PEOPLE'S UNIVERSITY, BHOPAL

(Applicable for Admitted from Academic Session 2019-20 onwards)

Programme: **B. Tech. (Mechanical Engineering)** **Semester –V**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total
BT-1501	Entrepreneurship & IPR	3	1	-	(70)	(30)	Min: 40 (D Grade)	Nil	Nil	Nil

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 20	Assignment/Quiz/Attendance Max. Marks: 10
Practical Internal Max Marks: Nil	Lab work & Sessional – Max Marks: Nil	Assignment / Quiz/Attendance Max. Marks: Nil

Pre-Requisite	Nil
Course Outcome	1. Create and exploit innovative business ideas and market opportunities.
	2. Turn market opportunities into a business plan.
	3. Demonstrate and present successful work, collaboration and division of tasks in a multidisciplinary and multicultural team.

Unit	Contents	Marks Weightage
I	**Entrepreneurship:** Definition and Functions of an Entrepreneur; Qualities of a good entrepreneur; Role of Entrepreneur in Economic Development; Theories of entrepreneur, Socio, Economic, Cultural and Psychological; Entrepreneur Traits and Behavior, Roles in economic growth, employment, social stability, export promotion and indigenization, Creating A Venture, Opportunity Analysis Competitive and Technical Factors, Sources of Fund. Forms of Business Organizations/Ownership - Formation of a Company - procedures and formalities for setting up of New Industry-Sources of information to contact for what and where.	**14**
II	**Management:** Importance, Definition and functions; Dimensions of Organizations, Size/Specialization, Behavior Formalization, Authority Centralization, Departmentalization, Spam and Line of Control, Technology and Minzberg Organization Typology, Line, Staff & Matrix Organization. **Motivation Theories** - Maslow, Mc Cullen - Motivation model - need, want, motive and Behavior-Attitude Towards work - Self Assessment and Goal Setting - Achievement, Motivation and Behavior Measurement, SWOT analysis and TA analysis - Stress and Conflict Management; with uncertainty; Creativity and Innovation.	**14**
III	**Marketing:** Importance, Definition, Core Concepts of need want and Demand, Project identification and formulation: Sources of Information - Opportunity Guidance - Choice of Technology and its evaluation; Consumer Behavior; Market Survey and research; Preliminary Project Report, Detailed Project Report, Assessing Viability and feasibility of a report. Exchange & Relationships, Product Value, Cost and satisfaction (goods and services) Marketing Environment; Selling, Marketing and Societal Marketing Concepts; Four P's, Product, Price, Placement, Promotion. **Finance:** Nature and Scope, Forms of Business Ownerships, Balance Sheet, Profit and loss Account, Fund Flow and Cash Flow Statements, Breakeven Point (BEP) and Financial Ratio analysis, pay-back period, NPV and capital budgeting. Subsidies and concessions for SSI - role of State and Central Government Agencies in Promotion of Small Scale Industry	**14**
IV	**Concept of Property:** Theories of Property, Types of Intellectual Property- Origin and Development, Theories of Intellectual Property Rights, Need for Protecting Intellectual Property, Commercialization of Intellectual Property Rights by Licensing, Determining	**14**

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	Financial Value of Intellectual Property Rights, Negotiating Payments Terms in Intellectual Property Transaction	
V	**Introduction to Patent Law**, (a) Paris Convention , (b) Patent Cooperation Treaty, (c) WTO- TRIPS , Indian Patent Law, The Patents Act, 1970, Patentable Subject Matter, Patentability Criteria, Procedure for Filing Patent Applications, Patent Granting Procedure, Revocation, Patent Infringement and Remedies, Relevant Provisions of the Biological Diversity Act, 2002, Access and Benefit Sharing Issues	**14**

Text Book/References Books/ Websites:

1 Desai, N Arvind; Envirsnment and Entrepreneure; Ashish Publishing House, New Delhi.
2 P.Saravanavel ; Entrepreneurial Development;
3 Tandon B.C ; Environment and Entrepreneur; Asian Publishers, New Delhi.
4 P Narendra Singh.; Emerging Trends in Entrepreneurship Development Theories & Practices – Entrepreneurship.
5 Gangadhara N Rao ; Growth of Enterprise in Industrial Estates.

