Established: 1994

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
(Autonomous College)

COURSE SCHEME
B.TECH. 1ST SEMESTER ELECTRICAL ENGINEERING
(Batch 2025 & Onwards)

Contact Hours/Week: 26

Course Code	Course Type	Course Title	Credits	Load Allocation			Marks Distribution					Total Marks
				L	T	P	CWA	PRS	MSE	ESE	PRE	
BMAT11	Basic Science Course	Engineering Mathematics -I	3	2	1	0	20		20	60		100
BPHT11	Basic Science Course	Applied Engineering Physics	2	1	1	0	20		20	60		100
BEET11	Engineering Science Course	Principles of Electrical Engineering	3	2	1	0	20		20	60		100
BMET12	Engineering Science Course	Engineering Graphics with CAD	3	3	0	0	20		20	60		100
BECT11	Engineering Science Course	Basic Electronics Engineering	3	2	1	0	20		20	60		100
BHST11	Basic Science Course	Universal Human Values & Ethics	3	2	1	0	20		20	60		100
BMEL12	Engineering Science Course	Workshop Technology	1	0	0	3		40			60	100
BPHL11	Basic Science Course	Applied Engineering Physics Lab.	1	0	0	2		40			60	100
BEEL11	Engineering Science Course	Principles of Electrical Engineering Lab	1	0	0	2		40			60	100
BECL11	Engineering Science Course	Basic Electronics Engineering Lab	1	0	0	2		40			60	100
Total			**21**	**12**	**5**	**9**	120	160	120	360	240	1000

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
(Autonomous College)

B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: CE/CSE/ECE/EE/ME
SEMESTER : 1st
COURSE TITLE: ENGINEERING MATHEMATICS-I
COURSE CODE: BMAT11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

Course Outcomes: On completion of the course the students will be able to	
CO1	Apply general theorems of calculus to analyze the behaviour of real-valued functions and determine maxima minima of functions of two variables.
CO2	Understand fundamental concepts of integration, special functions, and techniques for evaluating double triple integrals.
CO3	Analyze and solve problems involving complex trigonometric functions.
CO4	Determine rank, eigen values and eigen vectors of matrices using matrix operations.

SECTION- A

DIFFERENTIAL AND INTEGRAL CALCULUS

Partial differentiation, Euler's theorem on homogeneous functions, Rolle's theorem, Mean value theorem. **(7 Hrs)**
Taylor's and Maclaurin's series in two variables, Maxima and Minima of functions of two variables, Method of Lagrange's multipliers. **(7 Hrs)**
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. **(7 Hrs)**

SECTION- B

COMPLEX TRIGONOMETRY AND MATRICES

Hyperbolic functions of a complex variable, Inverse Hyperbolic functions, Logarithmic function of a complex variable, Summation of series by C+iS method. **(7 Hrs)**

Matrices: Rank of a matrix, Elementary transformations, Elementary matrices, Inverse using elementary transformations, Normal form of a matrix. **(7 Hrs)**

Eigen values and Eigen vectors, Properties of Eigen values, Cayley Hamilton Theorem, Inverse using Cayley Hamilton Theorem, Diagonalization of matrix. **(7 Hrs)**

BOOKS RECOMMENDED:

- Calculus and Analytic Geometry — Thomas and Finney
- Differential Calculus — S. Narayan and P.K. Mittal
- Higher Engineering Mathematics — B.S Grewal, Khanna
- Engineering Mathematics-I — Dr. Bhopinder Singh
- Engineering Mathematics-II — Dr. Bhopinder Singh
- Engineering Mathematics-I — Dr. Ambika Bhat

NOTE: The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory of 12 marks consisting of conceptual/ analytical/ objective type/short answer question, covering the entire syllabus (sections A & B).
Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate has to attempt four questions, selecting two from each section.
Use of scientific calculators (non-programmable), steam table, standard data/ log books are permitted, wherever required.

1994

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CSE/ECE
SEMESTER : 1st
COURSE TITLE: Applied Engineering Physics
COURSE CODE: BPHT11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
1	1	0	2	20	20	60

Course Outcomes : At the end of the course the Student will be able to	
CO1	Comprehend the basic laws governing electric and magnetic fields and their interrelation through electromagnetic induction.
CO2	Understand the significance of vector calculus and Maxwell's equations as the basis of Electromagnetic theory.
CO3	Learn the key ideas of laser physics and quantum mechanics, and how these are used in various scientific and engineering fields.
CO4	Acquire knowledge of semiconductor physics along with different aspects of applied optics & their applications

SECTION-A

UNIT-1: LAWS OF ELECTRICITY AND MAGNETISM

Electrostatics field ,Electric flux, Gauss's theorm of electrostatics, Magnetic effect of current and Magnetic field, Magnetic flux, Biot-Savart's law, Amper's circuit law & its modified form, Electromotive force, Faraday's Laws of Electromagnetic Induction (Intergral & Diffrential form), Lenz's law. **(06 hours)**

UNIT 2: 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 (em wave equations for electric & magnetic fields for free space) & their solutions (plane wave solution), velocity of Em waves, Relation between E_0 & B_0. **(07 hours)**

UNIT 3: LASER PHYSICS : Concept and principle 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, He–Ne, Applications of lasers. **(04 hours)**

