAL SURGICAL NURSING (ADULT INCLUDING GERIATRICS) –I PRACTICAL

Placement: Second Year **Time:** 720 hrs.

Areas	Durati-on (in week)	Objectives	Skills	Assignments	Assessment Methods
General Medical Ward (*Respiratory, GI, Endocrine, Renal, Hematology	6	• Provide nursing care to adult patients with medical discarders • Counsel and educate patients and families	• Assessment of the patient ❑ Taking history ❑ Perform general and specific physical examination ❑ Identify alterations and deviations • Practice medical surgical asepsis- Standard safety measures • Administer medications ❑ Oral, IV, IM, subcutaneous • IV therapy ❑ IV Canulation ❑ Maintenance and monitoring • Oxygen therapy by different methods. • Nebulization • Chest physio therapy • Naso gastric feeding • Assist in common diagnostic • Perform/ Assist in the rape procedures • Blood and component therapy • Throat Suctioning • Collect specimens for common investigations • Maintain elimination ❑ Catheterisation ❑ Bowel wash ❑ Enema ❑ Urinary drainage • Maintain intake output & documentation • Counsel & Teach related to specific disease condition	• Plan and give care to 3-4 assigned patients • Nursing care plan-2. • Nursing case study/ presentation-1. • Drug presention-1. • Maintain Practical record book	• Assess performance with rating scale. • Assess each skill with checklist. • Evolution of case study /presentation. • Completion of practical record.

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessment Methods
General Surgical Ward (Gl, Urinary CTVS)	6	• Provide pre and post operative nursing care to adult patients with surgical disorders • Counsel and educate patients and families	• Practical medical surgical asepsis-Standard safety measures • Pre operative preparation of patients • Post operative care- Receiving pt, assessment, monitoring care • Care of wounds and drainage • Suture removal • Ambulation and exercise • Naso gastric aspiration • Care of chest drainage • Ostomy care; ❑ Gastrostomy ❑ Colostomy ❑ Enterostomy ❑ Blood and component therapy ❑ Practice universal Precautions	• Plan and give care to 3-4 assigned patients • Nursing care plan-2. • Nursing case study/ presentation-1 • Maintain Drug book	• Assess performance with rating scale. • Assess each skill with checklist. • Evaluation of case study /presentation • Completion of Activity record.
Cardiology ward	2	• Provide nursing care to patients with cardiac disorders • Counsel and educate Patients and families	• Physical examination of the cardio vascular system Recording and interpreting ECG • Monitoring of patients • Preparation and assisting in non-invasive diagnostic procedures • Administer cardiac drugs • Cardio pulmonary Resuscitation • Teach patients and families • Practice medical and Surgical asepsis- Standard safety measures	• Plan and give care to 2-3 assigned patients • Nursing care plan-I. • Nursing case study/ presentation/ • Health talk-I. • Maintain Drug book.	• Assess performance with rating scale. • Assess each skill with checklist. • Evolution of case study / presentation / health talk • Completion of Activity record
Skin & Communicable diseases ward	1	• Identify skin problem • Provide nursing care to patients with Skin disorders & Communicable diseases • Counsel and educate patients and families	• Assessment of patients with skin disorders • Assist in diagnostic and therapeutic procedures • Administer topical medication • Practice medical surgical asepsis- Standard safety measures • Use of personal protective equipment (PPE) • Give Medicated baths • Counseling HIV positive patients • Teach Prevention of infectious diseases	• Plan and give care to 2-3 assigned patients • Health talk/Counseling HIV positive Families –I • Maintain drug book	• Assess performance with rating scale. • Evaluation of health talk / Counseling session • Completion of Activity record.

Areas	Duration-(in week)	Objectives	Skills	Assignments	Assessment Methods
Orthopa-edic Ward	2	• Provide nursing care to patients with Musculo-skletal disorders • Counsel and educate patients and families	• Assessment of orthopedic patients • Assist in application of plaster cast and removal of cast • Apply skin traction-buck's extension traction • Assist in application and removal of prosthesis • Physiotherapy- Range of motion exercise (ROM), muscle strengthening exercises • Crutch maneuvering technique. • Activities of daily living • Ambulation • Teach and counsel patients and families	• Plan and give care to 2-3 assigned patients • Nursing care plan-I. • Nursing case study/ presentation-I • Maintain drug book	• Assess performance with rating scale • Evaluation of Nursing Case plan and Nursing case study / Presentation • Completion of Activity record.
Operation Theatre	6	• Identify instruments used in common operations • Participate in Infection control practices in the Operation Theatre • Set- up the table/ trolleys for common operative procedures. • Assist in giving anesthesia • Assist in the operative procedures • Provide peri operative nursing care	• Scrubbing, gowning, gloving • Identify instruments, suturing materials for common operations • Disinfection, Carbonization, fumigation. • Preparation of instrument sets for common operations • Sterilization of sharps and other instruments • Prepare the OT table depending upon the operation. • Positioning and monitoring of patients. • Endotracheal Intubations • Assisting in minor and major operations. • Handling specimens. • Disposal of waste as per the guidelines	• Assist as a circulatory nurse in • Major cases-10 • Minor cases-5 • Assist as a scrub nurse in • Major cases-10 • Minor cases-5 • Maintain drug book	• Assess performance with rating scale • Completion of activity record

INTERNSHIP

Time: 260 hours (9 Weeks)

Areas	Durati-on (in week)	Objectives	Skills	Assignments	Assessment Methods
ICU, CCU, CARDIAC OT.	2	• To Gain proficiency in ICU nursing • Develop advance skill in special procedures used in critical care unit. • Identify potential problem and provide accordingly • Skill in setting and handling ventilator • Administer injection in infusion pump • Record accurately findings and medications. • Develop IPR with family members. • Acquint with OT technique.	• Assist in arterial puncture for blood gas analysis • Perform ECG and interpret accordingly • Conduct and analysis pulse oximetry. • Care with artificial airway • Assist in endotracheal intubations • Setting up Ventilator. • Giving care in ventilator • Drug sheet, • Observation of special procedure in OT.	• Arterial puncture-5 • Taking out ECG Stripe-5 • Tracheal suction –5 • For all assigned patients. • Oxygen administration by CPAP mask and use Ambu bag. • Assessment for all assigned Patients • Nursing care in ventilator • Drug sheet	• Record book • Checking with supervisor
Neuro ICU, ITU, OT	2	• Develop skill in neurological assessment • Give care to the patient with head injury and spinal injury • Care with chest surgery and cranial surgery	• Assess neurological status • Implement care to head injury, spinal injury • Drug sheet • Pre and postoperative care with neuro surgery Patients	• Assessment for all assigned patients • Nursing care plan-2 • Drug sheet	• Record book • Observation check list
Burns and plastic Reconstructive surgery	2	• Assess the severity of burns • Administer rehydration Therapy, • Observe reconstructive surgery	• Nursing care		

Areas	Duration- (in week)	Objectives	Skills	Assignments	Assessment Methods
OT Leptosomic orthopedic Eye ENT	3	• Identify instruments • Assist in OT set UP • Supervise sterilization • Assist in OT table lay out • Observe immediately after operation • Supervise infection control		• Assist –5 cases	• Record Book,

COMMUNITY HEALTH NURSING –I

Placement: Second Year

Time: Theory- 90 hrs.
Practical - 135hrs.

Course description: This course is designed for to appreciate the principles of promotion and maintenance of health.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	2	• Describe concept and dimensions of health	**Introduction** • Community health nursing • Definition concept and dimensions of health • Promotion of health • Maintenance of health	• Lecture discussion	• Short answers
II	20	• Describe determinants of health	**Determinants of health** • Eugenics • Environment: ❑ Physical: Air, light, Ventilation, Water, Housing Sanitation; disposal of waste, disposal of dead bodies Forestation, Noise, Climate, Communication: infrastructure facilities and Linkages ❑ Acts regulating the environment: National pollution, control board ❑ Bacterial & viral: Agents, host carriers and immunity ❑ Arthropods and Rodents • Food hygiene: Production, Preservation, Purchase Preparation, Consumption • Acts Regulating food hygiene-prevention of food adulteration act, Drugs and cosmetic act • Socio – cultural ❑ Customs, taboos ❑ Marriage system ❑ Status of special groups; Females, children, Elderly, challenged group and sick persons • Life Style • Hygiene • Physical activity ❑ Recreation and sleep ❑ Sexual life	• Lecture discussion • Explain using charts, graphs • Models, films, Slides • Visits to water supply, sewage disposal, milk plants slaughter house etc.	• Essay type • Short answers

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Spiritual life philosophy ❑ Self reliance ❑ Dietary pattern ❑ Education ❑ Occupation • Financial Management ❑ Income ❑ Budget ❑ Purchasing power ❑ Security		
III	10	• Describe concept, scope, uses methods and approaches of Epidemiology	**Epidemiology** • Definition, concept, aims, scope, uses and terminology used in Epidemiology • Dynamics of disease transmission: epidemiological triad • Morbidity and mortality: measurements • Levels of Prevention • Methods of Epidemiology of ❑ Descriptive ❑ Analytical: Epidemic investigation ❑ Experimental	• Lecture discussion • Explain using Chart, graphs • Models, films slides	• Essay type • Short answers
IV	25	• Describe Epidemiology and nursing management of common Communicable diseases	**Epidemiology and nursing management of common Communicable Diseases** • Respiratory infections • Small Pox • Chicken Pox • Measles • Influenza • Rubella • ARI & Pneumonia • Mumps • Diphtheria • Whooping cough • Meningococcal meningitis • Tuberculosis • SARS • Intestinal Infections ❑ Poliomyelitis ❑ Viral Hepatitis ❑ Cholera ❑ Diarrhoeal diseases ❑ Typhoid fever ❑ Food poisoning ❑ Amoebiasis ❑ Hook worm infection	• Lecture discussion • Explain using Chart, graphs • Models, films slides • Seminar • Supervised field practice – Health centers, clinics and homes • Group projects/ Health education	• Essay type • Short answers • Objective type

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Ascariasis ❑ Dracunculiasis • Arthropod infections ❑ Dengue ❑ Malaria ❑ Filariasis • Zoonoses **Viral** ❑ Rabies ❑ Yellow fever ❑ Japanese encephalitis ❑ Kyasnur forest disease • Bacterial ❑ Brucellosis ❑ Plague ❑ Human Salmonellosis ❑ Anthrax ❑ Leptospirosis • Rickettsial diseases ❑ Rickettsial Zoo noses ❑ Scrub typhus ❑ Tick typhus ❑ Q Fever • Parasitic Zoo noses ❑ Taeniasis ❑ Hydatid disease ❑ Leishmaniasis • Surface infection ❑ Tetanus ❑ Trachoma. ❑ Leprosy ❑ STD & RTI ❑ Yaws ❑ HIV/AIDS Any other		
V	10	• Describe Epidemiology and nursing management of common Non-communicable Diseases	**Epidemiology and Nursing management of Non-Communicable diseases** • Malnutrition: under nutrition, over nutrition, nutritional deficiencies • Anemia • Hypertension • Stroke • Rheumatic heart Disease • Coronary heart disease. • Cancer • Diabetes mellitus • Blindness • Accidents • Mental illness	• Lecture discussion • Explain using Chart, graphs • Models, films slides • Seminar • Supervised field practice – Health centers, clinics and homes • Group projects/ Health education	• Essay type • Short answers • Objective type • Assessment of Survey report

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Obesity Iodine Deficiency • Fluorosis • Epilepsy		
VI	6	• Describe the concepts and scope of demography • Describe methods of data collection, analysis and interpretation of demographic data	**Demography** • Definition, concept and scope • Methods of collection, analysis and interpretation of demographic data • Demographic rates and rations	• Lecture discussion • Community identification survey	• Essay type • Short answers • Objective type • Assessment of Survey report
VII	17	• Identity the impact of population explosion in India • Describe methods of population control	**Population and its control** • Population explosion and its impact on social, economic development of individual, society and country • Population control: ❑ Overall development: Women empowerment, social, economic and educational development • Limiting family size: ❑ Promotion of small family norm ❑ Methods: Spacing (natural, biological, chemical mechanical methods etc), ❑ Terminal: Surgical methods ❑ Emergency contraception	• Lecture discussion • Population survey • Counseling • Demonstration • Practice session • Supervised field practice	• Essay type • Short answers • Objective type • Assessment of Survey report

COMMUNITY HEALTH NURSING
I - PRACTICAL

Placement: Second Year **Time:** Practical –135 hrs.