Suggested List of Laboratory Experiments (Expandable):- Nil

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total
MET-1502	Power Plant Engineering	3	1	-	(70)	(30)	Min: 40 (D Grade)	Nil	Nil	Nil

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 20	Assignment/Quiz/Attendance- Max. Marks: 10
Practical Internal Max Marks: Nil	Lab work & Sessional – Max Marks: Nil	Assignment / Quiz/Attendance- Max. Marks: Nil

Pre-Requisite	Student should have basic knowledge of Thermodynamics Engineering.
Course Outcome	1. Understand and discuss the energy resources and energy systems available for the production.
	2. Analyze the efficiency and output of modern Rankine cycle steam power plants with superheat, reheat, regeneration, and irreversibilities.
	3. Explain the basic principles of nuclear power plants, such as pressurized-water, boiling-water, and heavy-water reactors.

Unit	Contents (Theory)	Marks Weightage
I	**Introduction:** General Sources of Power, Importance of Central Power Stations, Types of Power Stations – Steam, Nuclear, Diesel and hydro – Elements of Modern Thermal Power stations, brief layout and arrangement of elements and complements, Sitting layout of different power stations, Foundation, Elements of Electric power systems primary and secondary distribution substations.	**14**
II	**Thermal Power Plant:** Steam power plants selection of working medium, Heat Balance in steam cycles, Heat rates, Comparison of Efficiencies Gas Loop, Fuels and fuel handling System and Ash handling System ,Air pre-heater, Feed water pre-heaters, Steam Re-heaters, De aerators, Feed water treatment, Pumping and Regulation Water Walls, Steam Boilers, Cooling tower, Important instrumentation and piping of gas and water loop. Factors to be controlled from Maximum Efficiency and Variable Output.	**14**
III	**Nuclear Power Station:** Evolution of Nuclear Energy from atoms by fission and fusion, Chain Reactions, Fission Materials, Types of reactors, gas cooled, Boiling water liquid, Metal cooled and fast reactor, Arrangements of various elements in a Nuclear Power Station, Steam Cycles and boilers coolant heat exchangers, Reactor control, Reactor shielding and safety methods.	**14**
IV	**Hydro Electric power station** – Potential power with Reference to Rainfall and catchments area, Water storage, Equipment used in hydro electric power stations, Characteristics of hydraulic turbines, Comparison of the factors governing the cost of hydro steam and diesel power stations. **Non Conventional Power Plant**: principal selection features and layout of Solar, wind, tidal, geothermal, ocean, bio energy.	**14**
V	**Variable load problems:** Idealized and realized load curves, Effect of variable load on plant design and Operation variable load operation and load dispatch. **Power station Economics:** Source of income, Cost of plant and production, Elements of cost, depreciation and replacement theory of rates.	**14**

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Text Book/References Books/ Websites:

1. P. K. Nag Power plant engineering Tata McGraw Hill.
2. Fredrick T. Mosse Power plant engineering East-West press.
3. A. Chkrabarti and M. L. Soni A text book of Power System Engineering Dhanpat Rai and Co.
4. Arora and Domkundwar A course in power plant engineering Dhanpat Rai and Co.
5. Thomas C. Elliott, Standard handbook of power plant engineering 1997 Tata McGraw Hill.

Suggested List of Laboratory Experiments (Expandable):- Nil

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Programme: **B. Tech. (Mechanical Engineering)** **Semester –V**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total (50)
MET-1503	Theory of Machines -II (Dynamics)	3	1	1	(70)	(30)	Min: 40 (D Grade)	(35)	(15)	Min: 20 (D Grade)

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 20	Assignment/Quiz/Attendance Max. Marks: 10
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment / Quiz/Attendance Max. Marks: 05

Pre-Requisite	Student should have general knowledge Mechanical engineering.
Course Outcome	1. To understand working of various types of engines.
	2. To have firsthand knowledge of working of various systems in a vehicle.
	3. Develop a strong base to understand future developments in the field of engines

