PEOPLE'S UNIVERSITY, BHOPAL

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

Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P			Total (100)			Total
BT-1401	Engineering Mathematics-III	3	1	-	External (70)	Internal (30)	Min: 40 (D Grade)	External (Nil)	Internal (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 & Session – Max Marks: Nil	Assignment / Quiz/Attendance - Max. Marks: Nil

Pre-Requisite	Fundamental knowledge of mathematics such as Algebra and Trigonometry
Course Outcome	1. Experience mathematics outside of your regular course work.
	2. Use knowledge and skills necessary for immediate employment or acceptance into a graduate program.
	3. Maintain a core of mathematical and technical knowledge that is adaptable to changing technologies and provides a solid foundation for future learning.

Unit	Contents (Theory)	Marks Weightage
I	**Functions of Complex Variables :** Analytic functions, Harmonic Conjugate, Cauchy – Riemann Equations, Line integral, Cauchy's theorem, Cauchy's Integral formula, Singular points, Poles and Residues, Residue theorem and Evaluation of Real Integral	**14**
II	**Solution of Algebraic & Simultaneous Equations :** Solutions of algebraic and transcendental equations(Regula Falsi, Newton-Raphson, Iterative, Graffee's root squaring methods) and Solutions of simultaneous algebraic equations (Gauss Elimination, Gauss Jordan, Jacobi Iterative, ,Gauss Seidel and Crout's Traingularization).	**14**
III	**Numerical Analysis:** Difference operators, Errors and Approximations, Interpolation, Inverse interpolation, Numerical differentiation, Numerical Integration by using Simpson's method, Weddle's rule and Trapezoidal Rule.	**14**
IV	**Solution to Differential Equations:** Solutions of ordinary differential equations (Taylor's Series, Picard's Method, Euler's Method, Modified Euler's method, Runge Method and Runge Kutta Method).solve differential equation Milne's predictor and corrector method	**14**
V	**Concept of Probability:** Probability Mass function, Probability Density Function, Discrete Distribution: Binomial, Poisson's, Continuous Distribution: Normal Distribution, Exponential Distribution.Curve Fitting(method of least square)	**14**

Text Book/References Books/ Websites

1. B.S. Grewal ;Higher Engineering Mathematics ;Khanna Publications.
2. D.C. Aggarwal; "Engineering Mathematics II;Sree Sai Prakashan.

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

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Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External (70)	Internal (30)	Total (100)	External (Nil)	Internal (Nil)	Total
ECT-1402	Control System	3	1	-			Min: 40 (D Grade)			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: 15	Lab work & Sessional – Max Marks: 10	Assignment/ Quiz/Attendance – Max. Marks: 05

Pre-Requisite	To understand concepts of the mathematical modeling, feedback control and stability analysis in Time and Frequency domains
Course Outcome	1. To understand the terminology and classification of control system.
	2. To know how systems are design and compensation techniques.
	3. To understand the concept of state, state variable and state models.

Unit	Contents (Theory)	Marks Weightage
I	**Basic Control System:** Terminology and Classification of control System, Examples of control System, Transfer Function of Linear Control System, Block Diagram Representation, Signal flow Graph Techniques. **Mathematical Modeling of Electrical Network**: AC and DC Servomotors, Error Detector, Stepper Motor, Optical Encoder, Linearization.	**14**
II	**Sensitivity of control Systems**: Effects of Feedback on gain and time constant, pole location, bandwidth, Sensitivity, Stability, and Disturbance signal, Control over System Dynamics by use of Feedback. **Time Response Analysis**- Standard Test Signals, Time Response of 1st Order System, Model of Prototype DC Position Control System, Time Response of Prototype 2nd Order System, Performance Specification of 2nd Order System, Steady-State Errors and Error Constants, Effects of Additions of Poles and Zeros to Open Loop and Closed Loop System, Design Specification of 2nd Order System and Higher-Order System, Performance Indices, Optimal Control System.	**14**
III	**Time Domain Stability Analysis**: Concept of Stability of Linear Systems, Effects of Location of Poles on Stability, Necessary Conditions for Stability, Routh-Hurwitz Stability Criteria, Relative Stability Analysis, Root Locus Concept, Guidelines for Sketching Root-Locus,. Frequency Domain Stability Analysis- Performance Specification in Frequency Domain, Co-relation between frequency Domain and Time Domain, Bode Plot, Minimum-Phase and Non-Minimum Phase System, Polar Plots, Inverse Polar Plot, Nyquist Stability Criterion, Assessment of Relative Stability (Phase Margin, Gain Margin and Stability), Constant-M and N Circle, Nichols Chart.	**14**
IV	**Approaches to System Design**: Types of Compensation, Design of Phase-Lag, Phase Lead and Phase Lead-Lag Compensators in Time and Frequency Domain, Proportional, Derivative, Integral and PID Compensation.	**14**
V	**Concept of State, State Variables and State Model**: State Space Representation of Systems, Block Diagram for State Equation, Transfer Function Decomposition, Solution of State Equation, Transfer Matrix, Relationship between State Equation and Transfer Function, Controllability and Observability.	**14**

