

First Year													
1 ^{st(*)} /2 ^{nd(**)} Semester						2 ^{nd(*)} /1 ^{st(**)} Semester							
SN	Code	Subject	L	T	Credits	SN	Code	Subject	L	T	P	Credits	
1	MA-111/ MA-121	Engineering Mathematics-I / Engineering Mathematics-II	3	1	0	4	1	MA-111/ MA-121	Engineering Mathematics-I / Engineering Mathematics-II	3	1	0	4
2	CS-101	Computer Programming	3	0	0	3	2	HS-101	Communication Skills	2	1	0	3
3	ME-101	Engineering Graphics	1	0	3	3	3	ME-102	Engineering Workshop	1	0	3	3
4	PH-101	Engineering Physics	3	1	0	4	4	CY-101	Engineering Chemistry	3	1	0	4
5	CE-101	Applied Mechanics	3	1	0	4	5	MS-101	Materials Science & Engineering	3	0	0	3
6	EC-101	Basic Electronics Engineering	3	0	0	3	6	EE-101	Basic Electrical Engineering	3	1	0	4
7	CS-102	Computer Programming Lab	0	0	2	1	7	HS-102	Communication Skills Lab	0	0	2	1
8	PH-102	Engineering Physics Lab	0	0	2	1	8	CY-102	Engineering Chemistry Lab	0	0	2	1
9	EC-102	Electronics Engineering Lab	0	0	2	1	9	EE-102	Electrical Engineering Lab	0	0	2	1
		Total	Hours = 28		24				Total		Hours = 28		
												24	

* Applicable for (a) B.Tech. in (i) Civil Engineering (ii) Computer Science & Engineering (iii) Electrical Engineering, and (b) Dual Degree in Computer Science & Engineering

**Applicable for (a) B.Tech. in (i) Chemical Engineering (ii) Electronics & Communication Engineering (iii) Mechanical Engineering (iv) Material Science & Engineering, and (b) Dual Degree in Electronics & Communication Engineering

Course Name:	Engineering Mathematics-II	
Course Code:	MA-121	
Course Type:	Core	
Contact Hours/Week:	3L + 1T	
	Course Credits: 04	
Course Objectives		
<ul style="list-style-type: none"> To introduce the fundamental concepts relevant to Ordinary & Partial Differential Equations, Transform Theory and probability & Statistics To able to form and solve the ordinary & partial differential equation using different analytical techniques To have the idea of various transformations and their uses in engineering problems To incorporate the concept of probability to find the physical significance of various distribution phenomena 		
Unit Number	Course Content	Lectures
UNIT-01	<p>Ordinary Differential Equations</p> <p>Brief review of ordinary differential equations, Exact equations, Equations reducible to exact equations, Equations of the first order and higher degrees, Clairaut's equation. Applications of ODEs in concerned engineering branch.</p> <p>Linear differential equations with constant co-efficient, Complimentary functions and particular integral, Method of variation of parameters, Equations reducible to linear equations with constant co-efficient (Cauchy's and Legendre's linear equations), Initial and Boundary value problems, Simultaneous linear equations with constant co-efficient, Applications of differential equations in concerned engineering branch.</p>	09 L
UNIT-02	<p>Partial Differential Equations</p> <p>Formulation of Partial Differential Equations (PDE), Solution of PDE, Linear PDE of First Order (Lagrange's Linear Equation), Non-linear Equation of First Order (Standard Forms), Charpit's Method, Homogeneous Linear Equations with Constant Coefficients, Non-homogeneous Linear Equations.</p> <p>Applications of PDE: Method of separation of variables, Solution of one dimensional wave and heat equation and two dimensional Laplace's equation.</p>	09 L
UNIT-03	<p>Transforms Theory</p> <p>Laplace Transform: Laplace Transforms of standard functions and their properties, Inverse Laplace Transforms, General Properties of inverse Laplace transforms and Convolution Theorem, Laplace Transforms of periodic functions, Dirac-delta Function, Heaviside's Unit Function, Solution of ODE and linear simultaneous differential equations using Laplace transforms.</p> <p>Fourier Transform: Fourier integral representation, Fourier sine, cosine and complex transform, Finite Fourier Transforms and their applications.</p> <p>Z – Transforms: Z–Transforms & its properties, inversion of Z – transform and applications of Z – transform.</p>	12 L
UNIT-04	<p>Probability and Statistics</p> <p>Review of probability, Conditional probability and sampling theorems, Discrete and Continuous Probability Distribution, Probability Mass & Probability Density Functions, Distribution function, Discrete and Continuous probability distributions, Binomial, Poisson and Normal distributions.</p>	06 L
Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1: Understand and analysis the theoretical & practical aspects of Ordinary differential equations, PDE, Transform theory and Probability		
CO2: Identify an appropriate technique to solve the ODE, PDE		
CO3: Learning the limitations, advantages and disadvantages of ODE, PDE, various transforms and probability & Statistics		
CO4: Apply the concepts of ODE, PDE, integral transform and probability theory in various engineering problems		
CO5: Demonstrate the concepts through examples and applications		
Books and References		
<ol style="list-style-type: none"> Advanced Engineering Mathematics by E. Kreyszig, John Wiley and Sons, NC, New York. Differential Equations by S. L. Ross, John Wiley & Sons, New York. An Introduction to Probability Theory & its Applications by W. Feller, Wiley. Probability and Statistics for Engineers and Scientists by R.E. Walpole, S. L. Myers and K. Ye, Pearson. Integral Transforms and Their Applications by Lokenath Debnath and Dambaru Bhatta, Chapman and Hall/CRC Press. 		