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessment Methods
Community health Nursing	2 wks urban and 2 wks rural	• Build and Maintain rapport • Identify demographic characteristics, health determinates and community health resources • Diagnose health needs of individual and families • Provide primary care in health Center • Counsel and educate individual, family and community	• Use Techniques of interpersonal relationship • Identification of health determination of community • History taking • Physical examination • Collect specimens - sputum, malaria smear • Perform simple lab tests at Centre-blood for Hemoglobin and sugar, urine for albumin and sugar • Administer vaccines and medications to adults • Counsel and teach individual, Family and community ❑ Nutrition ❑ Hygiene ❑ Self health monitoring ❑ Seeking health services ❑ Healthy life style ❑ Family welfare methods ❑ Health promotion	• To work with 2 assigned families each families each in urban and rural • Family study-1 • Observation report of community –1 • Health talks2 (1in urban and in rural)	• Assess clinical performance with rating scale • Assess each skill with checklist • Evaluation of family study, observation report and health talk • Completion of activity record.

COMMUNICATION & EDUCATIONAL TECHNOLOGY

Placement: Second year **Time:** Theory-90 Hrs.

Course Description: This course is designed to help the students acquire an understanding of the principles and methods of communication and teaching. It helps to develop skill in communicating effectively, maintaining effective interpersonal relations, teaching individuals and groups in clinical, and community health and education settings.

Unit	Time Hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
I	5		• Describe the communication on process • Identify techniques of effective communication.	**Review of Communications Process** • Process; elements and channel • Facilitators • Barriers and methods of overcoming • Techniques	• Lecture Discussion • Role Plays • Exercises with audio/ video tapes	• Respond to critical incidents • Short answers • Objective type
II	5		• Establish effective inter-personal relations with patient families & co-workers	**Interpersonal relations** • Purpose & types • Phases • Barriers & methods of overcoming • Johari Window	• Lecture Discussion • Role Plays • Exercises with audio/ video tapes • Process recording	• Short answers • Objective type
III	5		• Develop effective human relations in context of nursing	**Human relations** • Understanding self • Social behavior, motivation, social attitudes • Individual and groups • Groups & individual • Human relations in context of Nursing • Group dynamics • Team work	• Lecture Discussion • Sociometry • Group games • Psychometric Exercises followed by Discussion	• Short Answer • Objective type • Respond to test based on critical incidents
IV	10	5	• Develop basic skill of Counselling and guidance	**Guidance & Counseling** • Definition • Purpose, scope and need • Basic principles • Organization of Counseling services • Types of Counseling approaches	• Lecture Discussion • Role play on Counselling in different situations followed by discussion	• Short answers • Objective type • Assess performance in role play situations

Unit	Time hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
				• Role and preparation of counselor • Issues for counseling in nursing: students and practitioners • Counselling process-steps & techniques, tools of counselor • Managing disciplinary Problem • Management of crisis & referral		
V	5		• Describe the philosophy & principles of education • Explain the teaching learning process	**Principles of education & teaching learning process** Education: meaning philosophy, aims, functions & principles • Nature and characteristics of learning • Principles and maxims of teaching • Formulating objectives; general and specific • Lesson planning • Classroom managements	• Lecture Discussion • Prepare lesson plan • Micro teaching • Exercises on Writing objectives	• Short Answer • Objective type • Assess lesson plans and teaching sessions
VI	10	10	• Demonstrate teaching skills using various teaching methods in clinical, classroom and community setting	**Methods of teaching** • Lecture, demonstration, group discussion, seminar, symposium, panel discussion, role-play, project, field trip, workshop, exhibition, programmed instruction in computer assisted learning, microteaching problem based learning • Self-instructional module and simulation etc. • Clinical teaching methods: case method, nursing round & reports, bedside clinic, conference (individual & group) process recording	• Lecture Discussion • Conduct 5 teaching sessions using different methods & media	• Short Answer • Objective type • Assess teaching sessions
VII	10	8	• Prepare and use different types of educational media effectively	**Educational media** • Purpose & types of A.V. Aids, principles and sources etc. • Graphic aids: chalk board, chart, graph,	• Lecture discussion • Demonstration •	• Short Answer • Objective type •

Unit	Time hrs.		Learning Objectives	Content	Teaching learning Activates	Assessment methods
	Th.	Pr.				
				• poster, flash cards, flannel graph, bulletin, cartoon • Three dimensional aids: Objects, specimens, models, puppets • Printed aid: pamphlets & leaflets • Projected aids: Slides, overhead Projector, films, TV ,VCR/VCD ,camera, microscope, LCD • Audio aids: tape recorder, public address system • Computer	• Prepare different teaching aids- projected & non projected	• Assess teaching aids prepared
VIII	5	7	• Prepare different types of questions of assessment of knowledge, skills and attitudes	**Assessment** • Purpose & scope of evaluation & assessment • Criteria for selection of assessment techniques and methods • Assessment of knowledge: essay type questions (SAQ), Multiple choice questions (MCQ) • Assessment of skills: observation checklist, practical exam, Viva, Objective structured clinical examination (OSCE) Assessment of attitudes: attitude scales	• Lecture discussion • Exercise on Writing different types of assessment tools	• Short Answer • Objective type • Assess the strategies used in practice teaching sessions and exercise sessions
IX	5		• Teach individuals, groups and communities about health with their active participation	**Information, Education & communication for health (IEC)** • Health behavior & health Education • Planning for health education • Health education with individuals, groups, & communities. • Communicating health messages • Methods & media for communicating health messages • Using mass media	• Lecture discussion • Plan & conduct health education sessions for individuals, group & communities	• Short Answer • Objective type • Assess the planning & conduct of the educationa l session

MEDICAL SURGICAL NURSING
(ADULT INCLUDING GERIATRICS) – II

Placement: Third Year

Time: Theory -120 hrs.
Practical –270 hrs.

Course Description: The purpose of this course is to acquire knowledge and develop proficiency in caring for patients with medical and surgical disorders in varieties of health care settings and at home.

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	15	• Describe the etiology, pathopsiology, clinical manifestations, diagnostic measures and management of patients with Disorders of Ear Nose and throat	**Nursing management of patient with disorders of ear, nose & throat** • Review of anatomy and physiology of the Ear, Nose and Throat • Nursing Assessment – History and Physical assessment • Etiology, Pathophysiology, Clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of Ear Nose and Throat disorders: ❑ External ear: deformities otalgia, foreign bodies, and tumours ❑ Middle Ear-Impacted wax, Tympanic membrane perforation, otitis media, otosclerosis, mastoid its, tumours ❑ Inner ear-Meniere's Disease, labyrinthitis, ototoxicity, tumours ❑ Upper airway infections – Common cold, sinusitis, ethinitis, rhinitis, pharyngitis, tonsillitis and adenoiditis, peritonosilar abscess, laryngitis. • Upper respiratory airway - epistaxis, • Nasal obstruction, laryngeal obstruction, cancer of the larynx • Cancer of the oral cavity • Speech defects and speech therapy • Deafness –	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
II	15	• Describe the etiology, pathophysi-ology, clinical manifestations, diagnostic measures and management of patient with disorders of eye	• Prevention, Control and rehabilitation • Hearing Aids, implanted hearing devices Special therapies Nursing procedures Drugs used in treatment of disorders of Ear Nose and throat Role of nurse Communicating with hearing impaired and muteness **Nursing management of patient with disorders of eye** • Review of anatomy and physiology of the eye • Nursing Assessment –History and Physical assessment • Etiology, Pathophysiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of eye disorders: ❑ Refractive errors ❑ Eyelids-infection, tumours and deformities ❑ Conjunctiva-inflammation and infection, bleeding ❑ Cornea-inflammation and infection ❑ Lens-Cataracts ❑ Glaucoma ❑ Disorder of the uveal tract, ❑ Ocular tumours Disorders of posterior chamber and retina: Retinal and vitreous problems. ❑ Retinal detachment • Ocular emergencies and their prevention • Blindness • National blindness control program ❑ Eye Banking ❑ Eye prostheses and Rehabilitation Role of a nurse-Communication with visually impaired patient, Eye camps special therapies Nursing procedures Drugs used in treatment of disorders of eye	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation • Visit to eye bank • Participation in eye-camps	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
III	16	• Describe the etiology, patho physiology, clinical manifestation diagnostic measures and nursing management of patients with neurological disorders	**Nursing management of patient with neurological disorders** • Review of anatomy and physiology of the neurological system • Nursing Assessment – History, Physical and neurological assessment and Glasgow coma scale • Etiology, Pathophysiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of neurological disorders • Congenital malformations • Headache • Head injuries • Spinal Injuries: ❑ Paraplegia ❑ Hemiplegia ❑ Quadriplegia • Spinal cord compression-herniation of intervertebral disc • Tumors of the brain & spinal cord • Intra cranial and cerebral aneurysms • Infections: ❑ Meningitis, Encephalitis, Brain abscess, neurocysticercosis • Movement disorders ❑ Chorea ❑ Seizures ❑ Epilepsies • Cerebro Vascular Accidents (CVA) • Cranial, Spinal Neuropathies- Bell's palsy, trigeminal neuralgia • Peripheral Neuropathies; Guillain -Barr' e Syndrome • Myasthenia gravis • Multiple sclerosis • Degenerative diseases o Delirium o Dementia o Alzheimer's disease o Parkinson's disease	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation • Visit to rehabilitation Centre	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			❑ Management of unconscious patients and patients with stroke ❑ Role of the nurse in communicating with patient having neurological deficit • Rehabilitation of patients with neurological deficit Role of nurse in long stay facility (institutions) and at home Special therapies Nursing procedure Drugs used in treatment of neurological disorders		
IV	16	• Describe the etiology, patho-physiology, manifestations, diagnostic measures and nursing Management of patients with disorders of female reproductive system • Describe concept of reproductive health and family welfare programme	**Nursing management of patients with disorders of female reproductive system** • Review of anatomy and physiology of the female reproductive system • Nursing Assessment – History and Physical assessment • Breast Self Examination • Etiology, Patho physiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of disorders of female reproductive system • Congenital abnormalities of female reproductive system • Sexuality and Reproductive Health • Sexual Health Assessment • Menstrual Disorder; dysmenorrhea, Amenorrhea, Premenstrual Syndrome • Abnormal Uterine Bleeding; Menorrhagia, Metrorrhagia • Pelvic Inflammatory Disease- • Ovarian and fallopian tube disorders; infections, cysts, tumours • Uterine and cervical disorders; Endometriosis, polyps, fibroids, Cervical and uterine tumors, uterine displacement, Cystocele/Urethrocele/Rectocele • Vaginal disorders; Infections and Discharges, Fistulas • Vulvur disorders; Infections, cysts, tumours	• Lecture Discussion • Explain using charts, graphs • Models, films, slides • Demonstration • Practice session • Case discussions/ Seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Diseases of breasts; Deformities, Infections, Cysts and Tumours • Menopause and Hormonal Replacement Therapy • Infertility • Contraception; Types, Methods, Risk and effectiveness ❑ Spacing Methods - Barrier methods, Intera Uterine Devices, Hormonal, Post conceptional Methods, etc. ❑ Terminal methods - Sterilization • Emergency Contraception methods • Abortion – Natural, medical and surgical abortion – MTP Act • Toxic Shock Syndrome • Injuries and Trauma; Sexual violence Special therapies Nursing procedures Drugs used in treatment of gynecological Disorders National family welfare Programme		
V	10	Describe the etiology, patho-physiology, clinical manifestations diagnostic measures and nursing management of patient with Burns, reconstructive and cosmetic surgery	**Nursing management of patients with Burns, reconstructive and cosmetic surgery** • Review of anatomy and physiology of the skin and connective tissues and various deformities • Nursing Assessment-History and physical assessment and assessment of burns and fluid an electrolyte loss • Etiology, classification, Pathophysiology, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of Burns and Re-constrictive and Cosmetic surgery;	• Lecture discussion • Explain using Charts, graphs • Model's films, slides • Demonstration • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book/ Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Type of Re-Constructive and cosmetic surgery of burns, congenital deformities, injuries and cosmetic purposes. • Role of nurse • Legal aspects • Rehabilitation • Special therapies ❑ Psycho social aspects Nursing procedures Drugs used in treatment of Burns, reconstructive and cosmetic surgery		
VI	10	• Describe the etiology, patho-physiology clinical manifestations, diagnostic measures and nursing Management of patients with oncology	**Nursing management of patients with oncological conditions** • Structure & characteristics of normal & cancer cells • Nursing Assessment-History and Physical assessment • Prevention, screening, Early detection, Warning signs of cancer • Epidemiology, Etiology, Classification, Pathophysiology, Staging, clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of oncological conditions • Common malignancies of various body system; Oral, larynx, lung, Stomach and Colon, Liver, Leukemias and lymphomas, Breast, Cervix, Ovary, Uterus, Sarcoma, Brain, Renal, Bladder, Prostate etc • Oncological emergences • Modalities of treatment ❑ Immunotherapy ❑ Chemotherapy ❑ Radiotherapy ❑ Surgical Interventions ❑ Stem cell and bone marrow transplants ❑ Gene therapy ❑ Other forms of treatment • Psychosocial aspects of cancer • Rehabilitation • Palliative care; symptom and pain management, nutritional Support • Home care • Hospital care	• Lecture discussion • Explain using Charts, graphs • Model's films, slides • Demonstration • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Stomal therapy • Special therapies ❑ Psycho Social aspects • Nursing procedures		