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Programme: **Bachelor of Technology** **Semester –IV**

Text Book/References Books/ Websites:

1. Nagrath and Gopal; Control System Engineering; New Age International Publishers.
2. Samarjit Ghose; Control Systems Theory and Applications; Pearson Education
3. Distefano; Feedback and Control System (Schaum); TMH
4. B. S. Manke ; Linear Control System (with MATLAB Application); Khanna Publishers.
5. Ogata; Modern Control Engineering; PHI

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

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Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P			Total (100)			Total (50)
ECT-1403	Electronic Circuits	3	1	1	External (70)	Internal (30)	Min: 40 (D Grade)	External (35)	Internal (15)	Min: 20 (D Grade)

Duration of Theory (Externals): 3 Hours

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

Pre-Requisite	To give knowledge of the basic principles of electronic circuits operation, calculation, measurement, designing and performance analysis.
Course Outcome	1. Design and analyze multistage amplifiers
	2. Design negative feedback amplifier circuits and oscillators
	3. Analyze and design solid state power amplifier circuits and tuned amplifier circuits.

Unit	Contents (Theory)	Marks Weightage
I	**Amplifier Basics**, Transistor as an amplifier, load line, Q-point and its selection criteria, designing of fixed bias and self-bias, stability of biasing circuits, calculation of stability factor. **Transistor at Low Frequency**: frequency response, bandwidth, h-parameter analysis of CC, CB and CE configuration, simplified model, gain and impedance calculation of single stage amplifier. **Transistor at High Frequency**, high frequency model (hybrid- pie), Parameters and their definition, Miller capacitance and its effect on voltage gain	**14**
II	**Feedback Amplifier**: positive and negative feedback loop gain, effect of negative feedback on gain stability, distortion, bandwidth, input and output impedance of amplifier, types of feedback (voltage, current, series and shunt) and their analysis. **Oscillators**: condition of sustained oscillation, RC phase shift, LC (Hartley and Collpit) Oscillators, Wein Bridge, Negative resistance (Tunnel diode and UJT) oscillators, crystal oscillators.	**14**
III	**Power Amplifier**, classification, operation, analysis and design of Class A, Class B, Class-AB, Class C, transformer coupled, push pull and complementary symmetry amplifiers, power dissipation in transistors (Pdmax rating) and efficiency calculations. **Tuned amplifier** and its applications, Q factor, selectivity and bandwidth, effect of loading, double tuning (synchronous and stagger)	**14**
IV	**Cascade Amplifiers**, Calculation of gain, Input and output impedance, Effect of Cascading on bandwidth, Transformer, RC and direct-coupled amplifier and their performance. **Darlington Connection**, equivalent circuit and Calculation of gain and impedances, Cascade amplifier: advantage, circuit diagram and analysis, feedback pair and applications of BIFET, Bootstrapping technique. **Differential Amplifier** - configuration, transfer characteristics, DC analysis, h-parameter analysis, differential and common mode gain, CMRR, constant current source and current mirror, level shift.	**14**
V	**Operational Amplifier** (IC741), specifications, ideal and practical characteristics, frequency response, unity gain bandwidth, limitations, slew rate and its effect on full power bandwidth, input offset voltage, bias and offset currents, compensation. **Applications of Op-Amp: I**nverting and non-inverting amplifier Analog computation, summer (inverting and non-inverting), average, integrator, differentiator, scalar, sign changer, phase changer, multiplier, buffer, Differential amplifier, instrumentation amplifier, comparator, Schmitt trigger, precision rectifier, log and antilog amplifier, voltage-to-current and current-to-voltage converter.	**14**

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Programme: **Bachelor of Technology** **Semester –IV**

Text Book/References Books/ Websites:

1. Millman and Halkias; Integrated electronics; TMH.
2. Gayakwad; OPAMP and Linear Integrated Circuits; Pearson Education.
3. Boylestad and Nashelsky; Electronic Devices and Circuit Theory; PHI.
4. Sendra and Smith; Microelectronics; Oxford Press.
5. Donald A Neamen; Electronic Circuits Analysis and Design; TMH.

