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BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi & Affiliated to Guru Gobind Singh Indraprastha University, Delhi)

(An ISO 9001:2015 Certified Institution)

A-4, Paschim Vihar, Main Rohtak Road, New Delhi – 110 063

Lesson Plan

(Electromagnetic Field Theory)

Paper Code: ECC-216

Paper: Electromagnetic Field Theory

L	T	C
3	1	4

Topics to be covered		
S. No.	Contents	Total Lectures+ Tutorial
1	Introduction: Review of scalar and vector field, Dot and Cross products, Coordinate Systems-Cartesian, cylindrical and spherical	1
2	Vector representation of surface, Physical interpretation of gradient divergence and curl.	1
3	Transformation of vectors in different co-ordinate systems, Dirac-delta function	3
4	Electrostatics: Electric field due to point-charges, line charges and surface charges, Electrostatic potential	4
5	Solution of Laplace and Poisson's equation in one dimension	1
6	M-method of image applied to plain boundaries, field mapping and conformal transformation, Electric flux density, Boundary conditions.	2
7	Magnetic Induction and Faraday's Law, Magnetic Flux Density, Magnetic Field Strength H, Ampere, Gauss Law in the Differential Vector Form,	1
8	Permeability, Energy Stored in a Magnetic Field, Ampere's Law for a Current Element	2
10	Volume Distribution of Current, Ampere's Law Force Law, Magnetic Vector Potential, The Far Field of a Current Distribution	2
11	Maxwell's Equations: The Equation of Continuity for Time Varying Fields, Inconsistency of Ampere's Law,	2
12	Maxwell's Equations, Conditions at a Boundary Surface.	2
14	Electromagnetic Waves: Continuity equations, Displacement current, Maxwell's equation.	2

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15	Boundary conditions, Plane wave equation and its solution in conducting and non-conducting media	2
16	Phasor notation, Phase velocity, Group velocity, Depth of penetration, Conductors and dielectrics, Impedance of conducting medium.	2
17	Polarization, Reflection and refraction of plane waves at plane boundaries, Poynting vectors, and Poynting theorem.	3
18	Transmission Lines: Transmission line equations.	2
19	Characteristic impendence, Distortion-less lines, Input impendence of a loss less line, computation of primary and secondary constants.	2
20	Open and Short circuited lines, Standing wave and reflection losses, Impedance matching, Loading of lines, Input impedance of transmission lines, RF lines.	2
21	Relation between reflection coefficient and voltage standing wave ratio (VSWR).	2
22	Lines of different lengths – λ/2, λ/4, λ/8 lines.	3
23	Losses in transmission lines, Smith chart and applications, impedance matching Single stub, Double stub.	2

Textbook(s):

1. Matthew N. O. Sadiku , "Elements of Electromagnetics", Oxford University Press

2. E. C. Jordon, K. G. Balman, "Electromagnetic Waves & Radiation System" PHI – 2nd Edition

Reference Books:

1. William H. Hayt, "Engineering Electromagnetics", TMH

2. J.D. Kraus, "Electromagnetics", TMH

3. David K. Cheng," Field and Wave Electromagnetic", 2nd Edition, Pearson Education Asia,2001

4. John R. Reitz, "Foundations of Electromagnetic Theory". Pearson

Subject Teachers

Dr. Avinash

Mr. Jitender Kumar

HoD ECE

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Lesson Plan

Paper Code: ECE 342T L T C

Paper: Wireless Sensor Network 3 - 4

Lesson Plan

Topics to be covered		
S. No.	**Contents**	**Total Lectures**
	Unit-I	
1	Introduction: Mobile Ad-hoc Networks (MANETs)	1
2	Introduction to Sensor Networks	1
3	Constraints and Challenges, Advantage of Sensor Networks	1
4	applications of Sensor Networks	1
5	Architecture: Single-Node Architecture - Hardware Components,	2
6	Energy Consumption of Sensor Nodes, Operating Systems	2
7	Network Architecture -Sensor Network Scenarios, Optimization Goals, Gateway Concepts.	3
	Unit-II	
8	Networking Sensors: Physical Layer	1
9	Transceiver Design Considerations	1
10	MAC Protocols for Wireless Sensor Networks	2
11	classification of MAC protocols	1
12	MAC protocols for sensor network	1
14	Location discovery, S-MAC	2
15	IEEE 802.15.4. Routing Protocols- Energy-Efficient Routing	2

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16	Geographic Routing	1
	Unit-III	
17	Infrastructure Establishment: Topology Control	2
18	Clustering	1
19	Time Synchronization	2
20	Localization and Positioning	2
21	Sensor Tasking and Control	2
22	Case study of WSN"s for different applications.	2
	Unit-IV	
23	Platform, Tool and Security: Sensor Node Hardware – Berkeley Motes	2
24	Programming Challenges	1
25	Node-level software platforms	2
26	Node-level Simulators	2
27	Security issues in Sensor Networks	2
28	Future Research Direction	2

Textbook(s):

1. Holger Karl and Andreas Willig, "Protocols And Architectures for Wireless Sensor Networks", John Wiley.

2. Feng Zhao and Leonidas J. Guibas, "Wireless Sensor Networks- An Information Processing Approach", Elsevier.

3. C.Siva Ram Murthy and B.S.Manoj, "Ad hoc Wireless Networks Architectures and Protocols", Pearson Education.

References:

1.Dr. Xerenium, Shen, Dr. Yi Pan , "Fundamentals of Wireless Sensor Networks", Theory and Practice",Wiley.

