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

COURSE SCHEME
B. Tech. 1st SEMESTER CIVIL ENGINEERING
(Batch 2025 & Onwards)

Contact hours/week = 23

COURSE CODE	COURSE TYPE	COURSE TITLE	CREDITS	LOAD ALLOCATION			MARKS DISTRIBUTION				
				L	T	P	CWA	PRS	MSE	ESE	PRE
BMAT11	Basic Science Course	Engineering Mathematics-I	3	2	1	0	20	-	20	60	-
BCHT11	Basic Science Course	Applied Engineering Chemistry	2	1	1	0	20	-	20	60	-
BCET11	Engineering Science Course	Energy and Environment	3	2	1	0	20	-	20	60	-
BCET12	Professional Core Course	Structural Analysis- I	3	2	1	0	20	-	20	60	-
BEET11	Engineering Science Course	Principles of Electrical Engineering	3	2	1	0	20	-	20	60	-
BHST12	Humanities & Management Course	Communication skills & Personality Development	1	1	0	0	20	-	20	60	-
BCHL11	Basic Science Course	Applied Engineering Chemistry Lab	1	0	0	2	-	40	-	-	60
BCEL11	Professional Core Course	Structural Analysis- I Lab	1	0	0	2	-	40	-	-	60
BEEL11	Engineering Science Course	Principles of Electrical Engineering Lab	1	0	0	2	-	40	-	-	60
BHSL12	Humanities & Management Course	Communication Skills And Personality Development Lab	1	0	0	2	-	40	-	-	60
Total			**19**	**10**	**5**	**8**	-	-	-	-	-

*CWA- Class Work Assessment; PRS – Practical Sessional ; MSE – Mid Sem Exam ; ESE – End Sem Exam ; PRE – Practical Exam.

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

Department of Mathematics
(Batch 2025 & Onwards)

BRANCH: CE/CSE/ECE/EE/ME
SEMESTER : 1st
COURSE TITLE: ENGINEERING MATHEMATICS-I
COURSE NO.: BMAT11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
2	1	0	3	20	20	60

Course Outcomes: At the end 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 and minima of functions of two variables.
CO2	Understand fundamental concepts of integration, special functions, and techniques for evaluating double and 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)**

RECOMMENDED BOOKS:

1	Calculus and Analytic Geometry	Thomas and Finney
2	Differential Calculus	S. Narayan and P.K. Mittal
3	Higher Engineering Mathematics	B.S Grewal, Khanna
4	Engineering Mathematics-I	Dr. Bhopinder Singh
5	Engineering Mathematics-II	Dr. Bhopinder Singh
6	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 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.

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

Department of Chemistry
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 1st
COURSE TITLE: APPLIED ENGINEERING CHEMISTRY
COURSE NO.: BCHT11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
1	1	0	2	20	20	60

COURSE OUTCOMES: On completion of the course the students will be able to:	
CO1	Know the importance of green chemistry and apply the knowledge of Drugs in day to day life.
CO2	Summarize the different types, preparation and uses of composites and explosives and about Nano particles.
CO3	To get acquainted with the basic knowledge of various Electrochemical Cells and chemical Processes encountered in the water softening.

SECTION – A

GREEN 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 **(8 Hrs)**

Unit – II: NANO CHEMISTRY & EXPLOSIVES

Nano Chemistry: Introduction and properties of nano particles, nano materials- Graphene and Fullerenes.
Explosives:- Definition, classification, preparation and uses of TNT and RDX. **(7 Hrs)**

Section-B

Unit – IV: ELECTROCHEMISTRY AND CORROSION

Electrochemistry: Electrochemical cells: Galvanic cell and its application. Mass transfer by electroplating.
Corrosion: Dry and wet corrosion, factors influencing rate of corrosion, Remedial Measures against corrosion – cathodic protection. **(8 Hrs)**

Unit – V WATER TREATMENT AND COLLOIDS

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. **(7 Hrs)**

RECOMMENDED BOOKS:

1	Engineering Chemistry	Sharma, B.K
2	Material Science and Engineering	William Callister
3	An introduction to nanomaterials and nano science	A.K Das & Mahua Das
4	Spectroscopy of Organic Compounds	Kalsi, P.S

Reference Books:

1	Engineering Chemistry	Shashi, Chawla
2	Spectroscopy of Organic Compounds	Silverstein
3	Electrochemistry	Samuel Glasstone

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.