Course Name: Computer Programming	Course Code: CS-101
Course Type: Core	
Contact Hours/Week: 3L	Course Credits: 03

Course Objectives

- To introduce the concept of computer fundamentals and computer programming
- To enable the student to design algorithms
- To enable the students to understand "C" language and its application in problem solving

Unit Number	Course Content	Lectures
UNIT-01	Programming Fundamentals: Introduction to computer, block diagram and organization of computer, number system and binary arithmetic, processing data, hardware, software, firmware, types of programming language-Machine language, Assembly level language, higher level language, source file, object file, translators-assembler, compiler, interpreter. Evolution and classification of programming languages.	08L
UNIT-02	Programming Techniques: Steps in program development, algorithm, flowchart, pseudo code.	05L
UNIT-03	C Language: 'C' character set, literals, keywords, identifiers, data types and size, variable declaration, expression, labels, statements, formatted input output statements, types of operators, data type conversion, mixed mode arithmetics, control structures.	07L
UNIT-04	Data Structures: Storage classes, scope rules and visibility, arrays, pointers, dynamic storage allocation, structures and unions, self-referential structures. Relationship between pointers and arrays, dynamic arrays: Introduction to dynamic datastructures-linked lists, stack, and binary trees.	08L
UNIT-05	Functions and File Handling: 'C' functions, library functions, parameter passing, recursion, 'C' files, function for file handling, 'C' pre-processors and command line arguments, macros and conditional compiler directives.	08L

Course Outcomes

Upon successful completion of the course, the students will be able to

- CO1: Know the basic components of the computer and working of each device
 CO2: Design algorithms and flowcharts
 CO3: Understand the fundamentals of C programming
 CO4: Use suitable data structure for problem solving

Books and References

1. C Programming Language by Brian W. Kernighan and Dennis Ritchie, Prentice Hall of India.
2. Programming with C by Byron Gottfried, Tata McGraw Hill.
3. The Complete Reference C by Herbert Schildt, Tata McGraw Hill.
4. Let us C by Yashwant Kanetkar, BPB Publication.
5. A Structured Programming Approach in C by B.A. Forouzan and R.F. Gilberg, Cengage Learning.

<p>Course Name: Engineering Graphics</p> <p>Course Code: ME-101</p>		
Contact Hours/Week: 1L + 3P		Course Credits: 03
Course Objectives		
<ul style="list-style-type: none"> • To equip engineering students with “Universal language of Engineers” for developing their engineering communication through drafting exercises of geometrical solids • To prepare preliminary engineering drawings with geometric instruments as well as Drafting software with equal expertise 		
Unit Number	Contents of Theory Part	Lectures
UNIT-01	Introduction: Importance of Engineering Drawing, Engineering Drawing Instruments and uses, B.I.S and I.S.O. Conventions for drawings, Use of plane scales and Representative Fraction	01L
UNIT-02	Projection of Points and Straight Lines: Introduction to principal planes, Notation System, Projection of line parallel/ perpendicular to principal plane, Concept of true length of line.	01L
UNIT-03	Projection of Planes: Concept of different planes, Projections of planes with its inclination to one principal plane and with two principal planes. Concept of auxiliary plane method for projections of the plane.	01L
UNIT-04	Projection of Solids and Sections of Solids: Classifications of Solids, Projections of right and regular solids with their axis Parallel to two and Perpendicular to one of the principal planes, axis parallel to one and inclined to two principal planes, axis inclined to all the three principal planes. Section of solids.	01L
UNIT-05	Orthographic Projections & Isometric Projection: Principle of projection, Principal planes of projection, Projections from the pictorial view of the object on the principal planes using first angle projection method and third angle projection method, Full Sectional View, Isometric projection.	02L
UNIT-06	Autocad's Workspaces And User Interface: The Drawing Area, Accessing Autocad Commands, Starting, Saving, And Opening Drawings, Closed User Interface, User Interface And Startup Tutorial, Coordinates, World Coordinate System/User Coordinate System, Coordinate Systems Tutorial, Drawing Using Coordinates Tutorial, Drawing Commands, Text & Modifying Commands, Object Snap Commands.	06L