Unit	Contents (Theory)	Marks Weightage
I	**Dynamics of Engine Mechanisms**: Displacement, velocity and acceleration of piston; turning Moment on crankshaft, turning moment diagram; fluctuation of crankshaft speed.	**14**
II	**Governor Mechanisms**: Types of governor, characteristics of centrifugal governor, gravity and spring controlled centrifugal governor, hunting of centrifugal governor, inertia governor. Performance parameter: Sensitivity, stability, Isochronism, Governor effort and power controlling force diagram. Flywheel. Numerical.	**14**
III	**Gyroscope**: angular velocity and acceleration, gyroscopic torque/ couple; gyroscopic effect on naval ships; stability of two and four wheel vehicles, rigid disc at an angle fixed to a rotating shaft. **Dynamometer:** types, Prony brake, rope brake and band brake dynamometers, belt transmission dynamometer, torsion dynamometer, hydraulic dynamometer.	**14**
IV	**Balancing:** Balancing of Rotating Components: static balance, dynamic balance, balancing of rotating masses, two plane balancing, graphical and analytical methods, balancing of rotors, balancing machines, field balancing. Balancing of Reciprocating Parts: Balancing of single cylinder engine, balancing of multi cylinder; inline, radial and V type engines, firing order.	**14**
V	**Vibration:** types, One dimensional longitudinal, Transverse, and torsional vibrations, Natural frequency, Free and forced vibration of single degree of freedom systems; effect of damping; Effect of damping on vibrations, Different types of damping. Forced vibration, Forces and displacement, Transmissibility, Vibration Isolation, vibration absorber, Whirling of shafts with single rotor.	**14**

Text Book/References Books/ Websites:

1. Rattan SS; Theory of machines; TMH.
2. Ambekar AG; Mechanism and Machine Theory; PHI.
3. Sharma CS; Purohit K; Theory of Mechanism and Machines; PHI.
4. Thomas Bevan; Theory of Machines; Pearson/ CBS PUB Delhi.
5. Ghosh and Mallick, theory of machine & mechanism.
6. T. V. Ramachandra; Management of Municipal Solid Waste; TERI press.

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Programme: **B. Tech. (Mechanical Engineering)** **Semester –V**

Suggested List of Laboratory Practical (Expandable):

1. Analytical determination of velocity and acceleration in simple mechanism using Roven's M.
2. To study all inversions of four-bar mechanisms using models
3. Determination of velocity and acceleration in above using method of graphical differentiation
4. To perform experiment on Watt governor to prepare performance characteristic curves, and to find stability & sensitivity.
5. To perform experiment on Porter Governor to prepare performance characteristic curves, and to find stability & sensitivity.
6. To perform experiment on Hartnell Governor to prepare performance characteristic curves, and to find stability & sensitivity.
7. To perform static & dynamic balancing on static balancing machine apparatus.
8. To study of various types of dynamometer
9. Study of universal gyroscope
10. To find out frequency of damped free vibration and rate of decay of vibration-amplitude in the system
    To observe the phenomenon of 'whirl' in a horizontal light shaft and to determine the critical speed of the shaft.

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total (50)
MET-1504	Heat and Mass Transfer	3	1	1	(70)	(30)	Min: 40 (D Grade)	(35)	(15)	Min: 20 (D Grade)

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 20	Assignment/Quiz/Attendance Max. Marks: 10
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment / Quiz/Attendance Max. Marks: 05

Pre-Requisite	Student should have knowledge of Production Engineering.
Course Outcome	1. To understand the manufacturing methods, measurements, automation and quality control.
	2. To get the knowledge of CNC operations and G-code, M-code program.
	3. Classify different plastic molding processes, Extrusion of Plastic and Thermoforming.