VII	10	• Describe organization of emergency and disaster care services
		• Describe the role of nurse in disaster management
		• Describe the role of nurse in management of common Emergencies
			Nursing management of patient in EMERGENCY & Disaster situations
			Disaster Nursing:
			• Concepts and principles of Disaster Nursing
			• Causes and Types of Disaster: Natural and Man-made
			  ❑ Earthquakes, Floods, Epidemics, Cyclones
			  ❑ Fire, Explosion, Accidents
			  ❑ Violence, Terrorism; bio-chemical, WarPolicies related to emergency/disaster management'; International, national, state, institutional
			• Disaster preparedness:
			• Team, Guidelines, protocols, Equipments, Resources
			• Coordination and involvement of; community, various govt. departments, non-govt. organizations and International agencies
			• Role of nurse: working
			• Legal Aspects of Disaster Nursing
			• Impact on Health and after effect; Post Traumatic Stress Disorder
			• Rehabilitation; physical, psychosocial, Financial, Relocation.
			Emergency Nursing
			• Concept, priorities, principles and Scope of emergency nursing Organization of emergency services: physical setup, staffing equipment and supplies, protocols, Concepts of triage and role of triage nurse.
			• Coordination and involvement of different departments & facilities
			• Nursing Assessment – History and Physical assessment
				• Lecture discussion
				• Explain using Charts, graphs
				• Model's films, slides
				• Demonstration
				• Practice session
				• Case discussion /seminar
				• Health education
				• Supervised clinical practice
				• Disaster management Drills
				• Drug book / Presentation
					• Essay type
					• Short answers
					• Objective type
					• Assessment of skills with check list
					• Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Etiology, Pathophysiology, clinical manifestation, diagnosis, treatment modalities and medical & surgical nursing management of patient with medical and surgical Emergency • Principles of emergency management • Common emergencies; • Respiratory Emergencies • Cardiac Emergencies • Shock and Hemorrhage • Pain • Poly-Trauma, road accidents, crush injuries, wound • Bites • Poisoning; Food, Gas, Drugs & chemical poisoning • Seizures • Thermal Emergencies; Heat stroked & Cold injuries		
VIII	10	• Explain the concept and problems of ageing • Describe nursing care of the elderly	**Nursing care of the elderly** • Nursing Assessment – History and Physical assessment • Ageing; • Demography; Myths and realities • Concepts and theories of ageing • Cognitive Aspects of Ageing • Normal biological ageing • Age related body systems changes • Psychosocial Aspects of aging • Medications and elderly • Stress & coping in older adults • Common Health Problems & Nursing management; • Cardiovascular, Respiratory, Musculosketetal, • Endocrine, genito-urinary, gastrointestinal • Neurological, skin and other Sensory organs ❑ Psychosocial and Sexual ❑ Abuse of elderly • Role of nurse for care of elderly: ambulation, nutritional, communicational, psychosocial and spiritual • Role of nurse for caregivers of elderly.	• Lecture discussion • Explain using Charts, graphs • Models, films, slides. • Demonstration • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book / Presentation • Visit to old age home	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
			• Role of family and formal and non formal caregivers • Use of aids and prosthesis (hearing aids, dentures), • Legal & Ethical Issues • Provisions and Programmes for elderly; privileges, community programmes and health services; • Home and institutional care		
IX	10	• Describe organization of critical care units • Describe the role of nurse in management of patients critical care units	**Nursing management of patient in critical care units** • Nursing Assessment – History and Physical assessment • Classification • Principles of critical care nursing • Organization; physical setup, policies, staffing norms, • Protocols, equipment; and supplies • Special equipments; ventilation, cardiac monitors, defibrillators. • Resuscitation equipments • Infection Control Protocols • Nursing management of critically ill patient; • Monitoring of critically ill patient • CPR-Advance cardiac life support • Treatments and procedures • Transitional care • Ethical and Legal Aspects • Communication with patient and family • Intensive care records • Crisis Intervention • Death and Dying – coping with • Drugs used in critical care unit	• Lecture discussion • Explain using Charts, graphs • Model's films, slides • Demonstration • Role plays • Counseling • Practice session • Case discussion /seminar • Health education • Supervised clinical practice • Drug book / Presentation	• Essay type • Short answers • Objective type • Assessment of skills with check list • Assessment of patient - management problem

Unit	Time hrs.	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
X	8	• Describe the etiology, Pathophysiology, clinical manifestations, • Assessment, diagnostic • Measures and management of patients with occupational and industrial health disorder	**Nursing management of patient's adults including elderly with Occupational and Industrial disorders.** • Nursing Assessment- History and Physical assessment • Etiology, Pathophysiology, Clinical manifestations, diagnosis, treatment modalities and medical & surgical nursing management of occupational and industrial health disorders • Role of nurse Special therapies, alternative therapies Nursing procedures Drugs used in treatment of Occupational and industrial disorders		

MEDICAL SURGICAL NURSING (ADULT AND GERIATRICS) – II PRACTICAL

Placements: Third year

Time:Theory-120 hrs.
Practical-270 hrs.
Internship – 430 hrs.

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
ENT	1	• Provide care to patients with ENT disorders • Counsel and educate patient and families	• Perform examination of ear, nose and throat • Assist with diagnostic procedures • Assist with therapeutic procedures • Instillation of drops • Perform/assist with irrigations. • Apply ear bandage • Perform tracheostomy care • Teach patients and families	• Provide care to 2-3 assigned patients • Nursing care plan- I • Observation reports of OPD • Maintain Drug book	• Asses each skill with checklist • Assess performance with rating scale • Evaluation of observation report of OPD • Completion of activity record
Ophthal mology	1	• Provide care to patients with Eye discarders • Counsel and educate patient and families	• Perform examination of eye • Assist with diagnostic procedures • Assist with therapeutic procedures • Perform/assist with irrigations • Apply eye bandage • Apply eye drops/ointments • Assist with foreign body removal • Teach patients and families	• Provide care to 2-3 assigned patients • Nursing care plan- I • Observation reports of OPD & Eye bank • Maintain Drug book	• Asses each skill with checklist • Assess performance with rating scale • Evaluation of observation report of OPD or eye bank • Completion of activity record
Neurolo -gy	2	• Provide care to patients with neurologica l disorders • patient and families	• Perform Neurological Examination • Use Glasgow Coma scale • Assist with diagnostic procedures • Assist with therapeutic procedure • Teach patients & families	• Provide care to assigned 2-3 patients with neurologic al disorders	• Asses each skill with checklist • Assess performance with rating scale • Evaluation of case study

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
		• Counsel and educate	• Participate in rehabilitation program	• Case study/ Case presentation –I • Maintains drug book • Health Teaching –I	& Health teaching • Completion of activity record
Gynecology Ward	1	• Provide care to patients with gynecological disorders. • Counsel and educate patients and families	• Assist with gynecological Examination • Assist with diagnostic procedures • Assist with therapeutic procedures • Teach patients and families • Teaching self breast examination • Assist with PAP smear collection	• Provide care to 2-3 assigned patients • Nursing care plan- I • Maintain Drug book	• Asses each skill with check list • Assess performance with rating scale • Evaluation of care plan • Completion of activity record
Burns Unit	1	• Provide care to patients with Burns • Counsel and educate patients and families	• Assessment of the burn patient ❑ Percentage of burns ❑ Degree of burns • Fluid & electrolyte replacement therapy ❑ Assess ❑ Calculate ❑ Replace ❑ Record intake/output • Care of Burn wounds ❑ Bathing ❑ Dressing • Perform active & passive exercise • Practice medical & surgical asepsis • Counsel & teach patients and families • Participate in rehabilitation Programme	• Provide care to 1-3 assigned patients • Nursing care plan- I • Observation reports of Burns unit	• Asses each skill with check list • Assess performance with rating scale • Evaluation of care plan and observation report • Completion of activity record
Oncology Unit	1	• Provide care to patients with cancer • Counsel and educate patient and families	• Screen for common cancers - TNM classification • Assist with diagnostic procedures • Biopsies • Pap smear	• Provide care to 2-3 assigned patients • Nursing care plan- I •	• Asses each skill with check list • Assess performance with rating scale