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Suggested List of Laboratory Experiments :- (Expandable):

1. To Study the operation of Colpitt's Oscillator.
2. To Study the operation of Wein Bridge Oscillator.
3. To Study the operation of Hartley Oscillator.
4. To Study the operation of class A amplifier.
5. To Study the operation of Class B amplifier.
6. To Study the differential amplifier.
7. To Study the OPAMP as a Summing Amplifier.
8. To Study the OPAMP as a Scaling Amplifier.
9. To Study the OPAMP as a Schmitt trigger.
10. To Study the OPAMP as a Logarithmic amplifier.

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Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P			Total (100)			Total (50)
ECT-1404	Digital Logic Design	3	1	1	External (70)	Internal (30)	Min: 40 (D Grade)	External (35)	Internal (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	To give knowledge of Data types and representations, Boolean algebra, state machines, simplification of switching expressions, and introductory computer arithmetic.
Course Outcome	1. To understand the digital number system and information representation
	2. To be able to understand the logic gates and combinational logic design
	3. To get to know about the sequential logic design, digital circuit technologies, memory system in digital circuits.

Unit	Contents (Theory)	Marks Weightage
I	**Introduction:** Digital number systems and information representation; arithmetic operations, decimal and alphanumeric codes. POSs & SOPs, Binary logic, Boolean algebra (identities, functions and manipulation), standard forms, simplification.	**14**
II	**Combinational Circuits:** Logic gates, switch-level and logic CMOS implementation, integrated circuits. Combinational logic design: circuits (gate level), design hierarchy and procedures, computer-aided design. Combinational two-level and multi-level implementations. Arithmetic (add, subtract, multiply) and other popular (multiplexers, encoders, decoders) modules. Language-directed combinational design (VHDL).	**14**
III	**Sequential Logic Design:** latches, flip-flops, state machine design and minimization (Mealy and Moore models), design problems. Language-directed sequential design (VHDL). Registers, Register Transfers and Counters.	**14**
IV	**Digital Circuit:** RTL/DTL/DCTL/TTL/MOS/CMOS/ECL, analysis of basic circuits in these families, internal architecture of programmable logic devices.	**14**
V	**Memory System:** RAM. ROM, EPROM, EEPROM, PAL, PLDs, PGAs. A/D and D/A conversion techniques and selected case studies.	**14**

Text Book/References Books/ Websites

1. Morris Mano, Digital Design- Prentice Hall of India Pvt. Ltd
2. H.Taub & D. Schilling, Digital Integrated Electronics, McGraw Hill
3. Douglas L. Perry, VHDL, McGraw Hill, Inc., 2nd Edition, 1993.
4. J.Millman and Halkias, "Integrated Electronics, Analog and Digital Circuits and Systems, Tata McGraw Hill
5. A.Anand Kumar, Digital Electronics, TMH

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Suggested List of Laboratory Experiments :- (Expandable):

1. To test and study of operation of all logic Gates.
2. To implementation of basic Gates using Universal Gates.
3. To Study the binary addition by half adder and full adder circuit.
4. To Study the binary subtraction by half subtractor and full subtractor circuit.
5. To Design a BCD to Excess-3 code convertor.
6. To study the verification of Demorgon's Theorem.
7. To Study the operation of R-S Flip Flop.
8. To Study the operation of J-K Flip Flop.
9. To Study the operation of MUX/DEMUX.
10. To Study the applications of 555 timer (Astable, Monostable, Schmitt trigger and VCO).

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Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P			Total (100)			Total (50)
ECT-1405	Analog Communication	3	1	1	External (70)	Internal (30)	Min: 40 (D Grade)	External (35)	Internal (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	To introduce the concepts of analogue communication systems and various issues related to analogue communication such as modulation, demodulation, transmitters and receivers and noise performance.
Course Outcome	1. Gain the knowledge of components of analog communication system.
	2. To analyze various methods of baseband/band pass Analog transmission and detection.
	3. Analyze and allocate performance objectives to components of an analogue communication system and noise performance.