Unit	Contents (Theory)	Marks Weightage
I	**Basic Concepts:** Modes of heat transfer, Fourier's law, Newton's law, Stefan Boltzmann law; thermal resistance and conductance, analogy between flow of heat and electricity, combined heat transfer process; **Conduction:** Fourier heat conduction equation, its form in rectangular, cylindrical and spherical coordinates, thermal diffusivity, linear one dimensional steady state conduction through a slab, tubes, spherical shells and composite structures, electrical analogies, critical-insulation-thickness for pipes, effect of variable thermal conductivity. Numerical**.**	**14**
II	**Extended surfaces (fins):** Heat transfer from a straight and annular fin (plate) for a uniform cross section; error in measurement of temperature in a thermometer well, fin efficiency, fin effectiveness, applications; **Unsteady heat conduction:** Transient and periodic conduction, heating and cooling of bodies with known temperatures distribution, systems with infinite thermal conductivity, Response of thermocouples.	**14**
III	**Convection:** Introduction, free and forced convection; principle of dimensional analysis, Buckingham 'pie' theorem, application of dimensional analysis of free and forced convection, empirical correlations for laminar and turbulent flow over flat plate and tubular geometry; calculation of convective heat transfer coefficient using data book.	**14**
IV	**Thermal radiation**: Nature of radiation, emissive power, absorption, transmission, reflection and emission of radiation, Planck's distribution law, radiation from real surfaces; radiation heat exchange between black and gray surfaces, shape factor, analogical electrical network, radiation shields. **Boiling and condensation:** Film wise and drop wise condensation; Nusselt theory for film wise condensation on a vertical plate and its modification for horizontal tubes; boiling heat transfer phenomenon, regimes of boiling, boiling correlations.	**14**
V	**Heat exchangers**: Types- parallel flow, counter flow; evaporator and condensers, overall heat transfers coefficient, fouling factors, log-mean temperature difference (LMTD), method of heat exchanger analysis, effectiveness of heat exchanger, NTU method; **Mass transfer:** Fick's law, equi-molar diffusion, diffusion coefficient, analogy with heat transfer, diffusion of vapour in a stationary medium.	**14**

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Programme: **B. Tech. (Mechanical Engineering)** **Semester –V**

Text Book/References Books/ Websites:

1. S.P. Sukhatme ; Heat Transfer; Tata McGraw Hill
2. J.P. Holman ; Heat Transfer; Tata McGraw Hill
3. K. Kannan ; Heat & Mass Transfer; Anuradha Agencies
4. Yunus A. Cengel ; Heat Transfer: A Practical Approach; McGraw Hill
5. Ghosh, Dastudhar ; Heat Transfer; Oxford University Press
6. D.S. Kumar ; Heat & Mass Transfer; S.K. Kataria & Sons.

Suggested List of Laboratory Experiments :- (Expandable):

1	To determine Thermal Conductivity of given metal rod
2	To study the transfer phenomenon and compare the performance of heat pipe with two geometrical similar pipes of copper and stainless steels
3	To measure the Emissivity of the test surface in comparison to black surface
4	To determine Forced convention heat transfer coefficient for flow through the given horizontal tube
5	To visualized the pool boiling over the heater wire in different regions up to the critical heat flux point at which the wire melts
6	To calibrate a thermocouple and find the corresponding curve-fit correlation
7	To determine the Stefan Boltzmann constant of radiant heat transfer
8	To determine the natural convection heat transfer coefficient for the vertical tube exposed to atmospheric air
9	To determine the Temperature difference (LMTD) and overall co-efficient of given Heat Exchanger
10	To determine Free convection from extended surfaces

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total (50)
MET-1505	Turbo Machinery	3	1	1	(70)	(30)	Min: 40 (D Grade)	(35)	(15)	Min: 20 (D Grade)

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 20	Assignment/Quiz/Attendance- Max. Marks: 10
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment / Quiz/Attendance Max. Marks: 05

Pre-Requisite	Basic knowledge of fluid kinematics and dynamics.
Course Outcome	1. Ability to understand the working principles of turbomachines and apply it to various types of machines
	2. Determine the velocity triangles in turbomachinery stages operating at design and offdesign conditions
	3. Determine the off-design behavior of turbines and compressors and relate it to changes in the velocity triangles