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
			• Bone marrow aspiration. • Breast examination • Assist with therapeutic Procedure • Participates in various modalities of treatment ❑ Chemotherapy ❑ Radiotherapy ❑ Pain management ❑ Stoma therapy ❑ Hormonal therapy ❑ Immuno therapy ❑ Gene therapy ❑ Alternative therapy • Participate in palliative care • Counsel and teach patients families ❑ Self Breast Examination ❑ Warning sings • Participate in rehabilitation Programme	• Observation Reports of cancer unit	• Evaluation of care plan and observation report. • Completion of activity record.
Critical Care unit	2	• Provide care to critically ill patients • Counsel patient and families for grief and bereavement	• Monitoring of patients in ICU • Maintain flow sheet • Care of patients on ventilators • Perform endotracheal suctions • Demonstrates use of ventilators, cardiac monitors etc. • Collect specimens and interprets ABG analysis • Assist with arterial puncture • Maintain CVP line • Pulse oximetry • CPR-ALS • Defibrillators • Pace makers • Bag-mask ventilation • Emergency tray/trolley-crash cart • Administration of drugs ❑ Infusion pump ❑ Epidural ❑ Intrathecal	• Provide care to 1 assigned patient • Observation report of Critical care unit • Drugs book	• Assess each skill with check list • Assess performance with rating scale • Evaluation of observation report • Completion of activity record

Areas	Duration (in wks)	Objectives of posting	Skills to be developed	Assignments	Assessment methods
			❑ Intracardiac • Total parenteral therapy • Chest physiotherapy • Perform active & passive exercises • Counsel the patient and family in dealing with grieving and bereavement		
Casualty / Emerge-ncy	1	• Provide care to patients in emergency and disaster situation • Counsel patient and families for grief and bereavement	• Practice "triage" • Assist with assessment examination, investigations & their interpretations, in emergency and disaster situations • Assist in documentations • Assist in legal procedures in emergency unit • Participate in managing crowd • Counsel patient and families in grief and bereavement	• Observation report of Emergency unit	• Assess performance with rating scale • Evaluation of observation report • Completion of activity record

Placement-Internship

Time: 430 hours (9 weeks)

Area	Duration (In week)	Objectives	Skills	Assignments
Medical Ward	2	Provide comprehensive care to patients with medical and surgical conditions including emergencies	Integrated practice	Assess clinical Performance with rating sale
Surgical Ward	2			
Critical care unit/ICCU	1			
Casualty/Emergency	2			
Operation Theatre (Eye, ENT, Neuro)	2	Assist with common operations		

CHILD HEALTH NURSING

Placements: Third year

Time:Theory-90 hrs.
Practical-270 hrs.
Internship – 145 hrs

Course Description: This course is designed for developing an understanding of the modern approach to child-care, identification, prevention and nursing management of common health problems of neonates and children.

Unit	Time (hrs.)	Learning Objective	Content	Teaching Learning Activities	Assessment Methods
I	15	• Explain the modern concept of child care & principles of child health nursing • Describe national policy programmes and legislation in relation to child health and welfare • List major causes of death during infancy, early& late childhood • Describe the major functions and role of the Paediatric nurse in caring for a hospitalized child. • Describe the principles of child health nursing	**Introduction** **Modern Concepts of childcare** • Internationally accepted rights of the child • National policy and legislations in relation to child health and welfare • National programmes related to child health and welfare • Agencies related to welfare services to the children • Changing trends in hospital care, preventive, promotive and curative aspects of child health • Child morbidity and mortality rates. • Differences between an adult and child • Hospital environment for a sick child • Impact of hospitalisation on the child and family. • Grief and bereavement • The role of a child health nurse in caring for a hospitalized child • Principles of pre and post operative care of infants and children • Child health nursing procedures	• Lecture Discussion • Demonstration of common pediatric procedures	• Short answers • Objective type • Assessment of skills with check list

Unit	Time (hrs.)	Learning Objective	Content	Teaching Learning Activities	Assessment Methods
II	20	• Describe the normal growth & development of children at different ages • Identify the needs of children and different ages and provide parental guidance • Identify the nutritional needs of children at different age and ways of meeting the needs • Appreciate the role of play for normal and sick children • Appreciate the preventive measures and strategies for children	**The healthy child** • Principles of growth and development • Factors affecting growth & development • Growth and development from birth to adolescence • The needs of normal children through the stages of developmental and parental guidance • Nutritional needs of children & infants: breast-feeding exclusive breast-feeding supplementary/artificial feeding and weaning. • Baby friendly hospital concept • Accidents: causes and prevention • Value of play and selection of play material • Preventive immunization, immunization programme and cold chain • Preventive pediatrics • Care of under five & under five clinics/well baby clinics	• Lecture Discussion • Developmental study of infant and children • Observation study of normal and sick child • Field visit to Anganwadi, child guidance clinic • Film show on breast feeding • Clinical practice / field	• Short answers • Objective type • Assessment of field visits and developmental Study reports
III	15	• Provide care to normal & high risk neonates • Perform neonatal resuscitation • Recognize and manage common neonatal problems	**Nursing care of a neonate** • Nursing care of a normal newborn/Essential newborn care • Neonatal resuscitation • Nursing management of a low birth weight baby. • Kangaroo mother care • Nursing management of common neonatal disorders • Organization of neonatal unit • Identification & nursing management of common congenital malformations.	• Lecture Discussion • Workshop on neonatal resuscitation • Demonstration • Practice session • Clinical practice	• Short answers • Objective type • Assessment of skills with check list
IV	10		**Integrated management of neonatal and childhood illnesses (IMNCI)**		

Unit	Time (hrs.)	Learning Objective	Content	Teaching Learning Activities	Assessment Methods
V	20	• Provide nursing care in common childhood diseases • Identify measures to prevent common childhood diseases including immunization	**Nursing management in common childhood diseases** • Nutritional deficiency disorders • Respiratory disorders and infections • Gastrointestinal infections, infestations and congenital disorders • Cardio vascular problem: congenital defects and rheumatic fever, rheumatic heart disease • Genito-urinary disorders: acute glomerulus's nephritis, Nephrotic syndrome, Wilm's tumor, infection and congenital disorders. • Neurological infections and disorders: convulsions, epilepsy, meningitis, hydrocephalus, and spina bifida. • Hematological disorders: Anemias, thalassemia, ITP, Leukemia, hemophilia • Endocrine disorders: Juvenile Diabetes Mellitus • Orthopedic disorders: club feet, hip dislocation and fracture. • Disorders of skin, eye, and ears • Common communicable diseases in children, their identification, nursing management in hospital and home and prevention. • Child health emergencies: poisoning, foreign bodies, hemorrhage, burns and drowning • Nursing care of infant and children with HIV/AIDS	• Lecture Discussion • Demonstration • Practice session • Clinical Practice	• Short answers • Objective type • Assessment of skills with check list
VI	10	• Manage the child with behavioral & social problems • Identify the social & welfare services for challenged children	**Management of behavioural & social problems in children** • Management of common behavioural disorders • Management of common psychiatric problems • Management of challenged children: Mentally, Physically, & Socially challenged • Welfare services for challenged children in India. • Child guidance clinics	• Lecture discussion • Field visits to child guidance clinics, school for mentally & physically socially, challenged	• Short answers • Objective types • Assessment of field reports

CHILD HEALTH NURSING-PRACTICAL

Placements: Third year
Fourth Year

Time: Practical -270 hrs.(9 Weeks)
Internship – 145 hrs (3 Weeks)

Areas	Duration (in weeks)	Objectives	Skills	Assignments	Assessment methods
Pediatric Medicine Ward	3	• Provide nursing care to children with various medical disorders. • Counsel and educate parents.	• Taking Pediatric History • Physical examination and assessment of children • Administer of oral, I/M & IV medicine/fluids • Calculation of fluid requirements • Prepare different strengths of I.V. fluids • Apply restraints • Administer O_2 inhalation by different methods • Give baby bath • feed children by katori spoon, etc • Collect specimens for common investigations • Assist with common diagnostic procedures • Teach mothers/parents ❑ Malnutrition ❑ Oral rehydration therapy ❑ Feeding & Weaning ❑ Immunization schedule ❑ Play therapy ❑ Specific Disease conditions	• Give care to three assigned Pediatric patients • Nursing Care Plan-1 • Case study/ presentation -1 • Health Talk – 1	• Assess clinical performance with rating scale • Assess each skill with check list OSCE/ OSPE • Evaluation of case study/ presentation and health education session • Completion of activity record.
Pediatric Surgery Ward	3	• Recognize different pediatric surgical conditions / malformations	• Calculate, prepare and administer I/V fluids • Do bowel wash • Care for ostomies ❑ Colostomy Irrigation ❑ ureterostomy	• Give care to three assigned pediatric surgical patients • Nursing Care Plan-1	• Assess clinical performance with rating scale • Assess each skill with check list OSCE/OSPE

Areas	Durati -on (in weeks)	Objectives	Skills	Assignments	Assessment methods
		• Provide pre and post operative care to children with common Paediatric surgical conditions / malformation • Counsel and educate parents	❑ Ureterostomy ❑ Gastrostomy ❑ Enterostomy • Urinary catheterization and drainage • Feeding ❑ Naso-gastric ❑ Gastrostomy ❑ Jejunostomy • Care of surgical wounds ❑ Dressing ❑ Suture removal	• Nursing Care Plan-1 • Case study/ Presentation-1	• Evaluation of case study/ presentation • Completion of Activity record
Pediatric OPD/ Immunization room	1	• Perform assessment of children Health, Development and Anthropo metric • Perform Immunization • Give Health Education /Nutritional Education	• Assessment of children ❑ Health assessment ❑ Developmental assessment ❑ Anthropometric assessment • Immunization • Health/ Nutritional • Education	• Developmental study-1	• Assess clinical performance with rating scale • Completion of activity record.
Pediatric medicine and surgery ICU	1+1	• Provide nursing care to critically ill children	• Care of a baby in incubator/warmer • Care of a child on ventilator • Endotracheal suction • Chest physiotherapy • Administer fluids with infusion pump • Total parenteral nutrition • Photo therapy • Monitoring of babies • Cardio Pulmonary resuscitation	• Nursing care plan-1 • Observation report –1	• Assess clinical performance with rating scale • Completion of activity record • Evaluation of observation report

Internship Time: 145 hrs (3 weeks)

Area	Duration (in weeks)	Objective	Skill	Assessment
Paediatric medicine ward/ICU	1	• Provide comprehensive care to children with medical conditions	• Integrated Practice	• Assess clinical performance with rating sale
Paediatric surgery ward/ICU	1	• Provide comprehensive care to children with surgical conditions	• Integrated Practice	• Assess clinical performance with rating scale
NICU	1	• Provide intensive care to neonates	• Integrated Practice	• Assess clinical performance with rating scale

MENTAL HEALTH NURSING

Placement: Third year

Time: Theory - 90 hrs.
Practical - 270 hrs.
Internship – 95 hrs (2 weeks)

Course Description: This course is designed for developing an understanding of the modern approach to mental health care, identification, prevention and nursing management of common mental health problems with special emphasis on therapeutic interventions for individuals, family and community.