Unit	Contents (Theory)	Marks Weightage
I	**Different Types of Signals** (Continuous, Discrete, and Periodic), Time Domain and Frequency Domain Representation, Introduction to basic Transform Techniques applicable to these Signals. Dynamic Representations of Systems: Systems Attributes, Causality linearity, Stability, time invariance. Special Signals, Complex exponentials, Singularity functions (impulse and step functions)..Linear Time-Invariant Systems: Differential equation representation convolution Integral. Discrete form of special functions. Discrete convolution and its properties. Realization of LTI system (differential and difference equations).	**14**
II	**Spectral Analysis**: Fourier Technique, Fourier Transform and their Properties, Transform of Gate Signal, Impulse Function and Unit Step Function, Fourier Transform Technique for Periodic Signal, Transform of Train of Pulses and Impulses, Sine and Cosine wave. **Signal Energy and Power**: Spectral Density of various types of signals, Spectra (Parseval's Theorem), Density Spectra of Periodic Gate and Impulse train.	**14**
III	**Modulation Techniques**: Need and types of modulation techniques, Amplitude Modulation, Frequency Spectrum, Power Distribution, Modulation by Complex Signal, Low Level and High Level AM Modulators, Linear Integrated Circuit AM Modulators, Suppressed Carrier Generation (Balance/Chopper and Square Law Modulation), SSB Generator (Phase and Frequency Discrimination Method), VSB Transmission and Application. Detection of AM signals: Envelope Detector Circuit, RC Time Constant, Synchronous Detection Technique, Error in Synchronous Detection, SSB signal detection, PLL and its use in demodulation.	**14**
IV	**Angle Modulation**: Frequency and Phase Modulation Frequency spectrum, bandwidth requirement, Frequency and Phase Deviation, Modulation Index, NBFM and WBFM, Multiple frequencies FM. FM Modulators: Direct (Parameter Variation Method) and Indirect (Armstrong) Method of frequency modulation. FM Detector: Slope Detector, Foster Seely Discriminator, Ratio Detector and PLL detectors.	**14**

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Programme: **Bachelor of Technology** **Semester –IV**

V	**Radio Transmitters**: AM transmitter, block diagram and working of Low Level and High Level Transmitters, Trapezoidal Pattern and Carrier Shift, SSB Transmitters, FM transmitters – Frequency Multiplication Applied to FM Signals, FM transmitters. **Radio Receivers**: Block Diagram of Radio Receiver, Receiver Characteristics (Selectivity, Fidelity and Sensitivity), AM Receiver, RF Receiver, Super-heterodyne Receiver, RF Amplifier, Frequency Mixer, AVC and AFC, Image Signal, Intermediate Frequency Selection, Diversity Reception, FM Receiver. **Noise** : Sources and types of noise and their power density, AWGN, Noise in Angle Modulate System, Figure of Merit for FM, Preemphasis and De-emphasis, Capture Effect, Comparison of Noise Performance of AM and FM.	**14**

Text Book/References Books/ Websites

1. B.P. Lathi; Modern Analog and Digital Communication System; Wiley Eastern limited.
2. Taub and Schilling; Principles of communication Systems; TMH.
3. Singh and Sapre; Communication Systems; TMH.
4. S Haykin; Communication Systems; John Wiley and Sons Inc.
5. A Bruce Carlson; Communication System; TMH.

Suggested List of Laboratory Experiments :- (Expandable):

1. To study of the double sideband AM generation.
2. To Study of the single sideband AM generation.
3. To Study of frequency modulation using varactor diode.
4. To Study of operation of ratio detector.
5. To study of frequency modulation using reactance modulation.
6. To study of SSB AM reception using product detector.
7. To Study of DSB AM reception using envelope detector.
8. To Study of operation of phase loop detector.
9. To Study of the FM detection.
10. To Study of the Preemphasis and de emphasis.

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Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P			Total			Total (50)
ECT-1406	Electronics Workshop-I	-	-	1	External (Nil)	Internal (Nil)	Nil	External (35)	Internal (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. Acquire knowledge about various types of circuits.
	2. Acquire knowledge about CRO.
	3. Acquire knowledge about various types electronic devices.

