

UNIVERSITY OF JAMMU

(NAAC ACCREDITED A + GRADE UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

NOTIFICATION

(22/Nov/Adp/75)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Competent Bodies, has been pleased to authorize the adoption of the revised Syllabi and Courses of Studies in **Bachelor of Engineering (Computer Engineering/Computer Science & Engineering/I.T Engineering)** for Semester I & II under the **Credit Based System** as per the model curriculum of the AICTE (as given in the Annexure) for the candidates of (Govt./Pvt.) **Engineering Colleges affiliated with the University of Jammu** for the Examinations to be held in the years indicated against each Semester as under:-

Branch	Semester	For the Examination to be held in the years
Computer Engg./Computer Science & Engg./IT Engineering	Semester-I	December, 2022, 2023, 2024 and 2025
	Semester-II	May 2023, 2024, 2025 and 2026

The Syllabi of the course is available on the University Website: www.jammuuniversity.ac.in.

Sd/-
DEAN ACADEMIC AFFAIRS

No. F.Acd/III/22/999-10003

Dated: 22/11/2022

Copy for information & necessary action to:-

1. Dean Faculty of Engineering
2. Principal, GCET/MBSCET/BCET/YCET
3. C.A to the Controller of Examinations
4. Assistant Registrar (Exams/Confidential)
5. Section Officer (Confidential)
6. Incharge University Website

Sumita Sharma
22/11/22
Deputy Registrar (Academic)

[Signature]
22/11/22
[Signature]
22/11/22

Annexure-I

**B.E. 1st Semester Computer Engineering/Computer Science & Engineering/IT
Engineering Examination to be held in the Year December 2022,2023,2024,2025**

Contact Hours: 23

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits	% Change
			L	T	P	Internal	External			
BST1101	Basic Science Course	Engineering Mathematics-I	2	1	0	50	100	150	3	100%
MET5102	Engineering Science Course	Engineering Graphics	3	0	0	50	100	150	3	100%
HMT1102	Humanities & Management courses	Universal Human Values	2	1	0	50	100	150	3	100%
BST1103	Basic Science Course	Applied Engineering Physics	2	1	0	50	100	150	3	100%
ECT1101	Engineering Science Course	Basic Electronics Engineering	2	1	0	50	100	150	3	100%
CST3101	Engineering Science Course	Computer Programming	2	1	0	50	100	150	3	100%
BSP1113	Basic Science Course	Applied Engineering. Physics lab	0	0	2	50	-	50	1	100%
ECP1111	Engineering Science Course	Basic Electronics Engineering Lab	0	0	1	50	-	50	1	100%
CSP3111	Engineering Science Course	Computer Programming Lab	0	0	2	50	-	50	1	100%
		TOTAL	13	05	05	450	600	1050	21	



 Robin

Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMMON TO ALL BRANCHES
CLASS: B.E. 1st SEMESTER
COURSE TITLE: ENGINEERING MATHEMATICS-I
COURSE NO.:BST1101
DURATION OF EXAM: 3 HOURS

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	
2	1	0	50	100	3

COURSE OUTCOMES:At the end of the course the students will be able to

CO 1	Learn general theorems of calculus; find maximum and minimum value of functions of two variables.
CO 2	Understand the concept of definite integrals.
CO 3	Learn basic concepts of complex trigonometry.
CO 4	Find the rank, eigen values/vectors of matrices.

Section A

UNIT-I: DIFFERENTIAL CALCULUS

Partial differentiation, Euler's theorem on homogeneous functions, Rolle's theorem, Mean value theorem, Taylor's and Maclaurin's series with remainder, Taylor's series in two variables, Maxima and Minima of functions of two variables, Method of Lagrange's multipliers. (12 hours)

UNIT-II: INTEGRAL CALCULUS

Definite integrals with important properties, differentiation under the integral sign, Gamma, Beta and error functions with simple problems, double and triple integrals with simple problems. (08 hours)

Section B

UNIT-III: COMPLEX TRIGONOMETRY

Hyperbolic functions of a complex variable, Inverse Hyperbolic functions, Logarithmic function of a complex variable; Summation of series by C+iS method. (08 hours)