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
I	5	• Describes the historical development & current trends in mental health nursing • Describe the Epidemiology of mental health problem • Describe the National Mental Health Act, programmes and mental health policy • Discusses the scope of mental health nursing • Describe the concept of normal & abnormal behaviour	**Introduction** • Perspectives of Mental Health and Mental Health nursing: evolution of mental health services, treatments and nursing practices. • Prevalence and incidence of mental health problems and disorders • Mental Health Act • National Mental health policy vis a vis National Health Policy • National Mental Health programme • Mental health team • Nature and scope of mental health nursing • Role and functions of mental health nurse in various setting and factors affecting the level of nursing practice • Concepts of normal and abnormal behaviour	• Lecture Discussion	• Objective types • Short answer • Assessment of the field visit reports
II	5	• Define the various terms used in mental health Nursing • Explains the classification of mental disorders • Explain psychodynamics of maladaptive behavior • Discuss the etiological factors,	**Principles and concepts of Mental Health Nursing** • Definition: mental health nursing and terminology used • Classification of mental disorders: ICD • Review of personality development, defense mechanisms • Maladaptive behavior of individuals and groups; stress, crisis and disasters • Etiology; bio-psycho-social factors	• Lecture discussion • Explain using Charts • Review of personality developments	• Essay type • Short answer • Objective type

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
		Psychopathology of mental disorders • Explain the Principles and standards of mental health Nursing • Describe the conceptual models of mental health nursing	• Psychopathology of mental disorders; review of structure and function of brain, limbic system and abnormal neuro transmission • Principles of Mental health nursing • Standards of mental health nursing practice • Conceptual models and the role of nurse: ❑ Existential Model ❑ Psycho-analytical models ❑ Behavioural model ❑ Interpersonal Model		
III	8	• Describe the nature, purpose, and process of assessment of mental health status	**Assessment of mental health status** • History taking • Mental status examination • Mini mental status examination • Neurological examination: Review • Investigations: Related Blood chemistry, EEG, CT & MRI • Psychological tests Role and responsibilities of nurse	• Lecture discussion • Demonstration • Practice session • Clinical practice	• Short answer • Objective type • Assessment of skills with check list
IV	6	• Identify therapeutic communication techniques • Describe therapeutic relationship • Describe therapeutic impasse and its intervention	**Therapeutic communication and nurse-patient relationship** • Therapeutic communication: Types, techniques, characteristics • Types of relationship, • Ethics and responsibilities • Elements of nurse patient contract • Review of technique of IPR - Johari window • Goals, phases, tasks, therapeutic techniques • Therapeutic impasse and its intervention	• Lecture discussion • Demonstration • Role play • Process recording	• Short answer • Objective type
V	14	• Explain treatment modalities and therapies used in mental disorders and role of the nurse	**Treatment modalities and therapies used in mental disorders** • Psycho Pharmacology Psychological therapies: Therapeutic community, psycho therapy-Individual: psycho-analytical, cognitive and supportive, Family, Group Behavioural, Play, Psycho- drama, Music, Dance,	• Lecture discussion • Demonstration • Group work • Practice session • Clinical practice	• Essay type • Short answer • Objective type

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
			Recreational and Light therapy, Relaxation therapies; Yoga, Meditation, bio feedback • Alternative systems of medicine • Occupational therapy • Physical Therapy: electro convulsive therapy • Geriatric considerations Role of nurse in above therapies		
VI	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with Schizophrenia, and other psychotic disorders	**Nursing management of patient with Schizophrenia, and other psychotic disorders** • Classification: ICD • Etiology, psycho-pathology, types, clinical manifestations, diagnosis • Nursing Assessment – History, Physical and mental assessment • Treatment modalities and nursing management of patient with Schizophrenia and other psychotic disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patient management problems
VII	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with mood disorders	**Nursing management of patient with mood disorders** • Mood disorder: Bipolar affective disorders, Mania depression and dysthamia etc. • Etiology psychopathology, clinical manifestations, diagnosis. • Nursing Assessment- History, Physical and mental assessment • Treatment modalities and nursing management of patients with mood disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
VIII	8	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of	**Nursing management of patient with neurotic, stress related and somatization disorders** Anxiety disorder, Phobias, Dissociation and Conversion	• Lecture discussion • Case discussion	• Essay type • Short answer • Assessment of patients management

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
		Patients with neurotic, stress related and somatization disorders	Disorder, Obsessive compulsive disorder, Somatoform disorders, Post traumatic stress disorder • Etiology, psycho-pathology, clinical manifestations, diagnosis • Nursing Assessment – History, Physical and mental assessment • Treatment modalities and nursing management of patients with neurotic, stress related and somatization disorders • Geriatric considerations • Follow – up and home care and rehabilitation	• Case presentation • Clinical practice	Problems
IX	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with substance use disorders	**Nursing management of patient with Substance use disorders** • Commonly used psychotropic substance: Classification, forms, routes, action, • Etiology of dependence: tolerance, psychological and physical dependence, withdrawal syndrome, diagnosis, • Nursing Assessment – History, Physical, mental assessment and drug assay • Treatment (detoxification, antabuse and narcotic antagonist therapy and harm reduction) and nursing management of patients with substance use disorders • Geriatric considerations • Follow –up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
X	4	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of patients with personality Sexual and Eating disorders	**Nursing management of patient with personality, Sexual and Eating disorders** • Classification of disorders • Etiology, psycho-pathology, characteristics, diagnosis, • Nursing Assessment-history, Physical and mental assessment • Treatment modalities and nursing management of patients with Personality, Sexual and Eating disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patient management problems

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
XI	6	• Describe the etiology, psychopathology, clinical manifestations diagnostic criteria and management of childhood and adolescent disorders including mental deficiency	**Nursing management of Childhood and adolescent disorders including mental deficiency** • Classification • Etiology, psycho-pathology, characteristics, diagnosis, Nursing Assessment-History, Physical, mental and IQ assessment Treatment modalities and nursing management of childhood disorders including mental deficiency • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
XII	5	• Describe the etiology, psychopathology, clinical manifestations, diagnostic criteria and management of organic brain disorders.	**Nursing management of organic brain disorders** • Classification: ICD • Etiology, psycho-pathology, clinical features, diagnosis and Differential diagnosis (Parkinson's and Alzheimer's) • Nursing assessment – History, Physical, mental and neurological assessment • Treatment modalities and nursing management of organic brain disorders • Geriatric considerations • Follow-up and home care and rehabilitation	• Lecture discussion • Case discussion • Case presentation • Clinical practice	• Essay type • Short answer • Assessment of patients management problems
XIII	6	• Identify psychiatric emergencies and carry out crisis intervention	**Psychiatric emergencies and crisis intervention** • Types of psychiatric emergencies and their management • Stress adaptation Model: stress and stressor, coping, resources and mechanism • Grief: Theories of grieving process, principles, techniques of counseling • Types of crisis • Crisis Intervention: Principles, Techniques and process • Geriatric considerations Role and responsibilities of nurse	• Short answer • Objective type •	• Lecture discussion • Demonstration • Practice session • Clinical practice
XIV	4	• Explain legal aspects applied in mental health	**Legal issues in Mental Health Nursing** • The Mental Health Act 1987: Act, Sections, Articles and their implications etc.	• Lecture discussion • Case discussion	• Short answers • Objective types

Unit	Time hrs.	Learning Objective	Content	Teaching Learning Activity	Assessment Method
		settings and role of the nurse	• Indian Lunacy Act. 1912 • Rights of mentally ill clients • Forensic psychiatry • Acts related to narcotic and psychotropic substances and illegal drug trafficking • Admission and discharge procedures Role and responsibilities of nurse		
XV	4	• Describe the model of preventive psychiatry • Describes Community Mental health services and role of the nurse	**Community Mental Health Nursing** • Development of Community Mental Health Services: • National Metal Health programme • Institutionalization versus Deinstiutionalization • Model of preventive psychiatry: levels of prevention • Mental Health Services available at the primary, secondary, tertiary levels including rehabilitation and Role of nurse • Mental Health Agencies: Government and voluntary, national and International • Mental Health nursing issues for special populations: Children, adolescence, Women, Elderly, Victims of violence and abuse, Handicapped, HIV/AIDS etc.	• Lecture discussion • Clinical /field practice • Field visits to mental health services agencies	• Short answer • Objective type • Assessment of the field visit reports

MENTAL HEALTH NURSING – PRACTICAL

Placements: Third year
Fourth year

Time: Practical – 270 hrs (9 weeks)
Internship – 95 hrs (2 weeks)

Areas	Durati-on (in weeks)	Objectives	Skills	Assignments	Assessment Methods
Psychiatric OPD	1	• Assess patients with mental health problems • Observe and assist in therapies • Counsel and educate patient, and families	• History taking • Perform mental status examination (MSE) • Assist in Psychometric assessment • Perform Neurological examination • Observe and assist in therapies • Teach patients and family members	• History taking and mental status examination-2 • Health education –1 • Observation report of OPD	• Assess performance with rating scale • Assess each skill with checklist • Evaluation of health education • Assessment of observation report • Completion of activity record.
Child Guidance clinic	1	• Assessme nt of children with various mental health problem • Counsel and educate children, families and significant others	• History taking • Assist in psychometric assessment • Observe and assist in various therapies • Teach family and significant others	• Case work-1 • Observation report of different therapies -1	• Assess performance with rating scale • Assess each skill with checklist • Evaluation of Observation report
Inpatient ward	6	• Assess patients with mental health problems • To provide nursing care for patients	• History taking • Perform mental status examination (MSE) • Perform Neurological examination • Assist in psychometric assessment • Record therapeutic communication • Administer medications	• Give care to 2 –3 patients with Various mental disorders • Case study-1 • Care plan-2 • Clinical Presentation 1 •	• Assess performance with rating scale • Assess each skill with checklist • Evaluation of the case study, care

Areas	Durati -on (in	Objectives	Skills	Assignments	Assessment Methods

	weeks)				
		with various mental health problems • Assist in various therapies • Counsel and educate Patients, families and significant others	• Assist in Electro Convulsive Therapy (ECT) • Participate in all therapies • Prepare patients for Activities of Daily living (ADL) • Conduct admission and discharge counseling • Counsel and teach patients and families	• Process recording –2 • Maintain drug book.	plan, clinical presentation, process recording • Completion of activity record
Community psychiatry	1	• To identify patients with various mental disorders • To motivate patients for early treatment and follow up • To assist in follow up clinic • Counsel and educate patient, family and community	• Conduct case work • Identify individuals with mental health problems • Assists in mental health camps and clinics • Counsel and Teach family members, patients and community	• Case Work –1 • Observation report on field visits	• Assess performance with rating scale • Evaluation of case work and observation report • Completion of activity record

Internship

Time: 95 hrs (2 Weeks)

Area	Duration	Objective	Skills	Assessment
Psychiatry ward	2 Weeks	Provide comprehensive care to patients with mental health problems	Integrated Practice	Assess clinical performance with rating scale

MIDWIFERY AND OBSTETRICAL NURSING

Placement: Third year

Time: Theory - 45 hrs.
Practical - 180 hrs.

Course Description: This course is designed for students to appreciate the concepts and principles of midwifery and obstetrical nursing. It helps them to acquire knowledge and skills in rendering nursing care to normal and high risk pregnant woman during antenatal, natal and post natal period in hospitals and community settings. It also helps to develop skills in managing normal and high-risk neonates and participate in family welfare programme.