SECTION-B

UNIT 4: QUANTUM MECHANICS: Need of quantum mechanics, Compton effect, concept of wave function, Eigen function and Eigen values, operators in quantum mechanics, Schrodinger's wave equation (Steady- state and Time-dependent) for one- dimensional case. **(05 hours)**

UNIT 5: 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 semiconductors, 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. **(09 hours)**

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Books Recommended

• Fundamentals of Electricity & Magnetism	Duggal & Chabbra
• Lasers Fundamentals and applications	A. K. Ghatak
• Semiconductor Physics and Devices	Donald A. Neamen
• Quantum Mechanics	N. Zettili

NOTE: The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory of 12 marks consisting of conceptual/ analytical/ objective type/short answer question, covering the entire syllabus (sections A & B).
Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate has to attempt four questions, selecting two from each section.
Use of scientific calculators (non-programmable), steam table, standard data/ log books are permitted, wherever required.

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU

(Autonomous College)

B.Tech. Electrical Engineering

(Batch 2025 & Onwards)

BRANCH: EE/CE
SEMESTER : 1st
COURSE TITLE: PRINCIPLES OF ELECTRICAL ENGINEERING
COURSE CODE: BEET11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

COURSE OUTCOMES: students will be able to understand and analyse	
CO.1	The basic concepts of electric circuit terminology, Kirchhoff's and Ohm's laws.
CO.2	The circuits using electrical theorems
CO.3	The basic terminologies in AC and star-delta circuits
CO.4	The working principle of single phase transformer.

SECTION-A

Unit-1

Electric Circuit Laws & Energy Sources: Basic electric circuit terminology, Ohm's law, Kirchhoff's laws, Circuit parameters (Resistance, inductance & capacitance), series & parallel combination of resistance, inductance & capacitance. ideal & practical voltage and current sources and their transformation, dependent voltage sources and dependent current sources. **(12 hours)**

Unit-2

D.C. Circuit Analysis: Power and energy relations, analysis of series parallel D.C. circuits, Mesh & Nodal methods, Star-Delta transformation, Superposition theorem, Thevenin's theorem, Norton's theorem, Maximum power transfer theorem, Reciprocity Theorem. **(10 hours)**

SECTION-B

Unit-3

A.C. Circuit: Introduction, Average and effective values of periodic functions, instantaneous and average power, Phasor and complex number representation. Solution of sinusoidally excited R, L, C circuits, Resonance in series and parallel circuits, quality factor. Concept of 3-phase voltage and current in Wye (y), Delta circuits and their relationship. **(10 hours)**

Unit-4

Transformers

Construction, principle operation of single phase transformer, ideal and practical transformer (no-load & on-load phasor diagrams), equivalent circuit, losses in transformers, transformer test (open circuit & short circuit), regulation and efficiency, auto transformer. **(09 hours)**

RECOMMENDED BOOKS:

1. Electrical Engineering Fundamentals — V. Del toro
2. Electrical Technology — H.Cotton
3. Electrical Technology — E.Hughes
4. Basic Electrical Engineering — A.K.Chakrabarti
5. Basic Electrical Engineering — J.B Gupta

NOTE: The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory of 12 marks consisting of conceptual/ analytical/ objective type/short answer question, covering the entire syllabus (sections A & B).
Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate has to attempt four questions, selecting two from each section.
Use of scientific calculators (non-programmable), steam table, standard data/ log books are permitted, wherever required.

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CSE/ECE
SEMESTER : 1st
COURSE TITLE: ENGINEERING GRAPHICS with CAD
COURSE CODE: BMET12
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
3	0	0	3	20	20	60

COURSE OUTCOMES: students will be able to understand and analyse	
CO1	Understand and use engineering scales with accuracy and interpret missing views.
CO2	To have knowledge of Industrial practices and standards.
CO3	To Understand the principles of engineering drawing
CO4	Knowledge of computer Aided design and drafting
CO5	To interpret, and represent three-dimensional engineering objects through accurate projection of points, lines, planes, and solids, including sectional views using rotation and auxiliary plane methods.

SECTION –A

Unit I Lettering and Dimensioning: Introduction, Lines, types of lines, Lettering, Single stroke Lettering, Dimensioning, placing of dimensions, Aligned and unidirectional

Engineering Curves: Curves used in Engineering Practice: Cycloidals, Involutes, Spirals and Helices, Locus of a point on simple mechanism **(12hrs)**

Unit II 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. Space relation of a plane. To locate a point on a plane given its projections. Parallel relation of planes. Projection of planes inclined to different principal plane.

Projection of Solids: Classification and main features-Prisms and Pyramids. Projection of solids inclined to both the reference planes by (1) Rotation Method, and (l) Auxiliary plane method. Projection of solids in combination (Co-axial) in simple and inclined positions. **(10 hrs)**

SECTION -B

Unit III 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. **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. To draw projections from given development. **(10 hrs)**

Unit IV Overview of Computer Graphics covering:

Listing the computer technologies that impact on graphical communication, Demonstrating knowledge of the theory of CAD software (such as: The Menu System, Toolbars (Standard, Object Properties, Draw, Modify and Dimension), Drawing Area (Background, Crosshairs, Coordinate System), Dialog boxes and windows, Shortcut menus (Button Bars), The Command Line (where applicable), The Status Bar, Different methods of zoom as used in CAD, Select and erase objects. **(07 hrs)**

Orthographic Projections: Orthographic projection of simple blocks (First & Third angles), to draw the third view from given two views. Missing lines in projection. **(12 hrs)**

RECOMMENDED BOOKS:

1. Engineering Drawing — P.S Gill
2. Practical Geometry — V. Laxminarayan& GEV
3. Engineering Graphics — K.L. Narayanan & P. Kamaish
4. Engineering Graphics with AutoCAD — D. M. Kulkarni, A. P. Rastogi

NOTE: The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory of 12 marks consisting of conceptual/ analytical/ objective type/short answer question, covering the entire syllabus (sections A & B). Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate has to attempt four questions, selecting two from each section. Use of scientific calculators (non-programmable), steam table, standard data/ log books are permitted, wherever required.