2. KazemSohraby, Daniel Minoli, &TaiebZnati, "Wireless Sensor Networks- Technology, Protocols, And Applications", John Wiley.

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GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY

Lesson Plan

(for BTech Programmes of Studies under the aegis of USICT offered at Affiliated Institutions of the University)

Paper Code(s): BS105	L/T	C
Paper Name: APPLIED PHYSICS-I	40	3

S No	TOPICS	Lecture / Tutorial	CO(s)	Text Book
Unit – I: THERMODYNAMICS				
1	Introduction to Thermodynamics: Fundamental ideas of Thermodynamics, The Continuum Model, The concepts of System, State, Equilibrium, Processes, Quasi Static, Reversible and irreversible Processes (Isothermal and adiabatic change)	2	CO1	T2
2	Equations of State, Heat, Zeroth Law of Thermodynamics, Work (Isothermal and adiabatic expansion), Comparison of Heat and Work (Qualitative)	2	CO1	T2
3	First Law of Thermodynamics, Applications of First law of Thermodynamics: Isolated systems, Cyclic, Adiabatic, Isothermal, Isobaric, Isochoric processes. Isothermal and Adiabatic expansion of ideal gas, Specific Heat of gases.	2	CO1	T2
4	Second Law of Thermodynamics (Qualitative), Entropy and Second law of Thermodynamics, Change in entropy in reversible and irreversible processes	2	CO1	T2
Unit – II: WAVES, OSCILLATION & ELECTROMAGNETIC THEORY				
1	Wave Motion, Characteristics, Equations of Simple Harmonic wave, differential equation, Superposition Principle (Qualitative)	2	CO2	T1, T2
2	Introduction to EM theory, Basic Concepts of gradient, Divergence and Curl, Gauss Divergence and Stokes Theorem (Qualitative)	2	CO2	T1
3	Maxwell's Equations in Integral and Diffrential	2	CO2	T2

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	form, significance, Work Energy Theorem (Poynting Theorem-Proof), Momentum and Angular Momentum in EM Fields (Qualitative only)			
4	Equations of Plane EM wave in free Space, Impedance, Transverse Nature, Poynting Vector and Energy carried by EM waves	2	CO2	T2
Unit – III: WAVE OPTICS				
1	*Intereference*: Basic Concepts, Coherence, Interference by Division of Wavefront: Young's Double Slit experiment, Fresnel biprism (Theory of Fringes).	1	CO3	T2
2	Interference by Division of Amplitude, Interference due to thin Films: Reflected and Transmitted Systems, Wedge shaped Films (Qualitative)	1	CO3	R3
3	Newton's Ring (Determination of Diametre of rings and wavelength of light), Michelson Interferometre and Theory of Fringes	2	CO3	R3
4	*Diffraction*: Fresnel and Fraunhoffer Diffraction, Fraunhoffer Diffraction due to Single Slit.	1	CO3	T2, R3
5	Fraunhoffer Diffraction due to Double slit (Qualitative), Fraunhoffer Diffraction due to n-slit, Fraunhoffer Diffraction at circular Aperture(Qualitative).	2	CO3	T2, R3
6	Diffraction grating, Resolving and Dispersive power, Rayleighs Criterion, Resolving Power of optical instruments (Qualitative)	1	CO3	T2
7	*Polarization*: Introduction, Brewster's and Malus Law (Qualitative).	1	CO3	T2, R3
8	Nicol Prism and double Refraction (Huygens Theory), Quarter and Half Wave Plate	2	CO3	R3
9	Optical Activity, Specific Rotation and half shade polarimetre	1	CO3	R3
Unit – IV: RELATIVITY AND LASERS				
1	*Theory of Relativity*: The Michelson Morley Experiment and the speed of Light; Absolute and	3	CO4	T1

	Inertial Frames, Galilean Transformations, postulates of Special Theory of Relativity.			
2	Lorentz Transformation, Time dilation, Length Contraction and Velocity addition	2	CO4	T1
3	Mass Energy Equivalence, Invariance of Maxwell's equation under Lorentz Transformations	2	CO4	T1
4	*Lasers*: Introduction, coherence, Einstein Coefficients	1	CO4	R1
5	Population inversion, Basic Principal and operation of lasers	2	CO4	R1
6	He-Ne Laser and Ruby Laser.	2	CO4	R1

Text Books:

[T1] '*Concepts of Modern Physics (SIE)*' by Arthur Beiser, Shobhit Mahajan and S. Rai Choudhary, Mc Graw-Hill, 2017.

[T2] *'Physics for Scientists and Engineers'* by Raymond A. Serway and John W. Jewett, 9th Edition

2017.

Note: References can be utilized as desired.

[R1] '*Modern Physics*' by Kenneth S. Krane, Wiley, 2020.

[R2] *'Principles of Physics'* by Robert Resnick, Jearl Walker and David Halliday, Wiley, 2015.

