

UNIVERSITY OF JAMMU

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

NOTIFICATION

(22/Nov/Adp/72)

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

Branch	Semester	For the Examination to be held in the years
E&C	Semester-I	December 2022, 2023, 2024 and 2025
	Semester-II	May 2023, 2024, 2025 and 2026

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

Sd/-
DEAN ACADEMIC AFFAIRS

No. F.Acd/III/22/9967-9975

Dated: 22 /11/2022

Copy for information & necessary action to:-

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

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

[Signature]
22/11/22

[Signature]
22/11/22

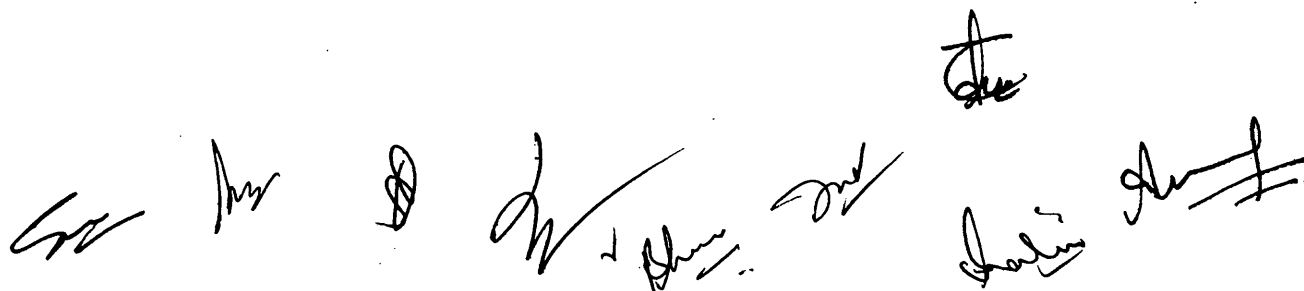
Annexure-I

B.E.1st Semester Electronics and Communication Engineering

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

Contact Hrs: 22

COURSE CODE	COURSE TYPE	COURSE TITLE	LOAD ALLOCATION			MARKS DISTRIBUTION		TOTAL MARKS	CREDITS	% Change
			L	T	P	INTERNAL	EXTERNAL			
BST1101	Basic Science Course	Engineering Mathematics I	2	1	0	50	100	150	3	100%
BST1103	Basic Science Course	Applied Engineering Physics	2	1	0	50	100	150	3	100%
MET5102	Engineering Science Course	Engineering Graphics	3	0	0	50	100	150	3	100%
CET6101	Engineering Science Course	Energy and Environment	2	1	0	50	100	150	3	100%
CST3101	Engineering Science Course	Computer Programming	2	1	0	50	100	150	3	100%
HMT1102	Humanities & Social science & Management Courses	Universal Human Values	2	1	0	50	100	150	3	100%
BSP1113	Basic Science Course	Applied Engineering Physics lab	0	0	2	50	-	50	1	100%
CSP3111	Engineering Science Course	Computer Programming Lab	0	0	2	50	-	50	1	100%
TOTAL			13	05	04	400	600	1000	20	



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

BRANCH: COMMON TO ALL BRANCHES

CREDITS 3

CLASS: B.E. 1st SEMESTER

COURSE TITLE – ENGINEERING MATHEMATICS-I

COURSE NO.- BST1101

DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			THEORY	SESSIONAL
2	1	0	100	50

Course Outcomes: At the end of the course the students will be able to

CO 1 Learn general theorems of calculus, find the maximum and minimum value of functions of two variables.

CO 2 Understand the concept of definite integrals.

CO 3 Learn basic concepts of complex trigonometry.

CO 4 Find the rank, eigen values/ vectors of matrices.

SECTION - A

UNIT-I: DIFFERENTIAL CALCULUS

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

UNIT-II: INTEGRAL CALCULUS

Definite integrals with important properties, differentiation under the integral sign, Gamma, Beta and error functions with simple problems, double and triple integrals with simple problems. (8 hrs)

SECTION - B

UNIT-III: COMPLEX TRIGONOMETRY

Hyperbolic functions of a complex variable, Inverse Hyperbolic functions, Logarithmic function of a complex variable; Summation of series by C+iS method. (8 hrs)

UNIT-IV: MATRICES

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

BOOKS RECOMMENDED:

1. Calculus and Analytic Geometry Thomas and Finney, 9th Edition, Pearson, 2002.
2. Differential Calculus S. Narayan and P.K. Mittal, S.Chand, New Delhi.
3. Higher Engineering Mathematics B.S Grewal, Khanna Publishers, New Delhi
4. Engineering Mathematics-I Dr. Bhopinder Singh
5. Engineering Mathematics-II Dr. Bhopinder Singh

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

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

BRANCH: COMPUTER/CSE/IT/ECE/ELECTRICAL ENGINEERING

CLASS: B.E. 1st SEMESTER

COURSE TITLE – APPLIED ENGINEERING PHYSICS

CREDITS: 3

COURSE NO.- BST1103

DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			THEORY	SESSIONAL
2	1	0	100	50

At the end of the course the Student Will be able to -

CO1	Understand the significance of vector calculus and Maxwell's equations as the basis of Electromagnetic theory.
CO2	Acquire the basic principles of laser physics, quantum mechanics and their applications.
CO3	Acquire knowledge of semiconductor physics along with different aspects of applied optics & their applications.
CO4	Understand the working principle of optical fibres with their applications in various fields

Section-A

UNIT I: ELECTROMAGNETIC FIELDS AND WAVES

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

(08 hrs)