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CSE
SEMESTER : 1st
COURSE TITLE: BASIC ELECTRONICS ENGINEERING
COURSE CODE: BECT11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

COURSE OUTCOMES: After learning this course students will be able to:	
CO1	To understand the fundamentals of semiconductor Physics.
CO2	To introduce the concepts of semiconductor devices with applications.
CO3	To enable the students to understand the working and applications of transistor
CO4	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 Hrs)**

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-I 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: The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory of 12 marks consisting of conceptual/ analytical/ objective type/short answer question, covering the entire syllabus (sections A & B).
Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate has to attempt four questions, selecting two from each section. Use of scientific calculators (non-programmable), steam table, standard data/ log books are permitted, wherever required.

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
(Autonomous College)

B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: CSE/ECE/EE
SEMESTER : 1st
COURSE TITLE: UNIVERSAL HUMAN VALUES & ETHICS
COURSE CODE: BHST11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

COURSE OUTCOMES : On completion of the course the students will be able to:	
CO1	Comprehend the significance of human values and implement them in both personal and professional settings.
CO2	Comprehend the holistic approach about the family and society
CO3	Develop an extensive awareness of nature and the ability to self-regulate in nature.
CO4	To make the students realize the significance of ethics in professional environment.

Section-A

Introduction to Value Education
Value Education: Concept, Need, Basic Guidelines and Content of Value Education. Self -Exploration as the Process of Value Education: Meaning, Content, Process and important implications of Self-exploration, Natural Acceptance- The basis for Right Understanding.
Basic Human Aspirations and their Fulfilment: Meaning of Basic Aspiration, Continuous Happiness and Prosperity, Right Understanding, Relationship and Physical Facilities the Basic Requirements for fulfillment of aspirations of every human being with their correct priority. Development of Human Consciousness and Role of Education-Sanskar. **(11 Hrs)**

Harmony in the Human Being
Human being as a co-existence of Self and Body: Needs, Activities and Response of Self and Body. Self as the Conscious Entity and Body as the Material Entity.
Sources of Imagination-Preconditioning, Sensation and Natural Acceptance
Harmony of Self with the Body: Body as an instrument of 'I' (I am the Seer, Doer and Enjoyer/ Experiencer)
Programme for ensuring Self-regulation and Health: Nurturing, Protecting and Right Utilization of Body. **(10 Hrs)**

SECTION-B

Harmony in the Family and Society
Harmony in Human- Human Relationship: Understanding of Relationship, Family as the basic unit of Human Interaction, Feelings (Values) in relationship- Nine Values
Trust (Vishwas) as the Foundation Value: Difference between Intention and Competence
Respect (*Samman*) as Right Evaluation: Over, Under and Otherwise Evaluation
Justice (Nyaya): Meaning of Justice and Program for its fulfilment to ensure mutual happiness.
Understanding Universal Human Order: Human Goal, Dimensions (Systems) of Human Order. Harmony from Family Order to World Family Order.
(11 Hrs)

Harmony in the Nature and Existence
Interconnectedness and Mutual Fulfillment among the four orders of nature, Realizing existence as co-existence at all levels, The Holistic Perception of Harmony in existence.
Ethics
Nature, scope and method of ethics. Distinction between values and ethics, Principles of personal and professional ethics, Ability to utilize the professional competence for augmenting universal human order. Corporate Social Responsibility (CSR)- Meaning and Importance
(10 Hrs)

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BOOKS RECOMMENDED:

- R.R Gaur, R Sangal, G P Bagaria, A foundation course in Human Values and Professional Ethics, Excel books, New Delhi, 2010,
- PPTs of Lectures and Practice Sessions
- Audio-visual material for use in the practice sessions

References:

- B L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow.2008
- PL Dhar, RR Gaur, 1990, Science and Humanism, Common wealth Publishers.
- Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991
- Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and HarperCollins, USA

INSTRUCTIONS (End Semester Examinations)

The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory consisting of conceptual/analytical/objective type/short type questions with maximum 12 marks, spread over the entire syllabus(both sections).
Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks.
The candidate will have to attempt four questions, from sections (II&III) selecting two from each.

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU

(Autonomous College)
B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/ME
SEMESTER : 1st
COURSE TITLE: WORKSHOP TECHNOLOGY
COURSE CODE: BMEL11

L	T	P	CREDITS	MARKS	
				Practical Sessional (PRS)	Practical Exam (PRE)
0	0	3	1	40	60

COURSE OUTCOMES: At the end of the course, the student will demonstrate the ability to: -

CO1	Introduction to different manufacturing methods in different fields of engineering.
CO2	Understanding different manufacturing techniques and their relative advantages/disadvantages with respect to different applications.
CO3	Acquire a minimum practical skill with respect to the different materials.
CO4	Creation of simple components using different materials.