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

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

BRANCH: CE / ECE
SEMESTER : 1st
COURSE TITLE: ENERGY AND ENVIRONMENT
COURSE NO.: BCET11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
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 ecosystems.
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

Environment: Introduction, Multidisciplinary nature of environmental studies- Definition, scope and importance, Need for public awareness.
Ecosystem: Concept, Structure and function (Food chain, food web and ecological pyramids). Ecological succession
Types of ecosystems : Forest ecosystem, Grassland ecosystem, Desert ecosystem and Aquatic ecosystems.
(10 hrs)

Natural Resources: Renewable and Non-renewable resources.
Different types of resources : Mineral resources, their uses and exploitation, environmental effects of extracting and using
mineral resources.
Food resources: Sources of food, Impact of modern agriculture and overgrazing on environment, fertilizer-pesticide problems. Organic farming.
Biodiversity: Hotspots of Biodiversity in India, Threats to Biodiversity and its conservation (in-situ and ex-situ conservation). **(12 hrs)**

SECTION-B

Environmental Pollution and Management: Definition, Causes, effects and control measures of Air, Water , noise & soil pollution , Greenhouse effect, global warming and its consequences, 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).
(11 hrs)

Social Issues related to Environment
Ecotourism and Environmental Ethics, Ecomark and Biodegradable Plastics.
Sustainable development and Sustainable development goals (SDG's)
Environment movements of India – Chipko & Appiko movement , Silent valley movement, Tehri Dam Movement and Narmada bachao movement.
(11 hrs)

RECOMMENDED BOOKS:

1	Ecology and Environment	P D Sharma
2	Environmental Chemistry	B K Sharma
3	Environmental Studies	Kaushik And Kaushik
4	A Basic Course In Environmental Studies	Deswal And Deswal
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.

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

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

BRANCH: CE
SEMESTER : 1st
COURSE TITLE: STRUCTURAL ANALYSIS – I
COURSE NO.: BCET12
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
2	1	0	3	20	20	60

COURSE OUTCOMES : At the end of this course, students will demonstrate the ability :	
CO1	To determine the resultants in Planar force systems associated with static frame work.
CO2	To calculate the center of gravity, moment of inertia and forces in members of plane trusses.
CO3	To determine the resultants in planar force systems using energy principles.
CO4	To evaluate stress, strain, their relationship and the stresses due to different types of loading.

SECTION – A

STATICS: Introduction, engineering and S.I. units, accuracy in engineering calculations, Vectors composition and resolution, concept of Rigid Body.
Resultant of a force system: i) Concurrent Coplanar Force System
ii) Non concurrent Coplanar Force System : (a) parallel and (b) non parallel Using analytical as well as graphical methods.
iii) Simple cases of concurrent force system in space.
Concept of internal force, free body diagram. Equilibrium of force system listed above.

Properties of plane surfaces: First moment of area, centroid, second moment of area etc
Plane trusses: Forces in members of a truss by method of joints and method of sections

(22 hrs)

SECTION-B

Virtual Work: Principle of Virtual Work and its application.
Types of Beams, Types of Supports, Support Reaction for statically determinate beams.
Dynamics of Rigid Bodies: Newton's Laws, D'Alembert's Principle, Energy Principles

Simple stress and strain: Stress, strain, Stress-strain diagrams, Hooke's law, Modulus of elasticity (E), Lateral strains, Poisson's ratio, Volumetric strain, Bulk modulus (K), Shear stress concept, Modulus of rigidity (G). Relation between E, G and K..
Strain Energy: Strain energy, stresses due to different types of loading- sudden loading, gradually applied loads, impact loads.

(22 hrs)

RECOMMENDEDBOOKS:

1	Engineering Mechanics	Beaer and Johnson
2	Engineering Mechanics	A.K. Tayal
3	Engineering Mechanics	R.C Hibbeller
4	Strength of Materials	S. Ramamutham
5	Mechanics of Materials	R.C Hibbeller

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.