[R3] *Optics* by Ajoy Ghatak, McGraw Hill, 2020.

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Programming in 'c'

Lesson Plan

Class: - CSE-1, CSE-2 **Name of faculty: -** Mr Mohit, Anu **Dept.: - Applied Science**
Teaching Scheme: - Lecture plus presentation **Total Lecture: - 40**

S. No.	Topics Details	No, Of Lecture Allotted	Reference Book Name with Chapter & Page No.	Date
1	Introduction to Programming: Computer system, components of a computer system, computing environments, computer languages, creating and running programs, Algorithms: Representation using flowcharts, pseudocode.	2	Programming in ANSI C by E BALAGRSAMY Chapter -1, Page No-1-5	
2	Preprocessor, Compilation process, role of linker, idea of invocation and execution of a program.	1	Programming in ANSI C by E BALAGRSAMY Chapter -2, Page No-17-29 Chapter -15, Page no-481-489	
3	Introduction to C language: History of C, basic structure of C programs, process of compiling and running a C program, C tokens, keywords, identifiers,	2	Programming in ANSI C by E BALAGRSAMY Chapter -3, Page No-39-52	
4	constants, strings, special symbols, variables, data types, I/O statements. Interconversion of variables	1	Programming in ANSI C by E BALAGRSAMY Chapter -3, Page No-58-60	
5	Operators and expressions: Operators, arithmetic, relational and logical, assignment operators, increment and decrement operators, bitwise and conditional operators, special operators, operator precedence and associativity, evaluation of expressions, type conversions in expressions.	2	Programming in ANSI C by E BALAGRSAMY Chapter -4, Page No-68-87	
6	Control structures: Decision statements; if and switch statement;	1	Programming in ANSI C by E BALAGRSAMY Chapter -6, Page No-131-141	
7	Loop control statements: while, for and do while loops, jump statements, break, continue, goto statements	2	Programming in ANSI C by E BALAGRSAMY Chapter -6, Page No-145-153 Chapter -7 Page No- 171-194	
8	Arrays: Concepts, One dimensional array, declaration and initialization of one dimensional arrays, two dimensional arrays, initialization and accessing, multi-dimensional arrays.	2	Programming in ANSI C by E BALAGRSAMY Chapter -8, Page No-212-236	
9	Functions: User defined and built-in Functions, storage classes, Parameter passing in functions, call by value, Passing arrays to functions: idea of call by reference, Recursion.	3	Programming in ANSI C by E BALAGRSAMY Chapter -10, Page No-291-333	

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10	Strings: Arrays of characters, variable length character strings, inputting character strings, character library functions, string handling functions.	2	Programming in ANSI C by E BALAGRSAMY	
11	Pointers: Pointer basics, pointer arithmetic, pointers to pointers, generic pointers, array of pointers,	2	Programming in ANSI C by E BALAGRSAMY	
12	functions returning pointers, Dynamic memory allocation.	1	Programming in ANSI C by E BALAGRSAMY	
13	Pointers to functions. Pointers and Strings	1	Programming in ANSI C by E BALAGRSAMY	
14	Structures and unions: Structure definition, initialization, accessing structures, nested structures,	1	Programming in ANSI C by E BALAGRSAMY	
15	arrays of structures, structures and functions, self-referential structures, unions, typedef, enumerations.	2	Programming in ANSI C by E BALAGRSAMY	
16	File handling: command line arguments, File modes,	1	Programming in ANSI C by E BALAGRSAMY	
17	basic file operations read, write and append.	1	Programming in ANSI C by E BALAGRSAMY	
18	Scope and life of variables, multi-file programming.	2	Programming in ANSI C by E BALAGRSAMY	
19	C99 extensions. 'C' Standard Libraries: stdio.h,	1	https://www.cs.dartmouth.edu/~cs23/C-intro.pdf	
20	stdlib.h, assert.h, math.h,	1	https://www.cs.dartmouth.edu/~cs23/C-intro.pdf	
21	ctype.h, setjmp.h, string.h, stdarg.h, unistd.h	2	https://www.cs.dartmouth.edu/~cs23/C-intro.pdf	
22	Basic Algorithms: Finding Factorial, Fibonacci series,	1	https://www.studysmarter.co.uk/explanations/computer-science/algorithms-in-computer-science/fibonacci-algorithm/#:~:text=Basics%20of%20Fibonacci%20algorithm&text=The%20Fibonacci%20Algorithm%20is%20a%20simple%20numerical%20series%20where%20each,F(n%2D2).	
23	Linear and Binary Searching Basic Sorting Algorithms- Bubble sort,	1	https://www.geeksforgeeks.org/bubble-sort/	
24	Insertion sort and Selection sort	1	https://www.geeksforgeeks.org/bubble-sort/	

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BHARATI VIDYAPEETH COLLEGE OF ENGINEERING
PASCHIM VIHAR, NEW DELHI – 110063
LESSON PLANNING (AY-2023-24)

BV/FR/AA/001
Issue no.: 03
Date of Issue:15.01.15

Class: B.Tech (All Branches) Sem: II
Dept.: Applied Sciences Name of Faculty: Dr. Jyoti & Dr Amreeta
1. As per the academic schedule, total lectures available for teaching in complete semester 36
2. Lectures are allotted for each topic as follows:

Sr. No.	Topic Details / Activity Proposed	No. of Lectures Allotted	Date	Reference Book name with Chapter & Page No.	Remarks of HOD
	Unit I				
1	"Classification and Characteristics of fuels, Calorific values, Comparison between solid, liquid and gaseous fuels"	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 01-03	
2	calorific values of fuels, determination of calorific values using Bomb calorimeter,	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 04-08	
3	Boy's calorimeter, theoretical calculation of calorific value using Dulong formula, numericals of Calorific values	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 13-16	
4	Types of fuels: - Solid: Coal, proximate and ultimate analysis of coaland numericals	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 16-28	
5	carbonisation of coal in Otto-Hoffman oven with recovery of by-products, metallurgical coke	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 29-34	
6	Liquid: Petroleum products --- refining, cracking-thermal and catalytic knocking	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 35-41	
7	knocking characteristics, Octane and Cetane rating	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 45-49	
8	Gaseous: Natural Gas (NG), CNG, LPG, Coal gas, Oil gas,	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 53-60	
9	Combustion of fuels numericals.	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 1: Page No. 62-71	

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	Unit II				
10	Phase rule: Terms used in Gibb's Phase rule	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 4: Page No. 255-262	
11	Phase diagram and its applications for study of onecomponent systems: Water and Sulfur	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 4: Page No. 263-269	
12	Two-component systems: Lead-Silver and Zinc- Magnesium.	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 4: Page No. 270-280	
13	Polymers: Classification, functionality and their types	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 6: Page No. 352-359	
14	Plastics: Synthesis (reactions) and properties of Polyethylene Plastics (Addition polymers) ---low-density polyethene (LDPE), high-density polyethylene(HDPE), linear low density polyethylene(LLDPE) and ultra-high molecular weight polyethylene (UHMWPE)	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 6: Page No.359-366, 376-378	
15	Vinyl Plastics (Condensation polymers) -Nylons, Phenol-formaldehyde resins(Bakelite) and Glyptal	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 6: Page No.379-386	
16	Speciality Polymers: Engineering thermoplastics, Conducting polymers	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 6: Page No. 400-405	
17	Electroluminescent polymers	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 6: Page No.405-406	
18	liquid crystalline polymers and biodegradable polymers.	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 6: Page No. 406-408	
	Unit III				
19	Water: Introduction, water quality standards, physical, chemical and biological characteristics;	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 103-104, 108-111	

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20	Hardness of water, disadvantages of hardness, determination of hardness (EDTA method) and related numerical problems	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 111-120	
21	Alkalinity and its determination	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 188-195	
22	Boiler problems with hard water and their prevention: Scale and sludge formation, boiler corrosion,	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 122-128	
23	"Caustic embrittlement, priming and foaming, boiler water treatment –internal or in-situ: carbonate and phosphate conditioning, colloidal and Calgon conditioning;"	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 128-408	
24	"External treatment: Lime soda process and related numericals	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 130-148	
25	Zeolite process and numericals and Ion-exchange process.	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 149-156	
26	Municipal water supply – its treatment and disinfection using break -point chlorination.	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 156-162	
27	"Desalination, Reverse Osmosis, Electrodialysis and defluoridation of water. "	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 2: Page No. 163-168	
	Unit IV				
28	Corrosion and its Control: Definition, effects, theory (mechanisms):dry/chemical, wet/electrochemical corrosion,	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 3: Page No. 209-216	
29	Types of corrosion: Galvanic corrosion, Soil corrosion, Pitting corrosion, Concentration cell or Differential Aeration corrosion, Stress corrosion; Mechanism of rusting of iron,	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 3: Page No. 217-223	

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30	Pilling-Bedworth ratio, Passivity. Factors influencing corrosion	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 3: Page No. 224-228	
31	"protective measures:galvanization, tinning, cathodic protection, sacrificial anodic protection; electroplating and prevention of corrosion through material selection and design. "	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 3: Page No. 228-244	
32	Green Technology and Green Chemistry, Twelve Principles of Green Chemistry, Zero Waste Technology,	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 22: Page No. 1217-1221	
33	"Atom economy, Use of alternative feedstock, innocuous reagents, alternative solvents, designing alternative reaction methodology, minimising energy consumption.	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 22 Page No. 163-168	
34	Nano Chemistry: Nanomaterials: Properties	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 23 Page No. 1234-1236	
35	Synthesis and surface characterization techniques	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 23: Page No. 1250-1251	
36	"BET and TEM and applications. "	1		Engineering Chemistry: Fundamentals and Application by Shikha Agarwal Chapter 22: Page No. 1251-1254	

Signature of Staff :

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Lesson Plan

(MANUFACTURING PROCESS)