SHOP PRACTICE: -

Unit -1: - Carpentry

1. Middle/Cross lap joint
2. Mortise and Tenon Joint T -Joint
3. Pattern making of open bearing

Unit II: -Foundry

1. Moulding of open bearing (simple pattern)
2. Moulding of Sliding Job of Bench Vice (Split piece pattern)

Unit -III: - Smithy

1. Upsetting, drawing and bending operation

Unit -IV: - Welding

1. Preparation of single V- Butt joint by arc/gas welding.
2. Preparation of Double V-Butt joint by gas /arc welding.
3. Corner Joint by arc/gas welding
4. Lap Joint by arc/gas welding

Unit – V: - Fitting

1. Assembly of snap fitting of MS-Flat pieces (Male and Female)
2. Assembly and fitting of two L-shaped rectangular MS-flat pieces.

Books Recommended: -

1. Workshop Technology by Hajra and Chowdhary
2. Manufacturing Technology Vol I and II by Rao. P.N
3. Manufacturing Technology by Gowri. P. Hariharan and A. Suresh Babu.

Note:- Minimum of eight experiments to be performed.

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CSE/ECE
SEMESTER : 1st
COURSE TITLE: APPLIED ENGINEERING PHYSICS-LAB
COURSE CODE: BPHL11

L	T	P	CREDITS	MARKS	
				Practical Sessional (PRS)	Practical Exam (PRE)
0	0	2	1	40	60

Course Outcomes (CO): At the end of the course the Student will be able to -

CO1	Gain knowledge about the scientific methods of measuring different physical parameters based on the concepts of Physics
CO2	Develop experimentation skills by displaying minimized measurement errors.
CO3	Acquire the practical skills to obtain the solutions pertaining to different physics experiments.
CO4	Fostering a scientific temper that inspires innovation and creativity.

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

NOTE: A minimum of seven (07) experiments is to be performed covering the diverse aspects of engineering physics.

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CE
SEMESTER : 1st
COURSE TITLE: PRINCIPLES OF ELECTRICAL ENGINEERING LAB
COURSE CODE: BEEL11

L	T	P	CREDITS	MARKS	
				Practical Sessional (PRS)	Practical Exam (PRE)
0	0	2	1	40	60

Course Outcome: After completion of laboratory course the students would able to:	
CO.1	Experimentally verify the basic circuit theorems
CO.2	Measure current in series-parallel RLC circuits.
CO.3	Measure load of 3 phase ac circuits connected in star and delta
CO.4	Understand the basic characteristics of single phase transformer.

LIST OF EXPERIMENTS:

1. Verification of Kirchoff's Laws.
2. Verification of Superposition Theorem.
3. Verification of Thevenin's Theorem.
4. Verification of Norton Theorem.
5. Verification of Reciprocity Theorem.
6. Verification of Maximum Power Transfer Theorem.
7. Measurement of current in various branches of RLC series-parallel circuit.
8. Study of three-phase A.C Circuits with Star and Delta connected Load.
9. Study of single phase transformer. Determination of polarity test of given single phase transformer.
10. To perform open and short circuit test on single phase transformer.

Note- Minimum of seven experiments is to be performed by each student

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CSE
SEMESTER : 1st
COURSE TITLE: BASIC ELECTRONICS ENGINEERING LAB
COURSE CODE: BECL11

L	T	P	CREDITS	MARKS	
				Practical Sessional (PRS)	Practical Exam (PRE)
0	0	2	1	40	60

COURSE OUTCOMES: After learning this course students will be able to:	
CO.1	Plot forward and reverse characteristics of silicon and Zener diodes.
CO.2	To evaluate the performance parameters of Half and full wave rectifiers.
CO.3	Plot V-I characteristics of a transistor for various configurations using a trainer kit.
CO.4	Design of basic electronic circuits using soldering techniques.
CO.5	Understand the significance of modulation index in a communication system

LIST OF PRACTICALS

1. To study the active and passive electronic components & 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 nine experiments.

Established: 1994

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU
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COURSE SCHEME
B.TECH. 2ND SEMESTER ELECTRICAL ENGINEERING
(Batch 2025 & Onwards)

Contact Hours/Week: 21

Course Code	Course Type	Course Title	Credits	Load Allocation			Marks Distribution					Total Marks
				L	T	P	CWA	PRS	MSE	ESE	PRE	
BMAT21	Basic Science Course	Engineering Mathematics -II	3	2	1	0	20		20	60		100
BCHT21	Basic Science Course	Advanced Engineering Chemistry	2	1	1	0	20		20	60		100
BCET21	Engineering Science Course	Environmental Science	3	2	1	0	20		20	60		100
BCST21	Engineering Science Course	Fundamentals of programming using C	3	2	1	0	20		20	60		100
BMET22	Engineering Science Course	Basics of Mechanical Engineering	3	2	1	0	20		20	60		100
BHST21	Engineering Science Course	Business Communication & Professional Development	1	1	0	0	20		20	60		100
BCSL21	Engineering Science Course	Fundamentals of programming using C -Lab	1	0	0	2		40			60	100
BHSL21	Basic Science Course	Business Communication & Professional Development Lab.	1	0	0	2		40			60	100
BCHL21	Basic Science Course	Advanced Engineering Chemistry Lab.	1	0	0	2		40			60	100
Total			18	10	05	06	120	120	120	360	180	900