UNIT-IV: MATRICES

Introduction, Rank of a matrix, Elementary transformations, Elementary matrices, Inverse using elementary transformation, Normal form of a matrix, Eigen values and Eigen vector, Properties of Eigen values, Cayley Hamilton Theorem, Diagonalization of matrix. (14 hours)


BOOKS RECOMMENDED:

1. Calculus and Analytic Geometry
2. Differential Calculus
3. Higher Engineering Mathematics
4. Engineering Mathematics-I
5. Engineering Mathematics-II

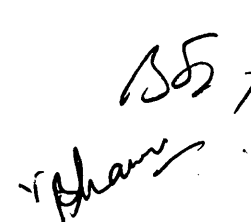

Thomas and Finney, 9th Edition, Pearson, 2002.
S. Narayan and P.K. Mittal, S.Chand, New Delhi.
B.S Grewal, Khanna Publishers, New Delhi
Dr. Bhopinder Singh
Dr. Bhopinder Singh

Note: There will be eight questions of 20 marks each uniformly covering the entire syllabus. Students are required to attempt five questions; selecting at least two questions from each section. Use of Calculator is allowed.

 Robin

 Deepa



 35, 

Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMPUTER/CSE/IT/E&C/ELECTRICAL ENGINEERING

COURSE TITLE: ENGINEERING GRAPHICS

COURSE NO. : MET5102

DURATION OF EXAM: 3HOURS

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	
3	0	0	50	100	3

COURSEOUTCOMES(CO): At the end of the course the student will be able to:

CO 1	Understand and use engineering scales with accuracy and interpret missing views.
CO 2	Work with zeal of Industrial practices and standards.
CO 3	Convert sketches to engineering drawings.
CO 4	Fundamentally understand and perform Two and Three dimensional drawings.
CO 5	Draw and understand orthographic projections of sections.

Section A

Engineering Curves

Conventional lines and signs used in Engineering Drawing, Printing and Lettering, Curves used in Engineering Practice: Cycloidals, Involutes, Spirals and Hellices, Locus of a point on simple mechanisms.

Projection of Planes: Projections of a plane w.r.t. the principle planes in simple and inclined positions. Rotation method and the Auxiliary plane method.

Projection of Solids: Classification and main features-Prisms and Pyramids. Projection of solids inclined to both the reference planes by (I) Rotation Method, and (II) Auxiliary plane method. Projection of solids in combination (Co-axial) in simple and inclined positions.

Sectioning of Solids: Object of sectioning, Types of cutting planes, True shape of section, Auxiliary views of sections of multiple co-axial solids in simple and titled conditions. (20 hrs)

Section B

Interpenetration of Solids and Intersection of Surface

Intersection of geometrical solids/hollow sections, Tracing of lines of intersection by line method and by section method.

Development of Surfaces: Classification of surfaces, Methods of development-Straight line method and Radial line method, Development of solids and hollow sections in full or part development of transition pieces.

Orthographic Projections: Orthographic projection of simple blocks (First & Third angles), to draw the third view from given two views. Missing lines in projection. Introduction to Auto CAD. Basic Commands and Basic Drawing Practices. (21 hrs)

RECOMMENDED BOOKS:

1. Engineering Drawing
2. Practical Geometry
3. Engineering Graphics
4. Principles of Engineering Graphics
5. Engineering Graphics

P.S Gill
V. Laxmi Narayan & GEV
K.L. Narayanan & P. Kamaish
P.E Giesecks
Frederic & Michelle.

Note: There will be eight questions of 20 marks each uniformly covering the entire syllabus. Students are required to attempt five questions; selecting at least two questions from each section. Use of Calculator is allowed.

Robin

Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMPUTER /CSE/IT/E&C/ELECTRICAL ENGINEERING

COURSE TITLE: UNIVERSAL HUMAN VALUES

COURSE NO. : HMT1102

DURATION OF EXAM: 3HOURS

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	
2	1	0	50	100	3

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO1	Understand the meaning of happiness and prosperity for a human being.
CO2	Comprehend the holistic approach about the family and society.
CO3	Understand the harmony in the nature and self-regulation in nature.
CO4	Apply the understanding of harmony in existence in their profession.