Paper Code: ES119

Paper: Manufacturing Process

L	T	C
4	0	4

Topics to be covered		
S. No.	Contents	Total Lectures+ Tutorial
1	Definition of manufacturing, Importance of manufacturing towards technological and social economic development, Classification of manufacturing processes, Properties of materials.	3
2	Metal Casting Processes: Sand casting, Sand moulds, Type of patterns, Pattern materials, Pattern allowances, .	2
3	Types of Moulding sand and their Properties, Core making,	1
4	Elements of gating system. Description and operation of cupol	2
5	Working principle of Special casting processes - Shell casting, Pressure die casting, Centrifugal casting. Casting defects	2
6	Joining Processes: Welding principles, classification of welding processes	1
7	Fusion welding, Gas welding, Equipments used, Filler and Flux materials	2
8	Electric arc welding, Gas metal arc welding	1
10	Submerged arc welding, Electro slag welding,	2
11	TIG and MIG welding process	1
12	Resistance welding	2
14	Welding defects	1
15	Deformation Processes: Hot working and cold working of metals, Forging processes, Open and closed die forging process. Typical forging operations	3
16	Rolling of metals, Principle of rod and wire drawing	2
17	Principle of Extrusion, Types of Extrusion, Hot and Cold extrusion	2

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18	Sheet metal characteristics -Typical shearing operations, bending and drawing operations	2
19	Forming operations, Metal spinning.	1
20	Powder Metallurgy: Introduction of powder metallurgy process, powder production, blending, compaction, sintering	2
21	Manufacturing Of Plastic Components: Types of plastics, Characteristics of the forming and shaping processes	3
22	Moulding of Thermoplastics, Injection moulding, Blow moulding, Rotational moulding, Film blowing, Extrusion, Thermoforming. Moulding of thermo sets- Compression moulding, Transfer moulding,	4
23	Bonding of Thermoplastics	2

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Lesson Plan

(Applied Mathematics-I)

Paper Code: BS-111 L P C

Paper: AM-I 4 0 4

Topics to be covered		
S. No.	**Contents**	**Total Lectures+ Tutorial**
	Unit 1	
1	Partial derivatives	1
2	Chain rule	1
3	Differentiation of implicit functions	1
4	Exact differentials	1
5	Maxima, Minima and saddle points	1
6	Method of Lagrange multipliers	1
7	Differentiation under integral sign	1
8	Jacobian and transformations of coordinates	1
	Unit 2	
10	Ordinary Differential Equations (ODEs): Basic concepts	1
11	Geometric Meaning of $y' = f(x, y)$. Direction Fields, Euler's Method, Separable ODEs.	2
12	Exact ODEs. Integrating Factors, Linear ODEs. Bernoulli Equation.	2
14	Population Dynamics, Orthogonal Trajectories. Homogeneous Linear ODEs with Constant Coefficients.	1
15	Differential Operators. Modeling of Free Oscillations of a Mass–Spring System, Euler–Cauchy Equations.	1
16	Wronskian, Nonhomogeneous ODEs, Solution by Variation of Parameters.	2
17	Power Series Method for solution of ODEs: Legendre's Equation. Legendre	2
18	Polynomials, Bessel's Equation, Bessels's functions Jn(x) and Yn(x). Gamma Function	1
	Unit 3	
19	Linear Algebra: Matrices and Determinants, Gauss Elimination, Linear Independence.	2
20	Rank of a Matrix. Vector Space. Solutions of Linear Systems and concept of Existence, Uniqueness, Determinants.	2
21	Cramer's Rule, Gauss–Jordan Elimination.	2

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22	The Matrix Eigenvalue Problem. Determining Eigenvalues and Eigenvectors, Symmetric, Skew-Symmetric, and Orthogonal Matrices.	2
23	Eigenbases. Diagonalization. Quadratic Forms.Cayley – Hamilton Theorem (without proof)	2
	Unit 4	
24	Vector Calculus: Vector and Scalar Functions and Their Fields. Derivatives, Curves. Arc Length. Curvature. Torsion, Gradient of a Scalar Field.	2
25	Directional Derivative, Divergence of a Vector Field, Curl of a Vector Field,	2
26	Line Integrals, Path Independence of Line Integrals, Double Integrals,	2
27	Green's Theorem in the Plane, Surfaces for Surface Integrals, Surface Integrals,	2
28	Triple Integrals, Stokes Theorem. Divergence Theorem of Gauss.	2

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ACADEMIC LESSON PLAN

SUBJECT : ENVIRONMENTAL STUDIES

SUBJECT CODE : *BS-109/BS-110*

Dept. :- Applied Sciences **Teaching Scheme :- 3L** **Total Lecture :-36**

S.No.	Topics detail	Number of lectures alloted	Reference Book Name with Chapter & Page No.
	UNIT – 1		
	Environmental Studies: Ecosystems, Bio-diversity and its Conservation		**Environmental studies by Anindita basak**
1	(i) ***The Multidisciplinary Nature of Environmental Studies***-Definition, scope and importance of Environmental Studies. Biotic and a biotic component of environment, need for environmental awareness.	1	**UNIT-I** **Page No. 1-8**
2	***(ii) Ecosystems*** Concept of an ecosystem, structure and function of an ecosystem, producers, consumers and decomposers, energy flow in the ecosystem, ecological succession, food chains, food webs and ecological pyramids.	2	**UNIT-III** **Page No. 47-55**
3	Introduction, types, characteristic features, structures and function of the following ecosystem: (a) Forest ecosystem (b) Grassland ecosystem (c) Desert ecosystem (d) Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries), Biogeochemical cycles	1	**UNIT-III** **Page No.59-67**