UNIT-II: LASER PHYSICS

Concept and principal of Laser action, Spontaneous and Stimulated emission, Einstein's Co-efficient and relations, three and four level laser system, coherence and characteristics of laser light, Ruby, He –Ne and CO₂ Lasers, Applications of lasers

(05 hrs)

UNIT -III: QUANTUM MECHANICS

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

(08 hrs)

Section – B

UNIT-IV: SEMICONDUCTOR PHYSICS

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

(09 hrs)

UNIT –V: APPLIED OPTICS

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

(07 hrs)

UNIT VI: FIBRE OPTICS

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

(05 hrs)

Books Recommended

1. Fundamentals of Electricity & Magnetism
2. Lasers Fundamentals and applications
3. Semiconductor Physics and Devices
4. Optics
5. Fibre Optics
6. Quantum Mechanics

Duggal & Chabbra
A. K. Ghatak
Donald A. Neamen
Brijlal & Subramaniam
Ghatak, Tyagrajan
N. Zettili

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

Deepak

Om

Gov

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

BRANCH: COMPUTER/CSE/IT/ECE/ELECTRICAL ENGINEERING

CREDITS: 3

CLASS: B.E. 1st SEMESTER
COURSE TITLE: ENGINEERING GRAPHICS
COURSE NO.- MET 5102
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			THEORY	SESSIONAL
3	0	0	100	50

COURSE OUTCOMES (COS) Students will be able to:

CO1	Understand and use engineering scales with accuracy and interpret missing views.
CO2	Work with zeal of Industrial practices and standards.
CO3	Convert sketches to engineering drawings.
CO4	Fundamentally understand and perform Two and Three-dimensional drawings.
CO5	Draw and understand orthographic projections of sections

SECTION -A

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

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

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

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

SECTION -B

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

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

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

RECOMMENDED BOOKS:

- | | |
|---------------------------------------|-----------------------------|
| 1. Engineering Drawing | P.S Gill |
| 2. Practical Geometry | V. Laxminarayan & GEV |
| 3. Engineering Graphics | K.L. Narayanan & P. Kamaish |
| 4. Principles of Engineering Graphics | P.E Giesecks |
| 5. Engineering Graphics | Frederic & Michelle. |

NOTE: There shall be total eight questions, four from each section. Five questions will have to be attempted selecting least two from each section. Use of calculator is allowed.

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

CREDITS: 3

CLASS: B.E. 1st SEMESTER

COURSE TITLE – COMPUTER PROGRAMMING

COURSE NO.- CST3101

DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			THEORY	SESSIONAL
2	1	0	100	50

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

SECTION A

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

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

(4 Hrs)

2. **Introduction to C, Data Types, Constants, Variables, Expressions, Statements, Operators, Data Input and Output - Character set, Identifiers, Keywords, Data Types, Constant and Variables, Statements, Expressions, Operators, Precedence of operators, Input-output Assignments.**

(6 Hrs)

3. **Control Statements, Storage Classes, Library Functions.**

Control structures, Decision making and Branching, Decision making & looping.

Storage Classes: Types of storage classes, Scoping rules.

Standard Library Functions, advantages and use of various library functions (I/O functions, String, Character, Mathematics, Time and Date, functions).

(10 Hrs)

SECTION B

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

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

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

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

(10 Hrs)

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

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

(10 Hrs)

BOOKS RECOMMENDED:

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

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

✓ Sham : Poo

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

BRANCH: ECE / CIVIL ENGINEERING
CLASS: B.E. 1st SEMESTER
COURSE TITLE – ENERGY AND ENVIRONMENT
COURSE NO.- CET6101
DURATION OF EXAM: 3 HOURS

CREDITS: 3

L	T	P	MARKS	
			THEORY	SESSIONAL
2	1	0	100	50

COURSE OUTCOMES: On completion of the course the students will be able to	
CO1	Understand the ecosystems, biodiversity, and its conservation.
CO2	Understand the basic concepts of environmental studies and natural resources.
CO3	Gain knowledge about different types of environmental pollution and their control measures.
CO4	Understand the fundamentals of social issues, population and the environment.

SECTION-A

Environment: Introduction, Multidisciplinary nature of environmental studies- Definition, scope and importance, Need for public awareness. **Ecosystem:** Concept, Energy flow, Structure and function of an ecosystem. Food chains, food webs and ecological pyramids, Forest ecosystem, Grassland ecosystem, Desert ecosystem and Aquatic ecosystems.

(10 hrs)

Natural Resources: Renewable and Non-renewable resources. Different types of resources.

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.

Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems.

(10 hrs)

SECTION-B

Pollution: Definition, Cause, effects and control measures.

Air pollution- Sources, effects, control, air quality standards, air pollution act, air pollution measurement.

Water Pollution-Sources and impacts, **Soil Pollution-**Sources and impacts, disposal of solid waste. Greenhouse gases – effect, acid rain. **Noise pollution-** Definition, Cause, effects and control measures.

(10 hrs)

Social Issues and the Environment: Sustainable development and Sustainable use of Resources, Urban problems related to energy, Energy resources: Growing energy needs, renewable and nonrenewable energy sources use of alternate energy sources, Land resources: Land as a resource, land degradation, soil erosion and desertification, Role of an individual in conservation of natural resources. Environment Protection Acts: Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act and Forest Conservation Act.

(10 hrs)

RECOMMENDED BOOKS:

- | | | |
|---|---|-------------------------------|
| 1 | Environmental Engineering | Peavy, Rowe And Tchobanoglous |
| 2 | Elements of Environmental Science And Engineering | P. Meenakshi |
| 3 | Environmental Studies | Kaushik And Kaushik |
| 4 | A Basic Course In Environmental Studies | Deswal And Deswal |

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