Section A

UNIT 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Understanding the need, basic guide lines, content and process for Value Education
2. Self-Exploration–what is it?-its content and process; ‘Natural Acceptance’ and Experiential Validation-as the mechanism for self-exploration.
3. Continuous Happiness and Prosperity-A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facilities the basic requirements for fulfillment of aspirations of every human being with their correct priority. (11 hours)

UNIT 2: Understanding Harmony in the Human Being Harmony in Myself!

1. Understanding human being as a co-existence of the sentiment(‘I’) and the material ‘Body’
2. Understanding the needs of Self(‘I’)and ‘Body’– Happiness and physical facility.
3. Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer)
4. Understanding the characteristics and activities of ‘I’ and harmony in ‘I’ (9 hours)

Section B

UNIT3: Understanding Harmony in the Family and Society-Harmony in Human-Human Relationship

1. Understanding Harmony in the family–the basic unit of human interaction
2. Understanding values in human-Human relationship: meaning of justice(*Nyaya*) and program for its fulfillment to ensure mutual happiness(*Ubhay-tript*) Trust(*Vishwas*)and Respect (*Saman*) as the foundational values of relationship
3. Understanding the meaning of trust(*Vishwas*):Difference between intention and competence
4. Understanding the meaning of respect(*Samman*),Difference between respect and differentiation; the other salient values in relationship. (10 hours)

UNIT4: Understanding Harmony in the Nature and Existence-Whole existence as Co-existence

1. Understanding the harmony in the Nature
2. Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature.
3. Understanding existence as co-existence of mutually interacting units in all pervasive space
4. Holistic perception of harmony at all levels of existence. (10 hours)

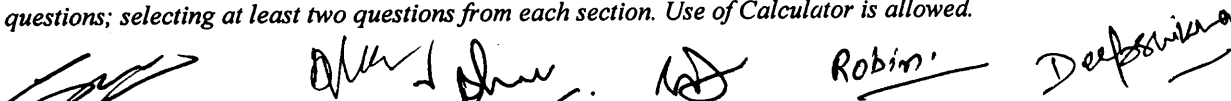
Book Recommended:

1. R. R Gaur, R Sangal, G P Bagaria,A foundation course in Human Values and professional Ethics, Excel books, New Delhi,

Reference Books:

1. P L Dhar, RR Gaur, Science and Humanism, Common wealth Purblishers.
2. Subhas Palekar,2000,How to practice Natural Farming, Pracheen(Vaidik)KrishiTantraShodh,
3. A Nagraj, 1998,Jeevan Vidya ek Parichay,Divya Path Sansthan, Amar kantik.
4. B. Mahadevan, Vinayak Rajat Bhat, Nagendra Pavana R.N, Indian Knowledge System, PHI Publisher.

Note: There will be eight questions of 20 marks each uniformly covering the entire syllabus. Students are required to attempt five questions; selecting at least two questions from each section. Use of Calculator is allowed.



Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMPUTER /CSE/IT/E&C/ELECTRICAL ENGINEERING

COURSE TITLE: APPLIED ENGINEERING PHYSICS

COURSE NO.: BST1103

DURATION OF EXAM: 3 HOURS

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	3
2	1	0	50	100	

COURSE OUTCOMES (CO): At the end of the course the student will be able to-

CO 1	Understand the significance of vector calculus and Maxwell's equations as the basis of Electromagnetic theory.
CO 2	Acquire the basic principles of laser physics, quantum mechanics and their applications.
CO 3	Acquire knowledge of semiconductor physics along with different aspects of applied optics & their applications.
CO 4	Understand the working principle of optical fibres with their applications in various fields.