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4	***(iii) Bio-diversity and its Conservation*** Introduction to biodiversity —definition: genetic, species and ecosystem diversity, Bio-geographical classification of India, Value of biodiversity: Consumptive use, productive use, social, ethical, aesthetic and option values.	2	**UNIT-IV** **Page No.-75-80**
5	Biodiversity at global, national and local levels, India as a mega-diversity nation, Hot-spots of biodiversity.	1	**UNIT-IV** **Page No.-80-83**
6	Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, rare endangered and threatened species (RET)endemic species of India, method of biodiversity conservation: *In-situ* and *ex-situ* conservation, Bioprospecting & Biopiracy	1	**UNIT-IV** **Page No.-83-98**
7	**Natural Resources** Renewable and Non-renewable Natural Resources, Concept and definition of Natural Resources and need for their management. Forest resources, Water resources, Mineral resources, Energy resources, Land Resources, Food Resources	1 1	**UNIT-II** **Page No.-15-26** **Page No.27-41**
	UNIT II: Environmental Pollution		
8	***Environmental Pollution***		
	(a) Air Pollution: Source, Types, effects on biosphere and Meterology, Air Quality, Control.	2	**A Textbook of Environmental Studies By S Rattan, R Gadi and S. Mohapatra** **Pg no. 189-219**
9	(b) Water Pollution: Types and Sources. (h) Pollution Prevention,	2	**Pg. No. 220 to 240**
10	Soil Pollution: Types and Control.	1	**Pg. 257 to 261**

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	Noise Pollution: Effect, Control, Thermal Pollution., Radiation Pollution, Pollution Prevention	1	**Environmental studies by Anindita basak** **Pg. No 140 to 149** **Pg No. 166-167**
11	Solid waste Management	2	**Pg. No. 250 to 257**
12	Disaster Management	2	**A Textbook of Environmental Studies By S Rattan, R Gadi and S. Mohapatra** **Unit 11, Pg No 312-322**
	Unit III Social Issues and Environment :		
13	Concept of Sustainable Development; Urban problem related to energy; Water Conservation; Wasteland reclamation;	2	**Environmental studies by Anindita basak** **Pg No 181-188**
14	Resettlement and Rehabilitation; Climate Change	2	**Pg No 189-198**
15	Nuclear Accidents; Consumerism and Waste Products	1	**Pg No. 199-201**
16	Laws related to Environment and Pollution	1	**Pg No 202-204**
17	Laws related to Forest and Wild life	1	
18	Environmental Impact Assessment	1	**A Textbook of Environmental Studies By S Rattan, R Gadi and S. Mohapatra** **Unit 13, Pg No. 337-338**
19	**Unit IV Human Population and Environment**		
20	Population Growth	2	**Environmental studies by Anindita basak** **Pg No. 219 to 221**
21	Human Rights	1	**Pg No.225 to 226**
22	Family Welfare Programmes	1	**Pg No. 222 to 223**
23	Environment and Human Health	1	**Pg No. 223 to 225**
24	HIV/AIDS	1	**Pg. No 226 to 228**
25	Women and Child Welfare	1	**Pg No. 228-229**

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26	Role of IT.	1	Pg No. 229-230

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3(e)

Lesson Plan

(Subject Name): Microprocessor and Microcontroller

	L	T	C
Paper Code: ECC-313			
Paper: Microprocessor and Microcontroller	3		3

Topics to be covered		
S. No.	**Contents**	**Total Lectures Tutorial** 44+0
1	Introduction to Microprocessor Systems: Architecture and PIN diagram of 8085	1
2	Timing Diagram,	1
3	Memory organization	1
4	Addressing modes	1
5	Interrupts.	1
6	Assembly Language Programming	3
	Unit II	
1	8086 Architecture, difference between 8085 and 8086 architectures	2
2	Generation of physical address,	1
3	PIN diagram of 8086, Minimum Mode and Maximum mode	1
4	Bus cycle,	2
5	Memory Organization, Memory Interfacing	1
6	Addressing Modes, Assembler Directives	2
7	Instruction set of 8086, Assembly Language	2
8	Hardware and Software Interrupts.	1
	Total no of lectures	**20**
	Mid term Exam	
	Unit III	
9	Interfacing of 8086 with 8255, 8254/8253, 8251, 8259: Introduction, Generation of I/O Ports	2
10	Programmable Peripheral Interface (PPI)-Intel 8255	2
11	Sample-and-Hold Circuit and Multiplexer,	2

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12	Keyboard and Display Interface	2
13	Keyboard and Display Controller (8279),	2
14	Programmable Interval timers (Intel 8253/8254)	2
15	USART, PIC (8259)	1
16	DAC, ADC, LCD, Stepper Motor	2
	Unit IV	
17	Overview of Microcontroller 8051: Introduction to 8051 Micro-controllers, Architecture .	1
18	Memory organization	1
19	Special function registers, Port Operation	1
20	Memory Interfacing, I/O Interfacing,	1
21	Programming 8051 resources, interrupts	1
22	Programmers model of 8051	1
23	Operands type, Operand Addressing	1
24	Arithmetic instructions, Logic instructions, Control transfer instructions	1
25	Timer & Counter Programming, Interrupt Programming.	2
	Total no of Lectures	**25**