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

Department of Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: CE / EE
SEMESTER : 1st
COURSE TITLE: PRINCIPLES OF ELECTRICAL ENGINEERING
COURSE NO.: BEET11
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
2	1	0	3	20	20	60

COURSE OUTCOMES : At the end of this course, students will be able to understand and analyse.	
CO1	The basic concepts of electric circuit terminology, Kirchhoff's and Ohm's laws.
CO2	The circuits using the Electrical theorems.
CO3	The basic terminologies in AC and Star-Delta circuits.
CO4	The working principle of single phase transformer.

SECTION – A

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 hrs)**

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 hrs)**

SECTION – B

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 hrs)**

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 hrs)**

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 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.

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

Department of Humanities
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 1st
COURSE TITLE: COMMUNICATION SKILLS & PERSONALITY DEVELOPMENT
COURSE NO.: BHST12
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
1	0	0	1	20	20	60

COURSE OUTCOMES : At the end of this course, students will able to :	
CO1	Acquire proficiency in reading, writing, speaking and listening skills.
CO2	Develop Meeting and Presentation Skills
CO3	Identify the people with different Personality types, traits and disorders
CO4	Equip learners with basics of Life skills for a successful life.

SECTION-A

Communication skills: Introduction, Elements of Communication, Barriers to Communication.
Listening skills: Process of listening, types of listening, techniques to improve listening ability.
Speaking Skills: Importance of speaking skills, Components of speaking skills. **(05 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. **(05 hrs)**

SECTION-B

Personality Development–introduction, factors influencing personality development, importance of personality development.
Personality Types: different types of personality, personality disorder.
Interview: Meaning, types of interview, tips for giving an interview and handling questions. **(05 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. **(05 hrs)**

RECOMMENDED BOOKS:

1	Communication Skills (Second Edition)	Sanjay Kumar & Pushap Lata
2	Functional Aspects of Communication Skills	Dr. Prajapati Prasad

REFERENCE BOOKS:

1	An Approach to Communication Skills	Indrajit Bhattacharya
2	Communication Skills	Varinder Kumar and Bodh Raj
3	Integrated Life Skills	Payel Basu
4	Manual of Life Skills Key to Excel	Alka Seth, Prof. Novrattan Sharma

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.

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

Department of Chemistry
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 1st
COURSE TITLE: APPLIED ENGINEERING CHEMISTRY LAB
COURSE NO.: BCHL11

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

COURSE OUTCOMES : At the end of this course, students will able to :	
CO1	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.

S. No. TITLE OF EXPERIMENT

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 coefficient of viscosity of an unknown liquid using Ostwald Viscometer.
4. To prepare a pure and dry sample of Glucosazone.
5. To analyse the given antacid tablets.
6. To prepare a pure and dry sample of Asprin.
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.

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

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

BRANCH: CE
SEMESTER : 1st
COURSE TITLE: STRUCTURAL ANALYSIS – I LAB
COURSE NO.: BCEL11

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

COURSE OUTCOMES : At the end of this course, students will able to :	
CO1	Understand the characteristics of selected Civil Engineering Materials like metals, Timber, etc.
CO2	Learn standard principles and procedure of testing materials & prepare specimens for tests.
CO3	Learn practical applications of the test and writing technical reports.

LIST OF EXPERIMENTS:

1. To verify Parallelogram Law of forces
2. To verify LAMI'S theorem.
3. To determine the support reactions in case of a simply supported beam
4. To understand the behavior of a) mild steel b) Tor steel bar under tension by plotting stress strain curve.
5. To determine Brinell's hardness number .
6. To determine the impact value of the standard specimens izod impact testing machine.
7. To determine strain in a beam using strain Guage.

Note: A minimum of Five experiments to be performed.

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

Department of Electrical Engineering
(Batch 2025 & Onwards)

BRANCH: CE / EE
SEMESTER : 1st
COURSE TITLE: PRINCIPLES OF ELECTRICAL ENGG LAB
COURSE NO.: BEEL11

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

COURSE OUTCOMES : At the end of this course, students will able to :	
CO1	Experimentally verify the basic circuit theorems.
CO2	Measure current in series-parallel RLC circuits.
CO3	Measure load of 3 phase ac circuits connected in star and delta
CO4	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 Thevinin'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.