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
I	4	• Recognize the trends and issues in midwifery and obstetrical nursing	**Introduction to midwifery and obstetrical Nursing** • Introduction to concepts of midwifery and obstetrical nursing • Trends in midwifery and obstetrical nursing ❑ Historical perspectives and current trends ❑ Legal and ethical aspects ❑ Pre-conception care and preparing for parenthood ❑ Role of nurse in midwifery and obstetrical care. ❑ National policy and legislation in relation to maternal health and welfare. ❑ Maternal, morbidity, mortality and fertility rates. ❑ Prenatal, morbidity and mortality rates	• Lecture discussion • Explain using Charts and graphs	• Short answers • Objective types
II	8	• Describe the anatomy and physiology of female reproductive system	**Review of anatomy and physiology of female reproductive system and foetal development** • Female pelvis-general description of the bones joints, ligaments, planes of the pelvis, diameters of the true pelvis, important landmarks, and variations in pelvis shape. • Female organs of reproduction-external genitalia, internal genital organs and their anatomical relations, musculature-blood-supply, nerves, lymphatic, pelvic cellular tissue, pelvic peritoneum. • Physiology of menstrual cycle	• Lecture discussion • Review with charts and models	• Short answers • Objective types

Unit	Time	Learning	Content	Teaching	Assessment

	Hrs.	Objective		learning Activities	method
			• Human sexuality • Foetal development ❑ Conception Review of fertilization, implantation (embedding of the ovum), Development of the embryo and Placenta at term ,Functions, Abnormalities of the foetal sac, amniotic fluid and umbilical cord, ❑ Foetal circulation, foetal skull, bones, sutures and measurements. • Review of Genetics		
III	8	• Describe the Diagnosis and management of woman during antenatal period	**Assessment and management of pregnancy (ante-natal)** • Normal pregnancy • Physiological changes during pregnancy ❑ Reproductive system ❑ Cardio vascular system ❑ Respiratory system ❑ Urinary system ❑ Gastro intestinal system ❑ Metabolic changes ❑ Skeletal changes ❑ Skin changes ❑ Endocrine system ❑ Psychological changes ❑ Discomforts of pregnancy • Diagnosis of pregnancy ❑ Signs ❑ Differential diagnosis ❑ Confirmatory test • Ante-natal care ❑ Objectives ❑ Assessment - History and physical examination - Antenatal Examination - Signs of previous child-birth ❑ Relationship of fetus to uterus and pelvis: Lie, Attitude, Presentation, position ❑ Per-vaginal examination. • Screening and assessment for high risk;	• Lecture discussion • Demonstration • Case discussion/ presentation • Health talk. • Practice session. • Counseling session. • Supervised clinical practice.	• Short answers • Objective types • Assessment of skills with check list • Assessment of patients manageme nt problems

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
			• Risk approach • History and Physical Examination • Modalities of diagnosis; Invasive & Non-Invasive, ultrasonic, cardiotomography, NST, CST • Antenatal preparation ❑ Antenatal counseling ❑ Antenatal exercises ❑ Diet ❑ Substance use ❑ Education for child-birth ❑ Husband and families ❑ Preparation for safe-confinement • Prevention from radiation • Psycho-social and cultural aspects of pregnancy ❑ Adjustment to pregnancy ❑ Unwed mother ❑ Single parent ❑ Teenage pregnancy ❑ Sexual violence • Adoption		
IV	12	• Describe the physiology and stages of labour • Describe the management of women during Intranatal period	**Assessment and management of intra-natal period** • Physiology of labour, mechanism of labour • Management of labour ❑ First stage - Signs and symptoms of onset of labour; normal and abnormal - Duration - Preparation of; □□ Labour room □□ Woman - Assessment and observation of women in labour; partogram-maternal and foetal monitoring - Active management of labour, Induction of labour - Pain relief and comfort in labour • Second stage ❑ Signs and symptoms; normal and abnormal ❑ Duration	• Lecture discussion • Demonstration • Case discussion presentation • Simulated practice • Supervised Clinical practice	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patients management problems

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
			❑ Conduct of delivery; Principles and techniques ❑ Episiotomies (only if required) ❑ Receiving the new born - Neonatal resuscitation; initial steps and subsequent resuscitation - Care of umbilical cord - Immediate assessment including screening for congenital anomalies - Identification - Bonding - Initiate feeding - Screening and transportation of the neonate • Third stage ❑ Signs and symptoms; normal and abnormal ❑ Duration ❑ Method of placental expulsion Management; Principles and Technique ❑ Examination of the placenta ❑ Examination of perineum • Maintaining records and report. • Fourth Stage		
V	6	• Describe the physiology of puerperium • Describe the management of woman during postnatal period	**Assessment and management of women during post natal period** • Normal puerperium; Physiology, Duration • Postnatal assessment and management ❑ Promoting physical and emotional well-being ❑ Lactation management ❑ Immunization • Family dynamics after childbirth. • Family welfare services; methods, counseling • Follow-up • Records and reports	• Lecture discussion • Demonstration • Heath talk • Practice Session • Supervised Clinical practice	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patient manageme nt problems
VI	7	• Describe the assessment and management of normal neonate	**Assessment and management of normal neonates** • Normal neonate; ❑ Physiological adaptation; ❑ Initial & Daily assessment ❑	• Lecture discussion • Demonstration • Practice Session	• Essay types • Short answers • Objective types

Unit	Time Hrs.	Learning Objective	Content	Teaching learning Activities	Assessment method
			❑ Essential newborn care; Thermal control, ❑ Breast feeding, prevention of infections • Immunization • Minor disorders of newborn and its management • Levels of neonatal care (level I, II, & III) • At primary, secondary and tertiary levels • Maintenance of Reports and Records	• Supervised Clinical practice	• Assessment of skills with check list • Assessment of patient managemen t problems

VII	10	• Describe the identification and management of woman with high risk pregnancy	**High – risk pregnancy – assessment & management** • Screening and assessment ❑ Ultrasonics, cardiotomography, NST, CST, non-invasive & invasive, ❑ Newer modalities of diagnosis • High-risk approach • Levels of care; primary, secondary and tertiary levels • Disorders of pregnancy Hyper-emesis gravidarum, bleeding in early pregnancy, Abortion, ectopic Pregnancy, vesicular mole, ❑ Ante-partum hemorrhage. • Uterine abnormality and displacement. • Diseases complicating pregnancy ❑ Medical and surgical conditions ❑ Infections, RTI (STD), UTI, HIV, TORCH ❑ Gynecological diseases complicating pregnancy ❑ Pregnancy induced hypertension & diabetes, toxemia of pregnancy, hydramnios. ❑ Rh incompatibility ❑ Mental disorders • Adolescent pregnancy, elderly primi and grand multipara.	• Lecture discussion • Demonstrate using video films, scan reports, partograph etc. • Case discussion/ presentation • Health talk Practice session • Supervised Clinical prentice	• Essay types • Short answers • Objective types • Assessmen t of skills with check list. • Assessmen t of patients manageme nt problems

			• Multiple pregnancy • Abnormalities of placenta & cord		
Unit	**Time Hrs.**	**Learning Objective**	**Content**	**Teaching learning Activities**	**Assessment method**
			• Intra-uterine growth-retardation • Nursing management of mothers with high-risk pregnancy Maintenance of records and report		
VIII	10	• Describe management of abnormal labour And obstetrical emergencies	**Abnormal Labour-assessment and management** • Disorders in labour ❑ CPD and contracted pelvis ❑ Malpositions and malpresentations ❑ Premature labour, disorders of uterine actions-precipitate labour, prolonged labour ❑ Complications of third stage: Injuries to birth canal • Obstetrical emergencies and their management; ❑ Presentation and prolapse of cord, Vasa praevia, amniotic fluid embolism, rupture of uterus, shoulder dystocia, obstetrical shock • Obstetrical procedures and operations; ❑ Induction of labour, forceps, vacuum, version, manual removal of placenta, caesarean section, destructive operations Nursing management of women Undergoing Obstetrical operations and procedures	• Lecture discussion • Demonstration • Case discussion/ presentation • Practice Session • Supervised Clinical prentice	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patients management problem
IX	4	Describe management of post natal complications	**Abnormalities during Postnatal Periods** • Assessment and management of woman with postnatal complications ❑ Puerperal infections, breast engorgement & infections, UTI, thrombo-Embolic disorders, post - partum hemorrhage, Eclampsia and sub involution. ❑ Psychological complications: - Post partum Blues - Post partum Depression - Post partum Psychosis	• Lecture discussion • Demonstration • Case discussion/ presentation • Supervised Clinical practice.	• Essay types • Short answers • Objective types • Assessment of skills with check list • Assessment of patients management problem
X	10	• Identify the	**Assessment and management of**	• Lecture	• Essay types

		high risk neonates	**High risk newborn** • Admission of neonates in the	discussion • Demonstration	• Short answers
Unit	**Time Hrs.**	**Learning Objective**	**Content**	**Teaching learning Activities**	**Assessment method**
		and their nursing management	• neonatal intensive care units – protocols • Nursing management of**:** ❑ Low birth weight babies ❑ Infections ❑ Respiratory problems ❑ Hemolytic disorders ❑ Birth injuries ❑ Malformations • Monitoring of high risk neonates • Feeding of high risk neonates • Organization and management of neonatal intensive care units • Infection control in neonatal intensive care units Maintenance of reports and records	• Case discussion/ presentation • Practice Session • Supervised Clinical prentice	• Objective types • Assessment of skills with check list • Assessment of patients management problem
XI	4	• Describe indication, dosage action, side effects and nurses responsibilities in the administration of drugs for mothers	**Pharmaco-therapeutics in Obstetrics** • Indication, dosage, action, contra-indication and side effects of drugs • Effect of drugs on pregnancy, labour & puerperium, • Nursing responsibilities in the administration of drug in obstetrics – Oxytocins, antihypertensives, diuretics, tocolytic agents, anticonvulsants, • Analgesics and anesthetics in obstetrics. Effects of maternal medication Fetus and neonate	• Lecture discussion • Drug presentation • Drug book.	• Short answers • Objective types
XII	10	• Appreciate the importance of family welfare programme • Describe the methods of contraception and role of nurse in family welfare programme	**Family Welfare programme** • Population trends and problems in India • Concepts, aims, importance and history of family welfare programme • National Population: dynamics, policy and education • National family welfare programme; RCH, ICDS, MCH. Safe motherhood • Organization and administration; at national, state, district, block and village levels • Methods of contraception; spacing, temporary and permanent, Emergency contraception • Infertility and its management • Counseling for family welfare • Latest research in contraception • Maintenance of vital statistics • Role of national, international and voluntary organizations • Role of a nurse in family welfare programme • Training/supervision/Collaboration with other functionaries in community like ANMs. LHVs.	• Lecture discussion • Demonstration • Practice Session • Supervised practice • Group project • Counseling session • Field visits	• Essay types • Short answers • Objective types • Assessment of skills with check list • Project and field visits reports

			Anganwadi workers, TBAs (Traditional birth attendant Dai)		

MIDWIFERY AND OBSTETRICAL NURSING- PRACTICAL

Placement: Third Year
Fourth year

Time: Practical – 180 hrs (Third year)
Internship - 240 hrs.