Practical No.	Contents of Practicals	Number of Drawing/ Graphics Sheets
Conventional Engineering Drawing		
1.	Preparation of drawing sheet related to Scales and Representative Fraction.	01
2.	Preparation of drawing sheet related to Projection of Points and Straight Lines.	01
3.	Preparation of drawing sheet related to Projection of Planes.	01
4.	Preparation of drawing sheet related to Projection and Section of Solids.	01
5.	Preparation of drawing sheet related to Orthographic Projections.	01
6.	Preparation of drawing sheet related to Isometric Projections.	01
	Total Sheets	06
Computer Aided Graphics		
7.	Learning of drawing software, utility of drawing commands, built in directory and tools.	01
8.	Learning of drawing units, sheet setting, practice of different drawing commands.	01
9.	Learning of text command layers block, insert blocks and dimensioning techniques.	01
	Total Sheets	03
Computer Aided Modeling		
10.	Drawing of 2D and 3D models.	01
11.	Isometric drawings with different views.	01
12.	Complex solid models and wire frame models.	01
	Total Sheets	03

Course Outcomes

Upon successful completion of the course, the students will be able to

- CO1: Visualization in context of Engineering
- CO2: Read, Interpret drawing
- CO3: Drawing using techniques like Orthographic and pictorial projections
- CO4: Auxiliary and section views, Basic dimensioning
- CO5: 2-D CAD drawing techniques 3-D CAD modeling techniques using AutoCAD.

Books and References

1. A text book of Engineering Drawing by P.S.Gill, S.K.Kataria & Sons, Delhi.
2. Engineering Drawing and Graphics by K. Venugopal, New Age International.
3. Engineering Drawing with an Introduction to AutoCAD by D.A. Jolhe, Tata McGraw-Hill Publishing Co. Ltd., New Delhi.
4. Engineering Drawing & Graphics using Auto CAD 2000 by T. Jeyapoovan, Vikas Publishing House Pvt. Ltd., New Delhi.