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

Department of Humanities
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 1st
COURSE TITLE: COMMUNICATION SKILLS AND PERSONALITY DEVELOPMENT LAB
COURSE NO.: BHSL12

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

COURSE OUTCOMES : At the end of this course, students will able to :	
CO1	Acquire proficiency in reading, writing, speaking & Listening skills.
CO2	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

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

COURSE SCHEME
B. Tech. 2nd SEMESTER CIVIL ENGINEERING
(Batch 2025 & Onwards)

Contact hours/week = 23

COURSE CODE	COURSE TYPE	COURSE TITLE	CREDITS	LOAD ALLOCATION			MARKS DISTRIBUTION				
				L	T	P	CWA	PRS	MSE	ESE	PRE
BMAT21	Basic Science Course	Engineering Mathematics-II	3	2	1	0	20	-	20	60	-
BPHT21	Basic Science Course	Advanced Engineering Physics	2	1	1	0	20	-	20	60	-
BCST21	Engineering Science Course	Fundamentals of Programming using C	3	2	1	0	20	-	20	60	-
BMET21	Engineering Science Course	Engineering Drawing with CAD	3	3	0	0	20	-	20	60	-
BMET22	Engineering Science Course	Basics of Mechanical Engineering	3	2	1	0	20	-	20	60	-
BHST21	Humanities & Management Course	Universal Human Values and Professional Ethics	3	2	1	0	20	-	20	60	-
BPHL21	Basic Science Course	Advanced Engineering Physics Lab	1	0	0	2	-	40	-	-	60
BCSL21	Engineering Science Course	Fundamentals of Programming using C Lab	1	0	0	2	-	40	-	-	60
BMEL21	Engineering Science Course	Workshop Manufacturing Practices	1	0	0	2	-	40	-	-	60
Total			**20**	**12**	**5**	**6**	--	--	--	--	--

*CWA- Class Work Assessment; PRS – Practical Sessional ; MSE – Mid Sem Exam ; ESE – End Sem Exam ; PRE – Practical Exam.

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

Department of Mathematics
(Batch 2025 & Onwards)

BRANCH: CE/CSE/ECE/EE/ME
SEMESTER : 2nd
COURSE TITLE: ENGINEERING MATHEMATICS-II
COURSE NO.: BMAT21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
2	1	0	3	20	20	60

Course Outcomes: At the end 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 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)**

Vcariation of parameters technique to find particular integral of second order differentia l 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)**

RECOMMENDEDBOOKS:

1	Advanced Engineering Mathematics	R.K. Jain, S.R.K Iyenger
2	Differential Equations	G. F. Simmons
3	Partial differential equations	M.D Rai Singhania
4	Engineering Mathematics-I	Dr. Bhopinder Singh
5	Engineering Mathematics-II	Dr. Bhopinder Singh

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.

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

Department of Physics
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 2nd
COURSE TITLE: ADVANCED ENGINEERING PHYSICS
COURSE NO.: BPHT21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
1	1	0	2	20	20	60

Course Outcomes: At the end of the course the students will be able to:	
CO1	Understand the significance of vector calculus and Maxwell's equations as the basis of Electromagnetic theory.
CO2	Assimilates the basic principles of Laser Physics, moment of inertia and their applications in various fields.
CO3	Acquire the concepts of semiconductors, types of semiconductors and various properties of semiconductor physics.
CO4	Understand the basic concepts of friction, types of friction and its applications.