Section A

UNIT-I: ELECTROMAGNETIC FIELDS AND WAVES

Concepts of Del Operator- gradient, divergence, curl and their physical significances, Displacement Current. Maxwell's equations in integral and differential form, Poynting vector and Poynting theorem, Electromagnetic wave propagation in free space (e m wave equations for electric & magnetic fields for free space) & their solutions (plane wave solution), velocity of E M waves, Relation between E_0 & B_0 . (08 hours)

UNIT-II: LASER PHYSICS

Concept and principal of Laser action, Spontaneous and Stimulated emission, Einstein's Co-efficient and relations, three and four level laser system, coherence and characteristics of laser light, Ruby, He -Ne and CO_2 Lasers, Applications of lasers. (05 hours)

UNIT -III: QUANTUM MECHANICS

Need of quantum mechanics, Compton effect, concept of wave function, Eigen function and Eigen values, operators in quantum mechanics, Expectation values, Schrodinger's wave equation (Steady-state and Time dependent) for one-dimensional case, Applications of Schrodinger's equation (Time independent) to Particle in a one-dimensional box of infinite height and concept of zero point energy. (08 hours)

Section B

UNIT-IV: SEMICONDUCTOR PHYSICS

Structure of Atoms, Energy band diagram, Metal, Insulator and Semiconductor, Intrinsic and Extrinsic semiconductors, Direct & Indirect semiconductors (E-k diagrams), Electron and hole concentration in intrinsic semiconductor, Charge densities in semiconductor, Generation & Recombination of charge carrier, Law of mobility & conductivity, Current densities in semiconductors, Fermi levels, Mass action law, Drift & Diffusion current and Einstein relation for p-n junction, Hall effect, Hall co-efficient & its applications. (08 hours)

UNIT -V: APPLIED OPTICS

Thin films, Interference in thin films (by reflection and transmission of light), Theory of Newton's rings by reflected & transmitted light, Determination of wavelength and refractive index of monochromatic light by Newton's rings theory, Plane diffraction grating & its theory for secondary maxima & minima, polarized and unpolarized light, Nicol Prism as a Polarizer and Analyzer. (07 hours)

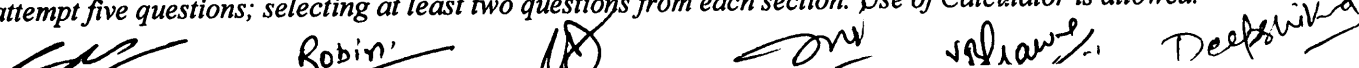
UNIT VI: FIBRE OPTICS

Optical Fibre, Physical structure and basic theory, Propagation of Light in Optical fibres, critical angle, Acceptance angle & acceptance cone, Numerical Aperture, Single mode & Multimode Fibres, Characteristics and General applications of Optical fibres. (07 hours)

Books Recommended

- | | |
|--|-----------------------|
| 1. Fundamentals of Electricity & Magnetism | Duggal & Chhabra |
| 2. Lasers Fundamentals and applications | A. K. Ghatak |
| 3. Semiconductor Physics and Devices | Donald A. Neamen |
| 4. Optics | Brijlal & Subramaniam |
| 5. Fibre Optics | Ghatak, Tyagrajan |
| 6. Quantum Mechanics | N. Zettili |

Note: There will be eight questions of 20 marks each uniformly covering the entire syllabus. Students are required to attempt five questions; selecting at least two questions from each section. Use of Calculator is allowed.



Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMPUTER /CSE/IT/ELECTRICAL ENGINEERING

COURSE TITLE: BASIC ELECTRONICS ENGINEERING

COURSENO.ECT1101

DURATION OF EXAM: 3 HOURS

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	
2	1	0	50	100	3

COURSE OUT COMES (CO): At the end of the course the student will be able to:

CO 1	To understand the fundamentals of semiconductor Physics.
CO 2	To introduce the concepts of semiconductor devices with applications.
CO 3	To enable the students to understand the working and applications of a transistor
CO 4	To understand the basics of communication systems.