<p>Course Name: Engineering Physics</p> <p>Course Code: PH-101</p> <p>Course Type: Core</p>		
Contact Hours/Week: 3L + 1T		Course Credits: 04
Course Objectives		
<ul style="list-style-type: none"> • To create and an ability to understand laser system, optical fibre in industries, laboratories and in communication • To understand concepts of communication through electrodynamics • The broad education necessary to understand behavior of semiconductor devices • A knowledge of concepts / technologies like superconductivity 		
Unit Number	Course Content	Lectures
UNIT-01	Semiconductor Device Physics: Energy bands in solids, the E-k diagram, Density of states, Occupation probability, Fermi level and quasi Fermi levels, Fermi-Dirac Statistic, Effective mass, Conductivity as a function of temperature p-n junctions, Schottky junction and Ohmic contacts.	06L
UNIT-02	Laser Physics: Concepts of laser, spontaneous and stimulated emission, elementary idea about Lasers, basic principles involves in laser, three and four level laser system, coherence, characteristics of laser light; ruby, He-Ne, CO2 and semiconductor lasers, application of lasers.	06L
UNIT-03	Fibers Optics and Photonics: Optical Fiber, physical structure and basic theory, modes in optical fibers, step index and graded index fibers, losses in optical fibers, sources and sensors for optical fibers, applications of optical fibers in communication.	06L
UNIT-04	Electrostatics and Electrodynamics: Gauss's Law in dielectric medium, Equation of continuity, displacement current, Maxwell's equations, wave equation for electromagnetic radiation, electromagnetic wave propagation in free space and isotropic dielectric medium, Poynting theorem & Poynting vector.	06L
UNIT-05	Quantum Mechanics: Need of quantum mechanics, Compton effect, Born's concept of wave function, eigen function and eigen values, operators in quantum mechanics, expectation values, time independent, time dependant Schrodinger's wave equations and its applications viz., particle in one dimensional potential well.	06L
UNIT-06	Superconductivity and Ultrasonics: Introduction and discovery of superconductivity, superconducting materials, Meissner effect, critical magnetic field and critical current, type-1 and type-2 superconductors, isotope effect, theory of superconductivity, ultrasonics, generation, properties and applications.	06L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: describe the optical devices and their applications		
CO2: identify the applications of electrodynamics using Maxwell equations		
CO3: apply concept of semiconductor physics to understand electronic systems		
CO4: apply concepts of Quantum mechanics in solving physics problems at nanoscale		
CO5: learn the working of equipment based on physical phenomenon		
Books and References		
<ol style="list-style-type: none"> 1. Solid State Electronic Devices by B. G. Streetman, Prentice Hall of India, New Delhi 2006. 2. Introduction to Solid State Physics by Kittle C. John Wiley & Sons, 2005. 3. Lasers Fundamentals and Applications by Ghatak A. K. & Thyagarajan K, Springer, 2010. 4. Modern Engineering Physics; A.S. Vasudeva, S. Chand & Co. Ltd. 5. Introduction to Electrodynamics by Griffiths D. J, Pearson Education Pvt. Ltd., New Delhi, 2002 6. Quantum Mechanics by Ghatak A and Lokanathan S Mc Millan India Ltd. 		

Course Name:	Applied Mechanics			
Course Code:	CE-101			
Course Type:	Core			
Contact Hours/Week:	3L + 1T			
		Course Credits: 04		
Course Objectives				
<ul style="list-style-type: none"> • To impart knowledge about the force and moments and their vectorial and scalar representation • To enable the students to understand equilibrium of two dimensional force system • To enable the students to understand the Center of Gravity and Moment of Inertia • To understand the concept of stress and strain, Pure Bending and Torsion • To enable the students to comprehend the laws of motion, kinematics of motion • To enable the students to understand the Friction on general plane motion • To understand the concept of shear force and bending moments of beams and analysis of trusses 				
Unit Number	Course Content	Lectures		
UNIT-01	<p>Introduction to Statics: Particle and Rigid Body, Types of forces, Transmissibility of a force, vector algebra</p> <p>Two dimensional force system: Resolution of forces, Moment of forces, Couple, Resolution of a coplanar force by its equivalent force-couple system, Resultant of forces, free body diagram, equilibrium</p>	05L		
UNIT-02	<p>Centre of Gravity and Moments of inertia: Centroid of plane, curve, area, volume and composite bodies MI with respect to different axis, Parallel axis theorem, Mass moment of inertia</p> <p>Virtual work and Energy method: Principle of virtual work; Applications of virtual work principle to machines; Mechanical efficiency; Work of a force/couple, Potential energy and equilibrium</p> <p>Concept of Friction: Laws of Coulomb friction, Angle of Repose, Coefficient of friction, large and small contact surfaces, Belt friction, Equilibrium of a belt, Bearing friction</p>	09L		
UNIT-03	<p>Kinematics of Rigid Body: Introduction, Plane Motion of Rigid Body, Velocity and Acceleration under Translation and Rotational Motion, Relative Velocity,</p> <p>Kinetics of Rigid Body: Introduction, Force, Mass and Acceleration, Work and Energy, Impulse and Momentum, D'Alembert's Principles and Dynamic Equilibrium</p>	05L		
UNIT-04	<p>Impulse Momentum Principle: Impulsive force, Conservation of Linear momentum and Angular momentum. Impact between bodies</p>	03L		
UNIT-05	<p>Simple stresses and strains: Normal stress, Shear stress, Bearing stress, Normal strain, Shearing strain; Hooke's law; Poisson's ratio; Factor of safety.</p> <p>Bending stress of Beams: Introduction, Simple Bending Theory, Stress in beams of different cross sections, shear stress, combined stresses.</p>	06L		
UNIT-06	<p>Torsion: Introduction, Torsion of shafts of circular section, torque and twist, shear stress due to torque.</p> <p>Analysis of Truss: Method of joints, Method of Sections</p> <p>Analysis of frames: Shear force and bending moment diagram of determinate beams and frame.</p>	08L		
Course Outcomes				
Upon successful completion of the course, the students will be able to				
CO1:	Determine the resultant force and moment for a given system of forces			
CO2:	Determine the Centre of Gravity and Moment of Inertia of surfaces and solids			
CO3:	Determine the shear force, Bending moment of beams and analyze the trusses and problems related to frictions			
CO4:	Determine the stresses in beam for pure bending and effect of torsion in shafts			
CO5:	Calculate the motion characteristics of a body subjected to a given force system			
Books and References				
<ol style="list-style-type: none"> 1. Introduction to Solid Mechanics by H. Shames & J. M. Pitarresi, PHI. 2. Mechanics of Materials by E.P. Popov, PHI. 3. Vector Mechanics for Engineers: Statics and Dynamics by F. P. Beer, R. Johnston , D. F. Mazure P. J. Cornwell , S. Sanghi, McGraw Hill Education. 				