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessments Methods
Antenatal clinic /OPD	2	• Assessment of pregnant women	• Antenatal history taking • Physical examination • Recording of Weight & B.P. • Hb & Urine testing for sugar and albumin • Antenatal examination-abdomen and breast • Immunization • Assessment of risk status • Teaching antenatal mothers • Maintenance of Antenatal records	• Conduct antenatal examinations-30 • Health talk-1 • Case book recordings	• Verification of findings of Antenatal examinations • Completion of casebook recordings
Labour room O.T	4	• Assess woman in labour • Carry out per-vaginal examination • Conduct normal deliveries • Perform Episiotomy and suture it • Resuscitate newborns • Assist with Caesarean Sections, MTP and other surgical procedure.	• Assessment of Woman in labour • Pervaginal examinations and interpretation • Monitoring and caring of woman in labour • Maintenance of partograph • Conduct normal delivery • New born assessment and immediate care • Resuscitation of newborns • Assessment of risk status of newborn • Episiotomy and suturing • Maintenance of labour and birth records • Arrange for and assist with caesarean section and care for woman & baby during Caesarean • Arrange for and assist with MTP and other surgical procedure	• *Conduct normal deliveries –20 • * Pervaginal examinations-5 • Perform and Suture the episiotomies – 5 • *Resuscitate newborns-5 • *Assist with Caesarean Section-2 • *Witness abnormal deliveries –5 • Assist MTP and other surgical procedures-1 • Case book recordings	• Assessment of clinical performance with rating scale • Assessment of each skill with checklists • Completion of Case book recordings

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessments Methods
Post natal ward	4	• Provide nursing care to post natal mother and baby • Counsel and teach mother and family for parent hood	• Examination and assessment of mother and Baby • Identification of deviations • Care of postnatal mother and baby • Perineal care • Lactation management • Breast feeding • Baby bath • Immunization • Teaching postnatal mother: ❑ Mother craft ❑ Post natal care & Exercises ❑ Immunization	• *Give care to post natal mothers-20 • Health talk-1 • Casestudy-1 • Case presentation –1 • Case book recordings	• Assessment of clinical performance • Assessment of each skill with checklist • Completion of case book recording • Evaluation of case study and presentation and health education sessions
New born nursery	2	• Provide nursing care to newborn at risk	• Newborn assessment • Admission of neonates • Feeding of at risk neonates ❑ Katori spoon, paladi, tube feeding, total parenteral nutrition • Thermal management of neonates-kangaroo mother care, care of baby in incubator • Monitoring and care of neonates • Administering medications • Intravenous therapy • Assisting with diagnostic procedure • Assisting with exchange transfusion • Care of baby on ventilator • Photo therapy • Infection control protocols in the nursery • Teaching and Counselling of parents • Maintenance of neonatal records	• Case study-1 • Observation study-1	• Assessment of clinical performanc e • Assessment of each skill with checklists • Evaluation and observation study
Family planning clinic	Rotation from post natal ward I -	• Counsel for and provide family welfare	• Counselling techniques • Insertion of IUD • Teaching on use of family planning	• *** IUD insertion-5** • Observation study –1	• Assessment of each skill with checklist

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessments Methods
	week	• services	• methods • Arrange for and assist with family planning operations • Maintenance of record and reports	• Counselling-2 • Simulation exercise on recording and reporting –1 •	• Evaluation of and observation study

* Essential Requirements for registration as midwife

- ♦ Antenatal examination 30
- ♦ Conducting normal deliveries in hospital/home/health center 20
- ♦ Vaginal examination 5
- ♦ Episiotomy and suturing 5
- ♦ Neonatal resuscitation 5

- ♦ Assist with Caesarean Section 2
- ♦ Witness/Assist abnormal deliveries 5
- ♦ Postnatal cases nursed in hospital/home/health center. 20
- ♦ Insertion of IUD 5

Note: All casebooks must be certified by teacher on completion of essential requirements**.**

Internship Obstetrical Nursing

Internship Duration – 5 weeks (240 hours)

Area	Duration (In Weeks)	Objective	Skills	Assignment	Assessment methods
Labour ward Neonatal intensive care unit/NICU Antenatal	2 1 2	• Provide comprehensive care to mothers and neonates	• Integrated practice	• Completion of other essential requirement • Case book recordings.	• Assess clinical performance with rating scale • Completion of case book recording

COMMUNITY HEALTH NURSING - II

Placement: Fourth year

Time: Theory - 90 hrs.
Practical - 135 hrs.

Course Description: This course is designed for students to practice community health nursing for the individual, family and groups at both urban and rural settings by using concepts and principles of health and community health nursing.

Unit	Time Hrs.	Learning Objectives	Contents	Teaching Learning Activates	Assessment methods
I	4	• Define concepts, scope, principles and historical development of Community Health and community health Nursing	**Introduction** • Definition, concept & scope of Community Health and Community Health Nursing. • Historical development of ❑ Community health ❑ Community health Nursing ○ Pre-independence ○ Post-independence	• Lecture discussion	• Essay type • Short Answers
II	6	• Describe health plans, policies, various health committees and health problems in India	**Health planning and policies and problems** • National health planning in India Five Year Plans • Various committees and commissions on health and family welfare ❑ Central Council for Health and family welfare (CCH and FW) ❑ National health policies (1983, 2002) ❑ National population policy • Health problems in India	• Lecture discussion • Panel discussion	• Essay type • Short Answers
III	15	• Describe the system of delivery of community health services in rural and urban areas • List the functions of various levels and their staffing pattern Explain the Components of health services	**Delivery of community health services** • Planning, budgeting and material management of SCs, PHC and, CHC • **Rural:** Organization staffing and functions of rural health services provided by government at: ❑ Village ❑ Sub centre ❑ Primary health center ❑ Community health Centre/ sub divisional ❑ Hospitals ❑ District	• Lecture discussion • Visits to various health delivery systems • Supervised field practice • Panel discussion	• Essay type • Short Answers

Unit	Time Hrs.	Learning Objectives	Contents	Teaching Learning Activates	Assessment methods
		• Describe alternative • Systems of health promotion and health maintenance. • Describe the chain of referral system.	❑ State ❑ Centre • **Urban:** Organization, staffing and functions of urban health services provided by government at: ❑ Slums ❑ Dispensaries ❑ Maternal and child health centers ❑ Special Clinics ❑ Hospitals ❑ Corporation/Municipality/ Board • Components of health services ❑ Environmental sanitation ❑ Health education ❑ Vital statistics ❑ M.C.H. antenatal, natal, postnatal, MTP Act, female foeticide act, child adoption act. ❑ Family welfare ❑ National health programmes ❑ School health services ❑ Occupational health ❑ Defense services ❑ Institutional services • Systems of medicine and health care ❑ Allopathy ❑ Indian system of Medicine and Homeopathy ❑ Alternative health care systems like yoga, meditation, social and spiritual healing etc. • Referral system		
IV	25	• Describe Community Health Nursing approaches and concepts • Describe the roles and responsibility of Community health nursing Personnel	**Community health nursing approaches, concepts and roles and responsibilities of nursing personnel** • Approaches ❑ Nursing theories and nursing process ❑ Epidemiological approach ❑ Problems solving approach ❑ Evidence based approach ❑ Empowering people to care for themselves ❑	• Lecture discussion • Demonstration • Practice session • Supervised field practice • Participation in camps • Group project	• Essay type • Short Answers

Unit	Time Hrs.	Learning Objectives	Contents	Teaching Learning Activates	Assessment methods
			• Concepts of Primary Health Care: ❑ Equitable distribution ❑ Community participation ❑ Focus on prevention ❑ Use of appropriate technology ❑ Multi-sectoral approach ❑ Roles and responsibilities of Community health nursing personnel in – ❑ Family health services ❑ Information Education communication (IEC) ❑ Management Information System (MIS): Maintenance of Records & reports ❑ Training and supervision of various categories of health workers ❑ National Health Programmes ❑ Environmental sanitation ❑ Maternal and child health and Family welfare ❑ Treatment of minor ailments ❑ School Health Services ❑ Occupational Health ❑ Organization of clinics, camps: Types, Preparation, Planning, conduct and evaluation ❑ Waste management in the center, clinics etc. • Home visit: Concept, Principles, Process, Techniques: Bag technique in home visit • Qualities of Community Health Nurse • Job Description of Community health nursing personnel		
V	15	• Describe and appreciate the activities of community health nurse in assisting	**Assisting individuals and groups to promote and maintain their health** • Empowerment for self care of individuals, families and groups in-	• Lecture discussion • Demonstration • Practice session • Supervised filed practice	• Essay type • Short Answers

Unit	Time Hrs.	Learning Objectives	Contents	Teaching Learning Activates	Assessment methods
		individuals and groups to promote and Maintain their health	**A- Assessment of self and family** ❑ Monitoring growth and development o Mile stones o Weight measurement o Social development ❑ Temperature and Blood pressure monitoring ❑ Menstrual cycle ❑ Breast self examination and testicles examination ❑ Warning Sign of various diseases ❑ Tests: Urine for sugar and albumin, blood sugar **B- Seek health services for** ❑ Routine checkup ❑ Immunization Counseling ❑ Diagnosis ❑ Treatment ❑ Follow up **C- Maintenance of health Records for self and family** **D- Continue medical care and follow up in community for various diseases and disabilities.** **E - Carryout therapeutic procedures as prescribed/required for self and family** **F- Waste Management** • Collection and disposable of waste at home and community **G- Sensitize and handle social issues affecting health an development for self and family** • Women Empowerment • Women and child abuse • Abuse of elders • Female Foeticide • Commercial sex workers • Food adulteration • Substance abuse **H- Utilize community resources for self and family** • Trauma services • Old age homes	• Individual group / family / community heath education	

Unit	Time Hrs.	Learning Objectives	Contents	Teaching Learning Activates	Assessment methods
			• Orphanage • Homes for physically and mentally challenged individuals Homes for destitute		
VI	20	• Describe national health and family welfare programmes and role of a nurse • Describe the various health schemes in India.	**National health and family welfare programmes and the role of a nurse** 1. National ARI programme 2. Revised National Tuberculosis Control programme (RNTCP) 3. National Anti-Malaria programme 4. National Filaria Control programme 5. National Guinea worm eradication programme National Leprosy eradication programme 7. National AIDS control programme 8. STD control programme 9. National programme for control of blindness 10. Iodine deficiency disorder programme 11. Expanded programme on immunization 12. National Family welfare programme- RCH programmes historical development organization, administration, research, and constraints. 13. National water supply and sanitation programme 14. Minimum Need programme 15. National Diabetics control programme 16. Polio Eradication: Pulse Polio Programme 17. National Cancer Control Programme 18. Yaws Eradication Programme 19. National Nutritional Anemia Prophylaxis programme 20. 20 point programme 21. ICDS programme 22. Mid-day meal applied nutritional programme	• Lecture discussion • Participation in national heath programmes • Field visits	• Essay type • Short Answer

Unit	Time Hrs.	Learning Objectives	Contents	Teaching Learning Activates	Assessment methods
			23. National mental heath programme • Health schemes ▫ ESI ▫ CGHS Health insurance		
VII	5	• Explain the roles and functions of various national and international health agencies	• **Health Agencies** **International** – WHO, UNFPA, UNDP, World Bank, FAO, UNICEF, DANIDA, European Commission (EC), Red cross, USAID, UNESCO, Colombo Plan, ILO, Care etc. **National –** Indian red cross, Indian Council for child welfare, family planning Association of India (FPAI), Tuberculosis Association of India. Hindu Kusht Nivaran Sangh, Central Social Welfare Board, All India women's conference, Blind Association of India etc.	• Lecture discussion • Field visits	• Essay type • Short Answers

COMMUNITY HEALTH NURSING - II- PRACTICAL

Placements: Fourth year

Time: - Practical -135 hrs
Internship- 195 hrs.