Section A

Unit-I: Semi-Conductors and Diodes:

Introduction, Insulators, Semiconductors and Metals, Mobility and Conductivity, Intrinsic and Extrinsic Semiconductors, Charge Density, Current Components in Semiconductors, Continuity Equation, Introduction, Insulators, Semiconductors and Metals, Mobility and Conductivity. PN Junction Diode- Volt ampere characteristics, Diode capacitances, Static & dynamic resistances; Types of Diodes- Zener Diode, its breakdown phenomenon and its applications, Photodiodes, LED, Varactor Diode, Tunnel Diodes, Schottky diode. (10 hrs)

Unit-II: Diode Applications:

Rectifiers and Filter Circuit: Half Wave Rectifier, Full Wave Rectifier, Bridge Rectifier and their Analysis, LC and Pi Filters; Series and Shunt Diode Clippers, Clipping at Two Independent Levels, Clamping Operation, Clamping Circuit, Practical Clamping Circuits. (10 hours)

Section B

Unit-III: Bipolar Junction Transistors:

Symbol, Construction, and Characteristics of BJT, reach through phenomenon and Base width modulation, Transistor Configuration: CB, CE, CC Configuration with necessary current equations. Transistor as an amplifier and switch, Derivation related to Transistor Biasing and Bias Compensation Techniques. (10 hours)

Unit-IV: Basics of Communication System:

Introduction to Analog and Digital Communication Systems, Block Diagram Representation of Communication System, the Basic idea of Transmitter and Receiver used for radio communication, Various Frequency bands used for Communication, Need of Modulation and Introduction to Cellular Communication. (8 hours)

BOOKS RECOMMENDED:

1. Integrated Electronics by J. Millman and C.C. Halkias, McGraw Hill Education, India.
2. Electronics Devices and Circuit Theory by R. Boylestad and L. Nashelsky, Pearson India.
3. Electronics Devices and Circuits-II by U. A. Bakshi and A. P. Godse, Technical Publications.
4. Electronic principles by L. Malvino, Tata McGraw Hill Education.
5. Electronic Communication Systems by G. Kennedy, McGraw Hill Education, India.

Note: There will be eight questions of 20 marks each uniformly covering the entire syllabus. Students are required to attempt five questions; selecting at least two questions from each section. Use of a Calculator is allowed.

Robin

Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMPUTER /CSE/IT/E&C/MECHANICAL ENGINEERING

COURSE TITLE: COMPUTER PROGRAMMING

COURSE NO.: CST3101

DURATION OF EXAM: 3 HOURS

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	
2	1	0	50	100	3

COURSE OUTCOMES (CO): At the end of the course the student will be able to-

CO 1	Understand various software development tools like algorithm, pseudo codes and flow charts for solving problems.
CO 2	Understand the use of loops and decision making statements to solve the problems.
CO 3	Apply different operations on arrays and user-defined functions to solve real-time problems.
CO 4	Analyze the operation of pointers, structures and unions.
CO 5	Implement file operations in C programming for a given application.

Section A

1. Introduction to Programming (Flow chart/ pseudocode, compilation etc.)

Evolution of programming languages, the compilation process, object code, source code, executable code, fundamentals of algorithms, flow charts. (4 Hours)

2. Introduction to C, Data Types, Constants, Variables, Expressions, Statements, Operators, Data Input and Output.

Character set, Identifiers, Keywords, Data Types, Constant and Variables, Statements, Expressions, Operators, Precedence of operators, Input-output Assignments. (6 Hours)

3. Control Statements, Storage Classes, Library Functions.

Control structures, Decision making and Branching, Decision making & looping. Storage Classes: Types of storage classes, Scoping rules. Standard Library Functions, advantages and use of various library functions (I/O functions, String, Character, Mathematics, Time and Date, functions). (10 Hours)

Section B

4. Functions, Arrays, Recursion, User Defined Data Types, Structures, Unions, Passing Structure to Functions.

User defined and standard functions, Formal and Actual arguments, Functions category, function prototypes, parameter passing, Call-by-value, Call-by-reference, Nested function, Recursion.

One dimensional Array, One dimensional Array, 2- dimensional arrays: declaration and their applications, Searching in an array: Linear search and Binary search.