Course Name:	Basic Electronics Engineering			
Course Code:	EC-101			
Course Type:	Core			
Contact Hours/Week:	3L	Course Credits: 03		
Course Objectives				
<ul style="list-style-type: none"> To understand the fundamentals of semiconductor Physics. To introduce the concepts of semiconductor devices with applications. To enable the students to understand the working and applications of transistor. To understand the basics of JFET and MOSFET. To understand the basics of communication systems. 				
Unit Number	Course Content	Lectures		
UNIT-01	Semi-Conductors and Diodes: Introduction, Insulators, Semiconductors and Metals, Mobility and Conductivity, Intrinsic and Extrinsic Semiconductors, Charge Density, Current Components in Semiconductors, Continuity Equation, PN Junction Diode- Characteristics and Analysis; Types of Diodes- Zener Diode, Photodiodes, LED, Varactor Diode, Tunnel Diodes.	06L		
UNIT-02	Diode Applications: Rectifiers and Filter Circuit: Half Wave Rectifier, Full Wave Rectifier, Bridge Rectifier and their Analysis, L,C and Pi Filters; Series and Shunt Diode Clippers, Clipping at Two Independent Levels, Clamping Operation, Clamping Circuit; Practical Clamping Circuits, Basic Regulator Supply using Zener Diode.	07L		
UNIT-03	Bipolar Junction Transistors: Construction and Characteristics of BJT, Transistor Configuration: CB, CE, CC Configuration; Transistor at Low Frequency, Small Signal Low Frequency Transistor Model (H-Parameters), Analysis of Transistor Amplifier using H-Parameters.	06L		
UNIT-04	Transistor Biasing: Transistor Biasing and Bias Stabilization: Operating Point, Stability Factor, Analysis of Fixed Bias, Collector to Base Bias, Emitter Resistance Bias Circuit and Self Bias Circuit, Bias Compensation Techniques Transistor Switch and Transistor amplifier.	05L		
UNIT-05	Field Effect Transistor: Construction and Characteristics of JFET, JFET Biasing Circuit, JFET Amplifier, MOSFET Construction and Characteristics.	06L		
UNIT-06	Basics of Communication System: Introduction to Analog and Digital Communication Systems, Block Diagram Representation of Communication System, Basic idea of Transmitter and Receiver used for radio communication, Various Frequency bands used for Communication, Need of Modulation and Introduction to Cellular Communication.	06L		
Course Outcomes				
Upon successful completion of the course, the students will be able to				
CO1:	Acquire basic knowledge on the working of various semiconductor devices			
CO2:	Know about the working principles of transistor with its different configurations which are helpful to design analog and digital applications			
CO3:	Understand the biasing requirements and circuits in BJT and FET			
CO4:	Develop analytical capability in designing of BJT and FET based circuits			
CO5:	Understand the idea of information transmission through analog and digital communication systems			
Books and References				
<ol style="list-style-type: none"> Integrated Electronics by J. Millman and C.C. Halkias, McGraw Hill Education, India. Electronics Devices and Circuit Theory by R. Boylestad and L. Nashelsky, Pearson India. Electronics Devices and Circuits-II by U. A. Bakshi and A. P. Godse, Technical Publications. Electronic principles by L. Malvino, Tata McGraw Hill Education. Semiconductor Devices by K. Kano, Prentice Hall Publication. Electronic Communication Systems by G. Kennedy, McGraw Hill Education, India. 				