SECTION-A

UNIT 1: 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 Eo & Bo. **(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, He- Ne laser, Applications of lasers. **(04 hours)**

UNIT –III: PROPERTIES OF SURFACES, MOMENTS AND PRODUCTS OF INERTIA:

Definition Moment of Inertia for areas-Parallel axis theorem-Perpendicular axis theorem Moment of inertia for composite area-product of inertia form, mass moment of inertia. **(04 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 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 a p-n junction. **(09 hours)**

UNIT –V: FRICTION :

Laws of coulomb friction –Coefficient of Friction –Dry Friction –sliding Friction –ladder friction –Belt friction – Rolling Resistance. **(06Hrs)**

RECOMMENDED BOOKS:

1	Fundamentals of Electricity & Magnetism	Duggal & Chabbra
2	Lasers	K.R. Nambiyar
3	Engineering Mechanics	A. K. Tayal
4	Semiconductor Physics and devices	Donald A. Neamen

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

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

Department of Computer Science & Engineering
(Batch 2025 & Onwards)

BRANCH: CE / EE
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	Class Work Assessment	End Sem Exam
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 code 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)**

Bhawe

RECOMMENDED BOOKS:

1.	C How to Program	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	Yashwant Kanitkar

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

Department of Mechanical Engineering
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 2nd
COURSE TITLE: ENGINEERING DRAWING WITH CAD
COURSE NO.: BMET21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
3	0	0	3	20	20	60

COURSE OUTCOMES: At the end of the course students will be able to:	
CO1	Understand and use engineering scales with accuracy and interpret missing views.
CO2	To have knowledge of Industrial practices and standards.
CO3	Understand and apply the principles of engineering drawing by using correct types of lines, lettering, dimensioning, and construction of engineering curves and scales.
CO4	Knowledge of computer Aided design and drafting.
CO5	Develop the ability to visualize, interpret, and represent three- dimensional engineering objects through accurate projection of points, lines, planes, and solids, including sectional views using rotation and auxillary plane methods.

SECTION -A

UNIT I Lettering and Dimensioning: Introduction, Lines, types of lines, Lettering, Single stroke Lettering, Dimensioning, placing of dimensions, Alligned and unidirectional.
Curves used in Engineering Practice: Cycloidal, Involutes, Spirals and Hellices. Scale types, plain and diagonal. **(10 hrs)**

UNIT II Projection of Points and Straight Lines: Introduction to quadrant system, Concept of first angle third angle projection, Projection of points in first quadrant, second quadrant, third quadrant and fourth quadrant with conclusions. Introduction , projection of lines in various quadrants and with conditions like parallel, perpendicular and inclined cases.
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. **(13 hrs)**

SECTION -B

UNIT III Projection of Solids: Classification and main features -Prisms and Pyramids. Projection of solids inclined to both the reference planes by (1) 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.
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. **(12 hrs)**

UNIT IV Introduction to CAD: CAD User Interface-Menu system-coordinates systems, axes, poly-lines, square, rectangle, polygons, splines, circle, ellipse, Tool bars (draw, modify, annotations, layers etc.), status bar (ortho, grid, snap, iso etc.), Drawing Area (Background, Crosshairs, Coordinate System), Dialog boxes and windows, Shortcut menus (Button Bars), The Command Line (where applicable), Different methods of zoom as used in CAD, Select and erase objects. Generation of points, lines, curves, polygons, dimensioning, layers, blocks etc.
Orthographic Projections: Orthographic projection of simple blocks (First & Third angles), to draw the third view from given two views. Missing lines in projection. **(13 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 questions, covering the entire syllabus (sections A & B).

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

Department of Mechanical Engineering
(Batch 2025 & Onwards)

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

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
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 system, moments, equilibrium, and truss analysis using graphical and analytical methods.
CO2	Experimental knowledge of modes of heat transfer and basic laws.
CO3	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.
CO4	Better understanding of properties of fluids and their uses.
CO5	Domain knowledge to analyze the performance of Hydraulic Machines.

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, Principle 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, Newton's Law of Cooling. Types of convection: natural and forced, Concept of heat transfer coefficient, Basic concepts of thermal radiation, Blackbody and gray body, 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.	Basic Mechanical Engineering	Agrawal CM
2.	Engineering Thermodynamics	Achuthan M
3.	Internal combustion engines	Ganesan
4.	Engineering Thermodynamics	Nag P.K
5.	Instrumentation and Measurements	Nakra & Chaudhary

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).