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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: CE/CSE/ECE/EE/ME
SEMESTER : 2nd
COURSE TITLE: ENGINEERING MATHEMATICS-II
COURSE CODE: BMAT21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

Course Outcomes: On completion of the course the students will be able to	
CO1	Analyse an infinite series of positive terms for convergence or divergence, and distinguish between absolute and conditional convergence.
CO2	Understand the concept and formulation of Fourier series and apply it to represent periodic functions.
CO3	Solve ordinary differential equations of first and higher order.
CO4	Formulate and solve linear and non- linear partial partial differential equations.

Section-A

INFINITE SERIES

Convergence and divergence of positive term series: p-test, Comparison Test, Cauchy Root Test, D'Alembert Ratio Test, Raabe's Test, Gauss Test, Logarithmic Test. **(7 Hrs)**

Alternating series: Leibnitz Test for alternating series, absolute and conditional convergence. **(3 Hrs)**

Fourier Series: Euler's formula, sufficient conditions for a Fourier expansion, functions having points of discontinuity. Odd and even functions, Fourier expansion of periodic functions. **(4 Hrs)**

Half Range Fourier Series: Half range Sine Series, Half range Cosine Series. Parseval's identity, Complex form of Fourier series. **(7 Hrs)**

Section-B

DIFFERENTIAL EQUATIONS

Ordinary Differential equations: First order and first degree, Linear and Bernoulli's differential equations, Exact and non-exact differential equations. Higher order linear differential equations: Complementary solution, particular integral and general solution of these equations. **(7 Hrs)**

Variation of parameters technique to find particular integral of second order differential equations, Cauchy_Euler and Lagrange's differential equations. **(3 Hrs)**

Partial Differential Equations: First order linear p.d.e, Non-Linear p.d.e. of first order, solution by Charpit's method, Four Standard forms of non-linear p.d.e with reference to Charpit's technique: f(p, q)=0, f(z, p, q)=0, f(x, p)=g(y, q) and Clauraut's form. **(4 Hrs)**

Homogeneous and Non-homogeneous higher order linear partial differential equations with constant coefficients, Rules for finding P.I and C.F, Non-Linear equations of 2nd order. **(7 Hrs)**

BOOKS RECOMMENDED:

- Advanced Engineering Mathematics R.K. Jain, S.R.K Iyenger
- Differential Equations G. F. Simmons
- Partial Differential Equations M.D. Rai Singhania
- Engineering Mathematics-I Dr. Bhopinder Singh
- Engineering Mathematics-II Dr. Bhopinder Singh

INSTRUCTIONS (End Semester Examinations)

The question paper shall consist of three sections (I, II & III).

Section-I will be compulsory consisting of conceptual/analytical/objective type/short type questions with maximum 12 marks, spread over the entire syllabus(both sections A & B). Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate will have to attempt four questions, from sections (II & III) selecting two from each.

Use of scientific calculators (non-programmable), log books are permitted, wherever required.

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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CSE/ECE
SEMESTER : 2nd
COURSE TITLE: ADVANCED ENGINEERING CHEMISTRY
COURSE CODE: BCHT21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
1	1	0	2	20	20	60

Course Outcomes: At the end of the course the students will be able to	
CO 1	Know the importance of green chemistry and apply the knowledge of Drugs in day-to-day life.
CO 2	Summarize the different types, preparation and uses of plastics and paints
CO 3	Highlight the importance of Nano particles and get acquainted with the basic knowledge of various Electrochemical Cells
CO 4	Understand the various chemical processes encountered in the water softening.

SECTION-A

Unit – I: GREEN CHEMISTRY AND DRUGS

Green Chemistry: Definition and need of Green Chemistry, Principles and applications of Green Chemistry.

Drugs: Definition, structure and applications of following drugs:

(a)Tranquilizers (b) Antibiotics **(07 Hrs)**

Unit – II: PLASTICS AND PAINTS

Plastics: Introduction and importance of plastics, classification of plastics, moulding constituents of plastics, moulding of plastics into articles (compression, injection, transfer and extraction mouldings).

Paints: Introduction and requisites of a good paint, properties and uses of white pigments such as white lead and lithopone. **(07 Hrs)**

SECTION-B

Unit – III: NANO CHEMISTRY AND MATERIAL SCIENCE

Nano Chemistry: Introduction and properties of nano particles, Nano materials- Graphene and fullerenes.

Electrochemistry: Electrochemical cells; Galvanic cell and its application. Mass transfer by electroplating. **(08 Hrs)**

Unit – IV: WATER TREATMENT

Water Treatment: Introduction, softening of water by Zeolite and ion-exchange processes, priming and foaming, sludge and scale formation, determination of hardness of water by EDTA method, Numerical on hardness and softening of water. **(08 Hrs)**

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BOOKS RECOMMENDED:

- Engineering Chemistry — Sharma, B.K.
- Material Science and Engineering — William Callister
- An introduction to nanomaterials and nano science — A.K Das & Mahua Das

REFERENCE BOOKS:

- Engineering Chemistry — Shashi, Chawla
- Electrochemistry — Samuel Glasstone

INSTRUCTIONS (End Semester Examinations)

The question paper shall consist of three sections (I, II & III).