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessment Methods
Comm-unity health nursing	1 week for urban 4 week for rural	• Identify community profile • Identify prevalent communicable and non communicable disease • Diagnose health needs of Individual, families and community • Plan, provide and evaluate care • Participate in school health programmes • Participate in national heath programmes • Organize group for self help and involve clients in their own health activities. • Provide family welfare services • Counsel and educate individual, family and community • Collect Vital health statistics • Maintain Records & Reports	• Community health survey • Community diagnosis • family care: Home adaptation of common procedures • Home visit: Bag technique • Organize and conduct clinics- antenatal, postnatal, well baby clinic, camps etc • Screen manage and referrals for: ❑ High risk mothers and neonates ❑ Accidents and emergencies ❑ Illnesses: Physical and mental ❑ Disabilities • Conduct delivery at center / home: • Episiotomies and suturing • Resuscitate newborn • School health programme ❑ Screen, manage, refer children ❑ Collaborate with health and allied agencies • Train and supervise health workers • Provide family welfare services: insertion of IUD • Counsel and teach	• Community survey report-1 • Family care study-1 • Project-1 • Heath talk-1 • Case book recoding	• Assess clinical performanc e with rating scale • Evaluation of community survey report, family care study, project and health talk • Completion of activity record. • Completion of case book recording

Areas	Duration (in week)	Objectives	Skills	Assignments	Assessment Methods
			• individuals, family and community about: HIV, TB, Diabetes, hypertension, mental health, adolescents, elderly health, Physically and mentally challenged individuals etc. • Collect and calculate vital health statistics • Document and maintain ❑ Individual, family and administrative records. ❑ Write reports – center, diseases, national health programme/projects.		

Placement: Internship **Time:** 195 hrs (4 weeks)

Area	Duration	Objective	Skills	Assessment
Urban	**4 weeks**	• Provide comprehensive care to individual, family and community	• Integrated Practice and group project - I in each rural and urban	• Assess clinical performance with rating scale • Evaluation of project

Note: During the rural posting they should stay in health Centre under the supervision of teachers.

NURSING RESEARCH AND STATISTICS

Placements: Fourth year
Internship

Time: Theory - 45 hrs.
Practical - 45 hrs.

Course Description: This course is designed to enable students to develop an understanding of basic concepts of research, research process and statistics. It is further, structured to conduct/ participate in need based research studies in various setting and utilize the research findings to provide quality-nursing care. The hours for practical will be utilized for conducting individual/group research project.

Unit	Time hrs.	Learning Objectives	Content	Training Learning Activities	Assessment Methods
I	4	• Describe the concept of research, terms, need and areas of research in nursing • Explain the steps of research process.	**Research and research process** • Introduction and need for nursing research • Definition of Research & nursing research • Steps of scientific method • Characteristics of good research • Steps of Research process-overview	• Lecture Discussion • Narrate steps of research process followed from examples of published studies	• Short answer • Objective type
II	3	• Identify and state the research problem and objectives	**Research Problems/Question** • Identification of problem area • Problem statement • Criteria of a good research problem. • Writing objective	• Lecture discussion • Exercise on writing statement of problem and objectives	• Short answer • Objective type
III	3	• Review the related literature	**Review of Literature** • Location • Sources • On line search; CINHAL, COCHRANE etc. • Purposes • Method of review	• Lecture discussion • Exercise on reviewing one research report/ article for a selected research problem • Prepare annotated bibliography	• Short answer • Objective type
IV	4	• Describe the research approaches and designs	**Research approaches and designs** • Historical, survey and experimental • Qualitative and Quantitative designs	• Lecture discussion • Explain types of research approaches used from examples of published and unpublished research studies with rationale.	• Short answer • Objective type
V	8	• Explain the sampling process • Describe the	**Sampling and data collection** • Definition of population, sample, Sampling criteria,	• Lecture discussion • Reading assignment on examples of data	• Short answer • Objective type

Unit	Time hrs.	Learning Objectives	Content	Training Learning Activities	Assessment Methods
		methods of data collection	factors influencing sampling Process, types of sampling Techniques. • Data- why, what, from, whom, when and where to collect. • Data Collection methods and instruments: ❑ Methods of data collection ❑ Questioning, interviewing ❑ Observations, record analysis and measurement ❑ Types of instruments ❑ Validity & Reliability of the Instrument ❑ Pilot study ❑ Data collection procedure	collection tools Preparation of sample data collection tool • Conduct group research project	
VI	4	Analyze, Interpret and summarize the research data	**Analysis of data:** • Compilation, Tabulation, classification, summarization, presentation, interpretation of data	• Lecture discussion • Preparation of sample table.	• Short answer • Objective type
VII	15	• Explain the use of statistics, scales of measurement and graphical presentation of data • Describe the measures of central tendency and variability and methods of correlation.	**Introduction to statistics** • Definition, use of statistics, scales of measurement. • Frequency distribution and graphical presentation of data • Mean, Median, Mode, Standard deviation • Normal probability and tests of significance • Co-efficient of correlation. • Statistical packages and its application	• Lecture discussion • Practice on graphical presentations • Practice on computation of measures of central tendency, variability & correlation	• Short answer • Objective type
VIII	4	• Communicate and utilize the research findings	**Communication and utilization of Research** • Communication of research findings ❑ Verbal report ❑ Writing research report ❑ Writing scientific article/paper - Critical review of published research - Utilization of research findings	• Lecture discussion • Read/Presentations of a sample published/ unpublished research report • Writing group research project	• Short answer • Objective type • Oral presentation • Assessment of group research project

MANAGEMENT OF NURSING SERVICES AND EDUCATION

Placement: Fourth year **Time:** Theory - 90 hrs.

Course Description: This course is designed to enable students to acquire understanding of management of clinical and community health nursing services, nursing educational programmes. This is also designed to enable students to acquire understanding of the professional responsibilities, prospects and contribution to the growth of the profession.

Unit	Time (hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				
I	4		Explain the principles and functions of management	**Introduction to management in nursing** • Definition, concepts and theories • Functions of management • Principles of management • Role of nurse as a manager	• Lecture Discussion • Explain using organization chart	• Short answers
II	5		• Describe the elements and process of management	**Management process** • Planning; mission, philosophy, objectives, operational plan • Staffing: philosophy, staffing study, norms, activities, patient classification systems, scheduling. • Human resource management; recruiting, selecting, deployment, retaining, promoting, super annuation etc. • Budgeting: concept, principles, types, cost benefit analysis, audit • Material management: equipment and supplies • Directing process (Leading) • Controlling: Quality management • Program Evaluation Review Technique (PERT), Bench marking, Activity plan (Gantt Chart).	• Lecture Discussion • Simulated Exercises • Case studies	• Essay type • Short answers

Unit	Time (hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				
III	8	20	• Describe the Management of nursing service in the hospital and Community	**Management of nursing services in the hospital and Community** • Planning: ❑ Hospital and patient care units including ward management ❑ Emergency and disaster management • Human resource Management: ❑ Recruiting, selecting, deployment, retaining, promoting, superannuation etc. ❑ Categories of nursing personnel including job description of all levels ❑ Patient/population classification systems ❑ Patients/ population assignment and nursing care responsibilities ❑ Staff development and welfare • Budgeting: proposal, projecting requirements for staff, equipments and supplies for - ❑ Hospital and patient care units ❑ Emergency and disaster management • Material Management; procurement, inventory control, auditing and maintenance in - ❑ Hospital and patient care units ❑ Emergency and disaster management • Directing and leading: delegation, participatory management - ❑ Assignments, rotations, delegations ❑ Supervision & guidance ❑ Staff development and welfare	• Lecture Discussion • Demonstration • Simulated Exercises • Case studies • Supervised practice in ward – writing indents, preparing duty roaster, ward supervision • Assignment on duties and responsibilities of ward sister • Writing report	• Essay type • Short answers • Assessment of problem solving Exercises, • Assessment of the assignment • Performance evaluation by ward sister with rating scale

Unit	Time (Hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				
				❑ Maintenance of discipline • Controlling/Evaluation: ❑ Nursing Rounds/Visits, nursing protocols, manuals ❑ Quality Assurance Model, documentation ❑ Records and reports performance appraisal		
IV	5		• Describe the concepts, theories and techniques of Organizational behaviour and human relations	**Organizational behaviour and human relations** • Concepts and theories of organizational behaviour • Review of Channels of Communication • Leadership styles • Review of Motivation; concepts and theories • Group dynamics • Techniques of; ❑ Communication; and ❑ Interpersonal relationships ❑ Human relations; • Public relations in Context of nursing • Relations with professional associations and employee unions and Collective bargaining	• Lecture Discussion • Role plays • Group games • Self Assessment • Case discussion • Practice Session	• Essay type • Short answers • Assessment of problem solving
V	5	5	• Participate in planning and organizing in service education Programme	**In Service education** • Nature & scope of in-service education programme. • Organization of in-service education • Principles of adult learning • Planning for in-service education Programme, • Techniques, methods & Evaluation of staff education Programme, • Preparation of report	• Lecture Discussion • Plan & conduct an education session for in service nursing personnel	• Short Answers • Objective type • Assess the planning & conduct of the educational session
VI	10		• Describe management of Nursing educational institutions	**Management of nursing educational institutions** • Establishment of nursing educational institution – INC norms and guidelines	• Lecture Discussion • Role plays • Counseling session • Group Exercises	• Essay type • Short Answers

Unit	Time (Hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th	Pr.				
				• Co-ordination with- ❑ Regulatory bodies ❑ Accreditation ❑ Affiliation - Philosophy/ Objectives - Organization ❑ Structure ❑ Committees - Physical facilities ❑ College/School ❑ Hostel - Students ❑ Selection ❑ Admission ❑ Guidance and Counseling ❑ Maintaining discipline - Faculty and staff ❑ Selection ❑ Recruitment ❑ Job description ❑ Placement ❑ Performance appraisal ❑ Development and welfare • Budgeting • Equipments and supplies: audiovisual equipments, laboratory equipment, books, journals etc. • Curriculum; Planning, implementation and evaluation, • Clinical facilities • Transport facilities • Institutional Records and reports – Administrative, faculty, staff and students		
VII	10		• Describe the ethical and legal responsibilities of a professional nurse • Explain the nursing practice standards	**Nursing as a profession** • Nursing as a profession ❑ Philosophy; nursing practice ❑ Aims and objectives Characteristics of a Professional nurse ❑ Regulatory bodies; INC, SNC Acts: -constitution, functions ❑ Current trends and issues in nursing	• Lecture discussion • Case discussion • Panel discussion • Role plays Critical incidents	• Short Answers • Assessment of critical incidents

Unit	Time (Hrs.)		Learning Objectives	Content	Learning Teaching Activate	Assessment methods
	Th.	Pr.				
				• Professional ethics ❑ Code of ethics; INC, ICN ❑ Code of Professional conduct; INC, ICN • Practice standards for Nursing; INC • Consumer protection act • Legal Aspects in nursing ❑ Legal terms related to practice; registration and licensing ❑ Laws related to nursing practice; Breach and penalties ❑ Malpractice and negligence	• Visit to INC/ SNRCs	
VIII	3		• Explain the various Opportunities for professional advancement	**Professional Advancement:** • Continuing education • Career Opportunities • Collective bargaining • Membership with professional organizations; National and International • Participation in research activities • Publications; Journals, Newspapers etc.	• Lecture Discussion • Review/presentation of published articles • Group work on maintenance of bulletin board	• Short Answers • Assessment of critical incidents

----