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

Department of Humanities
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 2nd
COURSE TITLE: UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS
COURSE NO.: BHST21
DURATION OF EXAM: 3 HOURS

L	T	P	CREDITS	MARKS		
				Mid Sem Exam	Class Work Assessment	End Sem Exam
2	1	0	3	20	20	60

COURSE OUTCOMES:	At the end of the course 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.
Professional Ethics
Introduction to professional ethics, Morals Values and ethics, Philosophical approaches to business ethics, Corporate Social Responsibility (CSR)- Meaning and Importance. Ability to utilize the professional competence for augmenting universal human order. **(10 Hrs)**

RECOMMENDED BOOKS:

1	Indian Ethos and Modern Management	B L Bajpai
2	Science and Humanism	PL Dhar , R R Gaur
3	How the Other Half Dies	Sussan George
4	Energy & Equity	Ivan Illich
5	limits to Growth, Club of Rome's Report	Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III

REFERENCES:

1	A foundation course in Human Values and Professional Ethics	R.R Gaur, R Sangal, G P Bagaria
2	PPTs of Lectures and Practice Sessions	
3	Audio-visual material for use in the practice sessions	
4	Professional Ethics and Human Values	Nagarasan

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

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GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

Department of Physics
(Batch 2025 & Onwards)

BRANCH: CE / ME
SEMESTER : 2nd
COURSE TITLE: APPLIED ENGINEERING PHYSICS LAB
COURSE NO.: BPHL21

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

COURSE OUTCOMES: At the end of the course students will be able to:	
CO1	Gain knowledge about the scientific methods of measuring different physical parameters based on the concepts of Physics.
CO2	Develop the experimentation skills by displaying minimized measurement errors.
CO3	Demonstrate and improve the practical skills to use the appropriate physical concepts to obtain the solutions pertaining to different physics experiments.
CO4	Acquire essence of scientific temper infused with innovation and creativity.

LIST OF EXPERIMENTS:

1. To find the frequency of AC mains using a sonometer.
2. To determine the wavelength of Sodium light using a plane transmission diffraction grating.
3. To find the co-efficient of self-induction of a coil by Anderson's Bridge using headphones.
4. To find the wavelength of monochromatic light using Newton's rings apparatus.
5. To plot a graph between the distance of knife- edges from the centre of gravity and the time period of a compound pendulum. From the graph find (a) acceleration due to gravity (b) the radius of gyration (c) the moment of inertia for the bar about its axis passing through the centre of gravity.
6. To determine the plateau and optimal operating voltage of Geiger Muller (GM) Counterime period of a compound pendulum. From the graph find (a) the acceleration due to gravity.
7. To study the variation of Magnetic field by using Stewart and Gee's Tangent galvanometer.
8. To find the dispersive power of a given prism using a spectrometer.
9. To find the impedance of LCR circuit.
10. To study the Common base/ common emitter characteristics of PNP/NPN junction transistor.
11. To determine the specific rotation of sugar/glucose using Laurent's half shade Polarimeter.

NOTE: A minimum of Seven experiments are to be performed covering the diverse aspects of engineering physics

GOVT. COLLEGE OF ENGINEERING AND TECHNOLOGY, JAMMU

(Autonomous College)

Department of Computer Science & Engineering
(Batch 2025 & Onwards)

BRANCH: CE / EE
SEMESTER : 2nd
COURSE TITLE: FUNDAMENTAL PROGRAMMING USING C LAB
COURSE NO.: BCSL21
DURATION OF EXAM: 3 HOURS

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

COURSE 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.

List of 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: Simple functions

Experiment 8: Structures and structure operations

Experiment 9: Implementation of Pointers

Experiment 10: Dynamic memory allocation.

NOTE: A minimum of eight experiments is to be performed.

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

Department of Mechanical Engineering
(Batch 2025 & Onwards)

BRANCH: CE / ME/CS/IT
SEMESTER : 2nd
COURSE TITLE: WORKSHOP MANUFACTURING PRACTICES
COURSE NO.: BMEL21
DURATION OF EXAM: 3 HOURS

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

COURSE OUTCOMES: At the end of the course students will be able 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 Ten on 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.

RECOMMENDED BOOKS:

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

NOTE: A minimum of eight experiments is to be performed