Section-I will be compulsory, it consists of single question (conceptual and analytical) with six subparts of the short answer type with two marks allotted to each part, which will cover the entire syllabus.

Sections II&III of the question paper will have three questions each from the respective sections (A&B) of the syllabus and each question will carry 12 marks. The candidate will have to attempt four questions, from sections (II&III) selecting two from each.

Use of scientific calculators (non-programmable) are permitted, wherever required.

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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: CS/EE/ME
SEMESTER : 2nd
COURSE TITLE: ENVIRONMENTAL SCIENCES
COURSE NO.: BCET21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

COURSE OUTCOMES :On completion of the course the students will be able to:	
CO1	Identify the structure , functions and significance of different eco-systems.
CO2	Explain the natural resources, biodiversity and their conservation.
CO3	Acknowledge the Environmental Pollution, its impacts and management.
CO4	Educate the masses about environmental issues and their role in Environment Conservation.

SECTION- A

Ecosystems: Structure and functions, Energy flow in the ecosystem. Food chains, food webs and ecological pyramids, Ecological succession. Types of ecosystems: Forest, Grassland, Desert and Aquatic ecosystem. Biogeochemical Cycles :Carbon cycle and Nitrogen Cycle. **(10 hours)**

Natural Resources : Renewable and Non-renewable resources.
Different types of resources Forest resources: Use and over Exploitation, deforestation, its effects on forest and tribal people. Land resources – use and over exploitation, soil erosion and desertification, Waste Land reclamation. Biodiversity: Hotspots of Biodiversity in India. Threats to Biodiversity and its conservation (in-situ and ex-situ conservation). **(10 hours)**

SECTION-B

Environmental Pollution: Definition, Cause, effects and control measures of Air, Water , noise & soil pollution, Greenhouse effect and global warming , acid rain, ozone layer depletion. Solid waste management. Environment Protection Act (1986), Air (Prevention and Control of Pollution) Act(1981), Water (Prevention and control of Pollution) Act (1974), Wildlife Protection Act (1972) and Forest Conservation Act (1980). **(10 hours)**

Social Issues related to Environment
Ecotourism and Environmental Ethics, Ecomark and Biodegradable Plastics. Sustainable development and Sustainable development goals (SDG's). Environment treaties : Montreal protocol and kyoto protocol. **(10 hours)**

REFERENCE BOOKS:

1. Ecology and Environment — P D Sharma
2. Environmental Chemistry — B K Sharma
3. Environmental Studies — Kaushik and Kaushik, New Age Publisher.
4. A Basic Course in Environmental Studies — Deswal and Deswal, Dhanpat Rai & Co.
5. Environmental Law — Dr P.S. Jaswal

NOTE: The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory of 12 marks consisting of conceptual/ analytical/ objective type/short answer questions, covering the entire syllabus (sections A & B).
Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate has to attempt four questions, selecting two from each section.
Use of scientific calculators (non-programmable), steam table, standard data/ log books are permitted, wherever required.

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY JAMMU

(Autonomous College)

B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CE
SEMESTER : 2nd
COURSE TITLE: FUNDAMENTALS OF PROGRAMMING USING C
COURSE NO.: BCST21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

COURSE OUTCOMES: At the end of the course students will be able to:	
CO1	Understand various software development tools like algorithm, pseudo codes and flow charts for solving problems.
CO2	Understand the use of loops and decision-making statements to solve the problems.
CO3	Apply different operations on arrays and user-defined functions to solve real-time problems.
CO4	Analyze the operation of pointers, structures.

SECTION A

Unit1-Basics of Programming & Fundamentals of C

Evolution of programming Languages, the compilation process, Object code, Source code, Executable code, Concept of Machine level, Assembly level and high-level languages, fundamentals of Algorithms, Flowcharts. Character set, Identifiers, Keywords, Data Types, Constant and Variables, Statements, Expressions, Operators, Precedence of operators, Input-Output Assignments. **(08 hours)**

Unit-2 -Decision making & Control structures

Decision making and Branching: Simple if, if-Else, nesting of if -Else, Else if ladder, Switch statement, The ? operator, go to statement.

Decision making & looping: while statement, do statement, for statement, jumps in loop, break and continue, Nesting of control structures. 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). **(08 hours)**

Unit-3 : Array and String

Concept of array: One dimensional Array, Two- dimensional arrays, declaration and their applications, Character array and string, declaration and initialization, operations on string. **(06 hours)**

SECTION B

Unit-4: Functions

Concepts of user defined functions: function declaration, function definition, function call, passing parameters, call-by-value, Call by Reference **(08 hours)**

Unit-5: Structures

Basics of Structures, structure members, accessing structure members, Pointer to structures. **(06 hours)**

Unit-6: Pointers

Pointer variable and its importance, Pointer Arithmetic, pointer to pointer, pointers to functions, dangling pointer, dynamic memory allocation. **(08 hours)**

BOOKS RECOMMENDED:

1. C How to Program, 7/e - Paul J. Deitel
2. Programming With C - Byron Gottfried.
3. Programming With C - E. Balaguruswamy.
4. C The Complete Reference - Herbert Schildt.
5. Let us C - YashwantKanitkar.

NOTE: The question paper shall consist of three sections (I, II & III).