Unit	Contents	Marks Weightage
I	**Introduction to Turbo Machinery**: Basic principles, Classification, Impulse & Reaction type, Fundamental equations, Euler's equation, Impulse momentum principle, Force exerted by the jet on stationary flat and curved plate, degree of reaction. **Fluid system:** Hydraulic accumulator, Hydraulic intensifier, Hydraulic Press, Hydraulic crane, Hydraulic lift, Hydraulic Ram, Hydraulic coupling, Hydraulic torque converter, Air lift pump.	**14**
II	**Hydraulic Turbines:** Classification layout of hydraulic power plant, Different efficiencies, velocity triangles, design parameters, Maximum efficiency of, Pelton turbine, Francis turbine, Kaplan and Propeller turbines, Draft tubes- Types and functions, characteristic curve of hydraulic turbines, specific speed, governing of turbines. Numerical.	**14**
III	**Steam Turbine :** Principle and working of impulse and reaction turbines, pressure and velocity compounding, Velocity triangles for various types, stage efficiency, diagram efficiency, steam speed to blade speed ratio for optimum performance, losses in steam turbines, performance at part loads, governing of turbines. Numerical.	**14**
IV	**Centrifugal Pumps:** Classification and parts of centrifugal pump, different heads and efficiencies of centrifugal pump, Minimum speed for starting the flow, Maximum suction lift, Net positive suction head, characteristic curve of centrifugal pump, Cavitations, Need for priming. Numerical.	**14**
V	**Compressors:** Centrifugal Compressors**:** Stage velocity triangles, slip factor, power input factor, Stage work, Pressure developed, stage efficiency and surging and problems, Axial flow Compressors: Expression for pressure ratio developed in a stage, work done factor, efficiencies & stalling. Numerical.	**14**

Text Book/References Books/ Websites:

1. B.S Massey; Mechanics of Fluid; English Language Book Society (U.K.)
2. Jagdish Lal; Hydraulic Machines; S.K. Kataria & Sons
3. S.K. Som & G. Biswas ; Introduction to Fluid Mechanics and Fluid Machines TMH
4. R. K. Rajput; A text of Fluid Mechanic; S. Chand & Company Ltd.

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Suggested List Of Laboratory Experiments (Expandable):-

1. To study the constructional details of a Pelton turbine and draw its fluid flow circuit.
2. To draw the following performance characteristics of Pelton turbine-constant head, constant speed and constant efficiency curves.
3. To study the constructional details of a Francis turbine and draw its fluid flow circuit.
4. To draw the constant head, constant speed and constant efficiency performance characteristics of Francis turbine.
5. To study the construction details of a Kaplan turbine and draw its fluid flow circuit.
6. To draw the constant head, speed and efficiency curves for a Kaplan turbine.
7. To study the constructional details of a Centrifugal Pump and draw its characteristic curves.
8. To study the constructional details of a Reciprocating Pump and draw its characteristics curves.
9. To study the construction details of a Gear oil pump and its performance curves.
10. To study the constructional details of a Hydraulic Ram and determine its various efficiencies.
11. To study the constructional details of a Centrifugal compressor.
12. To study the model of Hydro power plant and draw its layout.

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total	External	Internal	Total (50)
MET-1506	Mechanical Engineering Software Lab-II	-	-	1	(Nil)	(Nil)	Nil	(35)	(15)	Min: 20 (D Grade)

Duration of Theory (Externals): Nil

Theory Internal- Max Marks: Nil	Best of Two Mid Semester Test – Max Marks: Nil	Assignment/Quiz/Attendance- Max. Marks: Nil
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment / Quiz/Attendance- Max. Marks: 05

Pre-Requisite	Nil
Course Outcome	1. Ability to draw the various components using software.
	2. Abililty to understand the knowledge of fluid mechanics using software.
	3. Study the various machines parts and its applications.

Unit	Contents (Theory)	Marks Weightage
I	**Introduction:** Introduction to MATLAB, Study of MATLAB programming environment, Modeling, Design and development of Program. The following contents beginning with a broad overview of MATLAB.	50
II	**Basic MATLAB:** The MATLAB Workspace, Working with Vectors, Working with Matrices, Solving Systems of Linear Equations, Working with Loops, Working with Plots.	
III	**Statics and Structures**: Computing reaction forces acting on a truss, Computing reaction internal shear force and bending moment. **Fluid Mechanics**: Solving for the friction coefficient, Computing the head loss for flow through a pipe. **Heat Transfer:** Analyzing the ice build-up on a body of fluid. **Dynamics:** Modeling a damped spring-mass system using Simulink, The logistic equation.	

Text Book/References Books/ Websites:

http://www.colorado.edu/MCEN/programs/undergraduate/matlab_tutorials/

Suggested List of Laboratory Experiments (Expandable):-

Programs to be performed based on the topics contained in the syllabus.