Sorting in an array: Bubble sort, Selection sort, Insertion sort, String Manipulation functions, Passing array to a Function, Declaration of structures, declaration of unions, pointer to structure & unions. (10 Hours)

5. Pointers, Operation on Pointers, Passing Pointers to Functions, Data Files – Opening, Closing, Creating Data Files.

Pointer variable and its importance, Pointer Arithmetic, passing parameters by reference, pointer to pointer, pointers to functions, Dangling pointer, dynamic memory allocation. Console input output functions, Disk input output functions, opening closing and creating Data files. (10 Hours)

BOOKS RECOMMENDED:

- | | |
|--------------------------|----------------------|
| C How to Program, 7/e | - Paul J. Deitel |
| Programming With C | - Byron Gottfried. |
| Programming With C | - E. Balaguruswamy. |
| C The Complete Reference | - Herbert Schildt. |
| Let us C | - Yashwant Kanitkar. |

NOTE: There shall be total eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting at least two questions from each section. Use of calculator is allowed.

[Handwritten signatures: Ralle, Jan, Robin, A, Bhawan]

Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMPUTER/CSE/IT/E&C/ELECTRICAL ENGINEERING
COURSE TITLE: APPLIED ENGINEERING PHYSICS LAB
COURSENO.BSP1113

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	
0	0	2	50	-	1

COURSE OUTCOMES (CO): At the end of the course the student will be able to-

CO 1	Gain knowledge about the scientific methods of measuring different physical parameters based on the concepts of Physics.
CO 2	Develop experimentation skills by displaying minimized measurement errors.
CO 3	Acquire the practical skills to obtain the solutions pertaining to different physics' experiments.
CO 4	Acquire the essence of scientific temper infused with innovation and creativity.

Experiment No.	Title of Experiment
I	To find the co-efficient of self-induction of a coil by Anderson's Bridge using headphones.
II	To measure the number of lines on the diffraction grating using He-Ne laser.
III	To study the V-I characteristics of a PN- Junction diode.
IV	To find the wavelength of monochromatic light using Newton's rings apparatus.
V	To evaluate the value of Planck's constant using a photocell.
VI	To study the voice transmission through the optical fibre and measure the numerical aperture.
VII	To find the dispersive power of a given prism using a spectrometer.
VIII	To study the variation of Magnetic field by using Stewart and Gee's Tangent galvanometer.
IX	To find the resistivity of a semiconductor by four probe method at different temperatures.
X	To find the impedance of the LCR circuit.
XI	To study the Common base/ common emitter characteristics of PNP/NPN junction transistor.

NOTE: A minimum of six experiments is to be performed covering the diverse aspects of engineering physics

Deepsikura

Robin

Phawp

Examination to be held in the Year December 2022,2023,2024,2025

BRANCH: COMPUTER /CSE/IT/ELECTRICAL ENGINEERING
COURSE TITLE: BASIC ELECTRONICS ENGINEERING LAB
COURSE NO.: ECP1111

HOURS /WEEK			MARKS		CREDITS
L	T	P	INTERNAL	EXTERNAL	
0	0	1	50	-	1

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO 1	Evaluate & Plot the performance parameters of Half and full-wave rectifiers.
CO 2	Plot V-I characteristics of a transistor for various configurations.
CO 3	Design of basic electronic circuits using soldering techniques.
CO 4	Understand the significance of modulation index in a communication system

LIST OF PRACTICALS

1. To study the active and passive electronic components & to solder various electronic circuits on PCB.
2. To assemble various electronic circuits on Breadboard
3. To determine and plot the operating characteristics of the PN junction diode.
4. To study the characteristics of Zener diode, photodiode, Tunnel diode and LED.
5. To study Half wave and Full wave / Bridge Rectifier.
6. To study the operation characteristics (Input/Output) of the PNP/ NPN Transistor (Common Emitter/Common Base).
7. To study clipper and clamper circuits using diodes.
8. Design of self-bias circuits using BJT.
9. To find the modulation index of AM.
10. To find the demodulation of an AM and also find the modulating frequency.
11. To study the frequency response of Intermediate frequency Transformer (IFT)

Note: Each student has to perform at least eight experiments.

Kalin

[Signature]

Phaw

[Signature]

Robin

[Signature]