Section-I will be compulsory consisting of conceptual/analytical/objective type/short type questions with maximum 12 marks, spread over the entire syllabus (both sections A & B).

Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate will have to attempt four questions, from sections (II & III) selecting two from each. Use of scientific calculators (non-programmable), log books are permitted, wherever required.

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(Autonomous College)

B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CE
SEMESTER : 2nd
COURSE TITLE: BASICS OF MECHANICAL ENGINEERING
COURSE NO.: BMET22
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
2	1	0	3	20	20	60

COURSE OUTCOMES:	At the end of the course students will be able to:
CO1	To have better understanding of fundamental principles of mechanics, including force systems, moments, equilibrium, and truss analysis using graphical and analytical methods
CO2	knowledge of modes of heat transfer and basic laws
CO3	Better understanding of properties of fluids and their uses.
CO4	Domain knowledge to analyze the performance of Hydraulic Machines
CO5	Knowledge of working principles, cycles and performance of internal combustion engines, compressors and friction systems and interpret P-V and T-S diagrams for various cycles.

Section A

Unit- I: Scope and basic concepts (Rigid body, force, units etc), concept of free body diagram, resultant of Co-planar concurrent forces in a plane and space, moment of force, Principles of Moments, coplanar and spatial applications. Virtual work method and its applications. Analysis of trusses, equilibrium and its equations for a planar and spatial systems, Method of joints and sections. **(11 hrs)**

Unit- II: Importance of heat transfer in engineering, Comparison of heat transfer with thermodynamics, Modes of heat transfer: conduction, convection and radiation. Basic concepts: temperature gradient, heat flux and thermal resistance, Fourier's law of heat conduction, Newtons law of cooling. Types of convection: natural and forced, concept of heat transfer coefficient, Basic concepts of thermal radiation, blackbody and graybody, Heat exchange between two surfaces. **(11 hrs)**

Section- B

Unit-III: Fluid properties, density and viscosity etc. Types of fluids, Newton's law of viscosity, Pascal's law, Bernoulli's equation for incompressible fluids. Archimedes principles, buoyant force, working Principle of Hydraulic machines, pumps, turbines, Reciprocating pumps.

Thermodynamics: Introduction to Thermodynamics, Thermodynamics system (closed, open and isotropic systems), properties, state, process, Zeroth, First and second law of thermodynamics, thermodynamics processes at constant pressure, volume, enthalpy and entropy, thermodynamic Equilibrium and types of equilibrium, Classification and working of boilers, efficiency and performance analysis, Steam properties and use of steam tables. **(12 hrs)**

Unit IV: Internal Combustion (I.C.) Engines: Working principle of steam Engine, Carnot, Otto, Diesel and Dual cycles P-V and T-S diagrams and its efficiency, working of Two- stroke and Four- stroke Petrol and Diesel Engines. Friction: Dry friction; Description and applications of friction. Working Principle of Compressors. **(11 hrs.)**

Reference Books:

1. Agrawal CM, Basic Mechanical Engineering, Wiley Publication.
2. Achuthan M, Engineering Thermodynamics, PHI.
3. Ganesan, Internal combustion engines, TMH.
4. Nag P.K Engineering Thermodynamics
5. Nakra & Chaudhary, Instrumentation and Measurements

NOTE: The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory of 12 marks consisting of conceptual/ analytical/ objective type/short answer questions, covering the entire syllabus (sections A & B).
Sections II & III of the question paper will have three questions each from the respective sections (A & B) of the syllabus and each question will carry 12 marks. The candidate has to attempt four questions, selecting two from each section.
Use of scientific calculators (non-programmable), steam table, standard data/ log books are permitted, wherever required.

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(Autonomous College)

B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: CSE/ECE/EE
SEMESTER : 2nd
COURSE TITLE: BUSINESS COMMUNICATION & PROFESSIONAL DEVELOPMENT
COURSE NO.: BHST21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam (MSE)	Class Work Assessment (CWA)	End Sem Exam (ESE)
1	0	0	1	20	20	60

Course Outcomes: On completion of the course the students will be able to	
CO1	Acquire proficiency in reading, writing, speaking & listening skills.
CO2	Develop Negotiation, Meeting and Presentation Skills.
CO3	Learn professional development skills and interpersonal communication.
CO4	Equip learners with basics of Life skills for a successful life.

Section-A

Communication skills: Introduction, Elements of Business Communication, Barriers to Business Communication, listening skills: Process of listening, types of listening, techniques to improve listening ability. Speaking Skills- Importance of Speaking Skills, components of Speaking skills. **(5 Hrs)**

Writing Skills: Script writing, Steps to write speech scripts, Tips for writing speeches. Meeting Skills: purpose of meeting, types of meeting, procedure for conducting a meeting. Presentation skills: meaning, importance, types of presentation, steps in preparing a presentation. **(5 Hrs)**

Section-B

Professional development– Introduction, Objectives of professional development, Activities that contribute to professional development. Interviews-Meaning, Types of interviews, tips for giving an interview and handling questions. Professional Etiquette: meaning, types and importance of Professional Etiquette. **(5 Hrs)**

Life Skills: - Definition and Importance of Life Skills, Life Skills Activities for personality development, Social Skills: need of social skills in communication, Types of social skills, components of social skills, Concept of hard and soft skills: Significance of hard and soft skills, Five important soft skills **(5 Hrs)**

Books Recommended:

- An Approach to Communication Skills by Indrajit Bhattacharya, Published by Dhanpat Rai & Co Ltd

References:

- Communication Skills (Second Edition) by Sanjay Kumar& Pushap Lata, Oxford University Press.
- Communication Skills by Varinder Kumar and Bodh Raj, Published by Kalyani Publishers.
- Integrated Life Skills by Payel Basu, published by Notion Press.
- Manuals of Life Skills Key to Excel by Alka Seth, Prof. Novrattan Sharma, Published by Global Vision Publishing House.
- Professional Development by Sally J. Zepeda, published by Taylor & Francis Ltd.