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total	External	Internal	Total (100)
MET-1507	Industrial Training-I	-	-	2	(Nil)	(Nil)	Nil	(70)	(30)	Min: 40 (D Grade)

Duration of Theory (Externals): Nil

Theory Internal- Max Marks: Nil	Best of Two Mid Semester Test – Max Marks: Nil	Assignment/Quiz/Attendance Max. Marks: Nil
Practical Internal Max Marks: 30	Lab work & Sessional – Max Marks: 20	Assignment / Quiz/ Attendance Max. Marks: 10

Pre-Requisite	Fundamental Engineering concepts of concern discipline.
Course Outcome	1. Enrich their practical learning and they will be better equipped to integrate the practical experiences with the classroom learning process. 2. Interact with real World of Work and should try to learn as much as possible from real life experiences by involving with industry staff.

Unit	Contents (Theory)	Marks Weightage
	The objective of undertaking industrial training is to provide work experience so that student's engineering knowledge is enhanced and employment prospects are improved. Industrial training of the students is essential to bridge the wide gap between the classroom and industrial environment. As a part of B. Tech. curriculum, MET-1507, Industrial Training -I is a Practical course, which the students should undergo in reputed Private / Public Sector / Government organization / companies as industrial training of minimum two weeks to be undergone by the student in the semester break after IV semester theory examinations. **Training period**: Minimum of two weeks or 15 (Fifteen) Days. **Evaluation:** Fifth semester **Companies / Areas covered**: Any field related to concern branch / discipline of Engineering. **Grading**: As per Scheme. **Note:** Presentation will take place the following week after you complete your training. The presentation is evaluation by your class in charge. Report must be submitted during power point presentation. The report evaluation is done by your class in charge. A Viva voce comprising comprehensive questions based on your presentation and training undergone. **Etiquette:** Dress properly, Behave well, Portray good image as a university student, Be punctual, Observe work ethics, Concern for safety, Be professional.	**100**

Text Book/References Books/ Websites: Nil

Suggested List of Laboratory Experiments :- (Expandable): Nil

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (50)	External	Internal	Total
BT-1508	Indian Constitution	2	-	-	External (35)	Internal (15)	Min: 20 (D Grade)	Nil	Nil	Nil

Duration of Theory (Externals): 2 Hours

Theory Internal- Max Marks: 15	Best of Two Mid Semester Test – Max Marks: Nil	Assignment/Quiz/Attendance Max. Marks: 15
Practical Internal Max Marks: Nil	Lab work & Sessional – Max Marks: Nil	Assignment / Quiz/Attendance Max. Marks: Nil

Pre-Requisite	Nil
Course Outcome	1. Understand the functions of the Indian government.
	2. Understand and abide the rules of the Indian constitution.

Unit	Contents (Theory)	Marks Weightage
I	**Introduction:** Constitution' meaning of the term; Indian Constitution: Sources and constitutional history; Features: Citizenship; Preamble; Fundamental Rights and Duties; Directive Principles of State Policy.	**07**
II	**Union Government and its Administration:** Structure of the Indian Union: Federalism; Centre- State relationship; President: Role; power and position; PM and Council of ministers; Cabinet and Central Secretariat; Lok Sabha; Rajya Sabha.	**07**
III	**State Government and its Administration:** Governor: Role and Position; CM and Council of ministers; State Secretariat: Organization; Structure and Functions.	**07**
IV	**Local Administration:** District's Administration head: Role and Importance; Municipalities: Introduction; Mayor and role of Elected Representative; CEO of Municipal Corporation; Pachayati raj: Introduction; PRI: Zila Pachayat; Elected officials and their roles; CEO Zila Pachayat: Position and role; Block level: Organizational Hierarchy (Different departments); Village level: Role of Elected and Appointed officials; Importance of grass root democracy.	**07**
V	**Election Commission:** Role and Functioning; Chief Election Commissioner and Election Commissioners; State Election Commission: Role and Functioning; Institute and Bodies for the welfare of SC/ST/OBC and women.	**07**

 # Mandatory (Non Credit) subject according to AICTE. Non University Examination; End Sem marks not to be included in total marks and credit. Students must pass in this subject.

Text Book/References Books/ Websites:

1. Indian Polity by Laxmikanth.
2. 'Indian Administration' by Subhash Kashyap.
3. 'Indian Constitution' by D.D. Basu.
4. 'Indian Administration' by Avasti and Avasti.

Suggested List of Laboratory Experiments :- (Expandable): Nil