Teaching Pedagogy

1) Encourage students to actively participate in the learning process through activities such as discussions, problem-solving, case studies, role plays, and group projects.
2) Implement group-based activities where students can work together to achieve a common goal, fostering teamwork, communication, and social skills.
3) Use questioning to stimulate critical thinking and draw out ideas and underlying presumptions. This dialogue-based approach helps students develop analytical skills.
4) Combine online digital media with traditional face-to-face classroom methods, providing a more flexible and personalized learning experience.
5) Enable students to learn by doing through hands-on experiences such as labs, simulations, field trips, and internships.

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Lesson Plan

Class:-__**B.Tech 6th Sem.**__ Name of faculty: - **Alka Leekha**

Dept.:- **Information Technology** Teaching Scheme:-_**Web Technology**
Paper Code: **CIE-356T** Total Lecture: - **40**
Book Download Link: Web-Technologies-A-Computer-Science-Perspective-J.-Jackson-Pearson-2007-BBS.pdf

S.No.	Topic Details	No. of Lecture Alloted	Reference Book Name With Chapter & Page No.	Remarks
1.	Introduction to HTML, basics of XTHML, HTML elements	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 02, pp. 56-81**	
2.	HTML tags, lists, tables, frames, forms	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 02, pp. 83-98**	
3.	defining XHTML's abstract syntax, defining HTML documents	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 02, pp. 98-107**	
4.	CSS style sheets: Introduction, CSS core syntax,	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* Chapter 03, pp. 121-132	
5.	Text properties	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 03, pp. 140-151**	
6.	CSS box model, normal flow box layout	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 03, pp. 151-165**	
7.	Some Other Useful Style Properties	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 03, pp. 176-177**	
8.	XML, XML documents & vocabulary	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 07, pp. 364-369**	
9.	XML versions & declarations	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 07, pp. 369-370**	
10.	Client Side Programming: JAVA Scripts, basic syntax, variables & data-types	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 04, pp.192-202**	

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11.	Literals, functions, objects, arrays	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 04, pp. 208-219**	
12.	Built-in objects	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 04, pp. 228-236**	
13.	JAVA Script form programming, Intrinsic event handling	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 04, pp. 249-254**	
14.	modifying element style	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 04, pp. 254-257**	
15.	Document Tree	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 04, pp. 257-263**	
16.	Server side programming – Java Servlets: Servlet architecture	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 06, pp. 307-311**	
17.	Servlets Generating Dynamic Content	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 06, pp. 311-313**	
18.	Servlet life cycle	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 06, pp. 313-314**	
19.	parameter data, sessions, cookies	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 06, pp. 314-318, 322-332**	
20.	servlets capabilities, servlets & concurrency	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 06, pp. 334-338, 339-341**	
21.	Introduction to JSP	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 08, pp. 432-435**	
22.	JSP Tags, JSP life cycle, custom tags, Connecting to database in JSP.	01	*Book Name: WEB TECHNOLOGIES A Computer Science Perspective, Jeffrey C. Jackson,* **Chapter 08, pp. 435-438**	
23	Introduction to server side, Development with PHP, A Web Server responsibilities. Quick tour of PHP	02	*Book Name: PHP Programming Cookbook* **Chapter 1, pp. 1-5**	

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24	Basic syntax of PHP, decision and looping with examples	02	*Book Name: PHP Programming Cookbook* **Chapter 1, pp. 5-10**	
25	PHP and HTML Arrays, Functions, Browser control and detection, string from processing files,	02	*Book Name: PHP Programming Cookbook* **Chapter 1, pp. 1-5**	
26	Advance features, cookies and sessions	02	*Book Name: PHP Programming Cookbook* **Chapter 1, pp. 60-63**	
27	PHP and MySQL: Basic commands with PHP examples, Connection to the server, creating a database, selecting a database, listing database, listing table names	03	*Book Name: PHP Programming Cookbook* **Chapter 1, pp. 12-15**	
28	Creating a table, inserting data, altering tables, queries, deleting the database, deleting data, and tables, PHP my admin and database bugs	03	*Book Name: PHP Programming Cookbook* **Chapter 1, pp. 15-20 and 60-63**	
29	Managing State, The Problem of State in Web Applications, Passing Information via Query Strings, Passing Information via the URL Path, Cookies, Serialization, Session State.	03	*Book Name: PHP Programming Cookbook* **Chapter 1, pp. 50-55**	

Signature of Faculty

Signature of HoD

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ACADEMIC PLAN FOR SEMESTER-III (for 2023-24)