Unit	Contents (Theory)	Marks Weightage
-	This course is a foundation for entering careers, hobbies, and everyday participation in a culture grounded in electronics. As students engage in this course, they will learn the basic theories and principles that are fundamental to electronics through the development of exciting class projects. Methods for accomplishing this will include the building of circuits through bread boarding, soldering, reading a digital multimeter, and utilizing electrical design software. Students will build engaging projects such as a light detector, a clap on/clap off circuit, scrolling LED's, and a light sensing robot. Students will also be given the opportunity to program a microprocessor towards a given task.	**50**

Text Book/References Books/ Websites: Nil

Suggested List of Laboratory Experiments :- (Expandable):

Student should perform & test at least 10 electronic components/instruments related to subjects.

1. Soldering Practice.
2. Basic Dimmer Circuit
3. Light Detector Circuit
4.555 Timer Circuits
6. CRO & Multimeter Study
7. Burglar Alarm Circuit
8. Microprocessor Programming Labs
9. Scrolling LED's with a Microprocessor
10. Clapon/ Clapoff Circuit

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Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P			Total			Total (50)
BT-1407	Social Engineering	-	-	1	External (Nil	Internal (Nil)	(Nil)	External (Nil)	Internal (50)	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: Nil	Lab work & Sessional – Max Marks: Nil	Assignment / Quiz/Attendance Max. Marks: 50

Pre-Requisite	**Nil**
Course Outcome	1. An outcome refers to psychological manipulation and human behavior of students into performing actions or divulging confidential information.

Unit	Contents (Theory)	Marks Weightage
-	Social engineering is one of the most prolific and effective means of gaining access to secure systems and obtaining sensitive information yet requires minimal technical knowledge. Social engineering works by manipulating normal human behavioral traits and as such there are only limited technical solutions to guard against it. As a result, the best defense is to educate users on the techniques used by social engineers, and raising awareness as to how both humans and computer systems can be manipulated to create a false level of trust. This can be complemented by an organizational attitude towards security that promotes the sharing of concerns, enforces information security rules and supports users for adhering to them. Contents are as follows: Introduction of Social Engineering; Types; Psychology in Social Engineering; The Social Engineering Life Cycle; Human Behavior; Weapons of a Social Engineer; Defense against Social Engineering; Examples; Reverse Social Engineering.	**50**

Text Book/References Books/ Websites:

1. Kevin Mitnick; The book The Art Of Deception.
2. www.socialengineer.com/wpcontent/uploads/2017/02/AdvancedPracticalSocialEngineering-Syllabus.pdf.
3. www.youtube.com/watch?v=b-yqbNM3s7c&feature=related
4. https://www.exploit-db.com/docs/english/18135-social-engineering---the-human-factor.pdf.
5. http://www.ittoday.info/AIMS/DSM/82-10-43.pdf

Suggested List of Laboratory Experiments :- (Expandable):

Students should prepare a hand written report on social engineering as assigned by faculty.

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Programme: **Bachelor of Technology** **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P			Total			Total (50)
ECT-1408	Software Lab – II	-	-	1	External (Nil)	Internal (Nil)	Nil	External (35)	Internal (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. To understand how programs are design in the MATLAB.
	2. To know how programs are modelling and designing.
	3. To understand the programming in communication system & control system.

Unit	Contents (Theory)	Marks Weightage
-	Introduction to MATLAB, Study of MATLAB programming environment, Modeling, Design and development of Programs. Programs Related to Analog Communication- (Example-Plots of Different Signals and their Fourier Transforms, Computation of Linear and Cyclic Convolution between Two Signals, Simulation of Different Types of modulation, AM Transmitter and Receiver, FM Transmitter and Receiver, Simulation of a Communication System (Generation, addition of noise and Detection). Programs Related to Control System- Open-Loop and Closed Loop Control System Response using MATLAB, Determining Transient Response, Specification of Second Order System, Effect of PID controller on Control System, Bode Plot, Nyquist Plot and Root Locus Plot.	**50**

Text Book/References Books/ Websites:

1. Chapman Stephen J; MATLAB Programming for Engineers; 3rd Edition, Thomson /Cengage.
2. Rudra Pratap; Getting Started with MATLAB 7; Oxford University Press (Indian Edition).

Suggested List of Laboratory Experiments :- (Expandable):

1. Basics of MATLAB.
2. Basic operations in MATLAB.
3. Basic Vector operation.
4. Basic Matrix Operation.
5. Basic operations on complex numbers.
6. Study of Polynomial evaluation.
7. Study of use of structures.
8. Study of use of functions.
9. Study of solution of liner differential equation.
10. Study of commonly used toolbox.