INSTRUCTIONS (End Semester Examinations)

The question paper shall consist of three sections (I, II & III).
Section-I will be compulsory, consisting of conceptual/analytical/objectives type/short type questions with maximum 12 marks, spread over the entire syllabus (both sections).
Sections II & III of the question paper will have three questions each from the respective sections (A&B) of the syllabus and each question will carry 12 marks.
The candidate will have to attempt four questions, from sections (II&III) selecting atleast two from each section.

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(Autonomous College)

B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CE
SEMESTER : 2nd
COURSE TITLE: FUNDAMENTALS OF PROGRAMMING USING C LAB
COURSE NO.: BCSL21

L	T	P	CREDITS	MARKS	
				Practical Sessional (PRS)	Practical Exam (PRE)
0	0	2	1	40	60

LABORATORY OUTCOMES: At the end of the course students will be able to:	
CO1	Understand the working of different compilers and editors for writing programs in C.
CO2	Exercise basic syntax, operators and control statements to write C programs
CO3	Execute programs based on user defined functions
CO4	Implement arrays, pointers to access variables and functions

Lab Experiments

Experiment 1: Problem solving using computers: Familiarization with programming Environment.

Experiment 2: Variable types and type conversions: Simple computational problems using arithmetic expressions.

Experiment 3: Branching and logical expressions: Problems involving if-then-else Structures.

Experiment 4: Loops, while and for loops: Iterative problems e.g., sum of series

Experiment 5: Array manipulation

Experiment 6: 2D arrays and Strings, memory structure: Matrix problems, String Operations

Experiment 7: Functions, call by value, call by reference: Simple functions

Experiment 8: Structures and Structure Operations

Experiment 9: Implementation of Pointers

Experiment 10: Dynamic memory allocation

Note: Minimum of eight experiments to be performed

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B.Tech. Electrical Engineering
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BRANCH: EE/CSE/ECE
SEMESTER : 2nd
COURSE TITLE: BUSINESS COMMUNICATION & PROFESSIONAL DEVELOPMENT LAB
COURSE NO.: BHSL21

L	T	P	CREDITS	MARKS	
				Practical Sessional (PRS)	Practical Exam (PRE)
0	0	2	1	40	60

LABORATORY OUTCOMES:: On completion of the course the students will be able to	
CO 1	Acquire proficiency in reading, writing and speaking skills.
CO 2	Develop presentation, interview and interpersonal skills

LIST OF PRACTICALS:

Life Skills

1. Life Management Skills
2. Social Skills (Role play)

Speaking skills

3. Meeting Skills
4. Presentation Skills

Personality Development

5. Types of Personality
6. Personality Disorders

Interpersonal Skills

7. Listening skills activity
8. Interviews, Mock Interviews

Career Building & Resume writing

9. SWOT Analysis
10. Resume Writing

Note: Eligibility to appear in Practical Test: 8 Practicals

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B.Tech. Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: EE/CSE/ECE
SEMESTER : 2nd
COURSE TITLE: ADVANCED ENGINEERING CHEMISTRY LAB
COURSE CODE: BCHL21

L	T	P	CREDITS	MARKS	
				Practical Sessional (PRS)	Practical Exam (PRE)
0	0	2	1	40	60

LABORATORY OUTCOMES: At the end of the course the students will be able to	
CO1	The course relies on quantitative analysis and makes use of simple equation to illustrate the concept involved.
CO2	Estimation of total hardness of water by EDTA complexometric method.
CO3	Analyse an overview of preparation and identification of organic compounds and detection of various elements and functional groups present in it.

LIST OF EXPERIMENTS

1.	To determine Volumetrically the number of molecules of water of crystallization present in the given sample of Mohr's salt, x gms. of which have been dissolved per litre provided N/10 $K_2Cr_2O_7$ (using an external indicator).
2.	To determine Volumetrically the percentage of Cu in a sample of $CuSO_4$ crystals, Z gms of which have been dissolved per litre, provided 0.IN $Na_2S_2O_3$.
3.	To determine the percentage of $CaCO_3$ in precipitated chalk. You are provided with IN HCI and 0.IN NaOH.
4.	To analyse the given antacid tablets.
5.	To determine the surface tension of an unknown liquid by using Stalagmometer.
6.	To prepare a pure and dry sample of Glucosazone.
7.	Determine the method of purification of organic compounds by paper chromatography.
8.	Organic Analysis: Identify the following organic compounds (preparation of at least one derivative).
9.	Determine the total hardness of a sample of water by complexometric method (using EDTA).
10.	Determine the percentage of calcium oxide in cement.

NOTE: A minimum of Eight (08) experiments to be performed.