Course Name: **Computer Programming Lab**

Course Code: **CS-102**

Contact Hours/Week: **2P**

Course Credits: **01**

Course Objectives

- To provide skills for designing flowcharts and writing algorithms
- To provide skills for writing C programs
- To enable the students to debug programs

List of Experiments

1. Familiarity with Windows utilities and basic Linux commands
2. Programs related to operators and evaluation of expressions
3. Programs to illustrate use of arrays
4. Programs on operations over strings
5. Programs related to use of functions
6. Using pointers in programs
7. Programs on logical operators
8. Programs making use of structures and unions
9. Programs to perform operations over various data structures viz, linked lists, stacks, trees, etc.
10. Programs that read/write data from/to files
11. Programs using preprocessor directives
12. Use of command line arguments in program
13. Programs using graphics tools

Note: The concerned Course Coordinator will prepare the actual list of experiments/problems at the start of semester based on above generic list.

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Identify and abstract the programming task involved for a given problem

CO2: Design and develop modular programming skills

CO3: Trace and debug a program

Course Name: Engineering Physics Lab	
Course Code: PH-102	
Contact Hours/ Week: 2P	Course Credits: 01
Course Objectives	
<ul style="list-style-type: none"> • To gain practical knowledge by applying the experimental methods to correlate with the theory • To learn the usage of electrical and optical systems for various measurements • Apply the analytical techniques and graphical analysis to the experimental data • To develop intellectual communication skills and discuss the basic principles of scientific concepts in a group 	
List of Experiments	
<ol style="list-style-type: none"> 1. To determine the specific resistance of a material wire using a post office box. 2. To find the area of a rectangle (or height of an inaccessible object) using a sextant. 3. Conversion of a galvanometer into Ammeter and Voltmeter of given range. 4. To verify the inverse square law of magnetism. 5. Study the variation of magnetic field with distance along the axis of a circular coil carrying current and to find the radius of the coil. 6. To determine the refractive index of a glass/ liquid (water) using Spectrometer. 7. To determine the wavelength of light using Newton's ring apparatus. 8. To verify the inverse square law for the intensity of radiation from a source of light. 9. To determine the wavelength of the Laser light using diffraction method. 10. To find magnifying power of a telescope by linear method. 11. To measure Young's modulus by bending of beam method. 12. Study of the attenuation and propagation characteristics of an optical fiber cable. 13. Other experiments as and when made available time to time. 	
Course Outcomes	
Upon successful completion of the course, the students will be able to	
CO1: Handle equipments and take measurements and record data techniques for the experiments	
CO2: Experimentally realize the physical phenomenon/ effects	
CO3: Use different systems and instruments to measuring parameters with precision	
CO4: Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results	

Course Name: **Electronics Engineering Lab**

Course Code: **EC-102**

Contact Hours/Week: **2P**

Course Credits: **01**

Course Objectives

- Familiarization with electronic components and equipments
- Validate and verify the characteristics of various electronic devices
- Implementation of electronic circuits using different electronic components

List of Experiments

1. Familiarization of electronic components and equipments like CRO, function generator and power supplies etc.
2. To study the V-I characteristics of p-n junction diode and determine its static and dynamic resistance.
3. To study the characteristics of Zener diode and hence, calculate the dynamic resistance.
4. To study voltage regulator circuit using Zener diode.
5. To study and plot the waveform of half wave and full wave rectifier with and without capacitor filter.
6. To study and plot the input and output characteristics of CE (Common Emitter) transistor configuration and calculate its input and output resistance.
7. To study and plot the input and output characteristics of CB (Common Base) transistor configuration and calculate its input and output resistance.
8. To study and plot the input and output characteristics of CC (Common Collector) transistor configuration and calculate its input and output resistance.
9. To study the characteristics of FET (Field Effect Transistor) and calculate its dynamic resistance (r_d), mutual conductance (g_m) and amplification factor (μ).
10. To study the frequency response of single stage CE amplifier circuit using BJT and calculate the bandwidth (3 dB).
11. To study the frequency response of single stage amplifier circuit using FET and calculate the bandwidth (3 dB).
12. To study self bias circuit and calculate zero signal value of current and voltage.

Note: The concerned Course Coordinator will prepare the actual list of experiments/problems at the start of semester based on above generic list.

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Understanding of different meters and instruments for measurement of electronic quantities

CO2: Develop skills for designing electronics circuits and its practical implementation on breadboard

CO3: Understanding the characteristics of different electronic devices like diodes, BJT and FET