SUBJECT: Electrical Materials **Subject Code: EEC – 209**

S.No.	TOPICS TO BE COVERED	Total No. of Lectures
UNIT-I	*Conducting Materials*	
1	Energy band diagram of conductors, semi-conductors & insulators	1
2	Conductivity & Resistivity, factors affecting the resistivity	1
3	Classification of conducting materials	1
4	Electrical, Mechanical & thermal properties and applications of low resistance material like copper, aluminium, steel, silver, gold, platinum, brass and bronze.	1
5	Electrical, mechanical and thermal properties and applications of high resistance materials like manganin, constantan, nichrome, mercury, tungsten and carbon.	1
6	Introduction of Super Conductors	1
UNIT-II	*Insulating Materials*	
7	Classification of insulating materials	1
8	Electrical, Physical, thermal, chemical, mechanical properties of insulating materials	1
9	Thermoplastic materials	1
10	Natural insulating materials	1
11	Gaseous and liquid insulating materials	1
12	Ceramics and synthetic insulating materials	1
	Mid Term Evaluation	
UNIT-III	*Magnetic Materials*	
13	Introduction and classification of magnetic materials	1/2
14	Permeability, B-H curve	1/2
15	Magnetic saturation, hysteresis loop	1
16	Coercive force and residual magnetism	1/2
17	Concept of eddy current and hysteresis loss	1
18	Curie temperature, magnetostriction effect	1/2
19	Soft and hard magnetic materials	1
20	Ferro and ferri magnetic materials	1/2
21	Special purpose materials	1/2
UNIT-IV	*Special Materials*	
22	Properties and applications of materials used in electrical systems like thermocouples, bimetallic	1
23	Properties and applications of materials used in electrical systems like fusing and soldering	1
24	Introduction to different types of materials used in electromagnetic systems	1/2
25	Introduction to different types of materials used in electro mechanical systems	1/2
26	Introduction to different types of materials used in resistors	1/2
27	Introduction to different types of materials used in capacitors	1/2
28	Introduction to different types of materials used in inductors	1
29	Introduction to different types of materials used in special semiconductors used in electrical engineering	1
	Total	24

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Lesson Plan

(Discrete Mathematics)

Paper Code: CIC-205 **L P C**

Paper: DM **4 0 4**

S.No.	Contents	Total Lectures
1.	Sets, Subsets, Powersets, Operations on set	1
2.	Propositional Logic	1
3.	Rules of Inferences in Propositional Logic	1
4.	Quantifiers, Predicate Logic	1
5.	Normal Forms	2
6.	Proof Techniques	1
7.	Principle of inclusion and exclusion	1
8.	Pigeonhole Principle	1
9.	Principle of Well-Ordering	1
10.	Principle of Mathematical Induction, Principle of Complete Induction	2
11.	Relation and its Properties, Equivalence Relations and class	1
12.	Closures	1
13.	Functions	1
14.	Growth of Functions	1
15.	Permutation Functions	1
16.	Partially ordered sets	1
17.	Lattices	1
18.	Boolean Algebra	1
19.	Minimization of Boolean Expressions	1
20.	GCD,LCM, Prime numbers	1
21.	Recurrence Relations	1
22.	Solution Method for linear-first order relations	2
23.	Solution Method for linear-first order relations with constant coefficients	1
24.	Generating Functions	2
25.	Solution method for divide and conquer	1
26.	Masters Theorem	2
27.	Semi-group, Monoid, Group	1
28.	Group identity and uniqueness	1
29.	inverse and its uniqueness	1
30.	isomorphism and homomorphism	1
31.	subgroups	1
32.	Cosets and Lagrange's theorem	1
34.	Cayley's theorem (without proof), Normal subgroup and quotient groups	2
35.	Graph Terminology, Planar graphs, Euler's formula	1
36.	Euler and Hamiltonian path/circuit. Chromatic number of a graph,	2
37.	Shortest path and minimal spanning trees	2
38.	Depth-first and breadth first search	1
	Total Lectures	45

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Lesson Plan

Paper Code: CIE-332T | **L** | **C**

Paper: Programming in Python | **3** | **4**

S.No.	Topics Details	No. Of Lecture Allotted
	UNIT I	
1.	Introduction to Python	01
2.	Difference between Python and other languages	01
3.	Memory and Variables in Python	01
4.	Python Arithmetic, Comparison and Assignment Operators	01
5.	Elements of flow control and Flow control statements	01
6.	Decision control statements: Branching statements and Loops	01
7.	Nested Loops and Break, Continue, Pass Statements	01
8.	Programs based on decision control statements	02
	UNIT II	
9.	Functions: def statements with parameters	01
10.	Functions: return values, return statements, keyword arguments	01
11.	Local and Global scope, Global statement	01
12.	Collections: Lists, Tuples and Dictionaries	01
13.	Exception Handling	01
14.	String Manipulation in Python	02
	UNIT III	
15.	Reading and Writing to text files in Python	01
16.	Copying Files to another directory	01
17.	Copying Metadata along with file	01
18.	Copying content of one file to another	01
19.	Replicating and Removing complete directory	01
20.	Removing Files, Walking a directory Tree	01

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21.	Working with Zip files	02
	UNIT IV	
22.	Web Scraping: Project: MAPIT.PY with the web browser Module	02
23.	Web Scraping Tools	02
24.	Download Files From URLs With Python	01
25.	Saving Downloaded Files to the Hard Drive	01
26.	Saving Downloaded Content to a File	01
27.	Download Large Files	01
28.	HTML	01

Applied Mathematics

ACADEMIC PLAN FOR SEMESTER-II

S.No.	TOPICS TO BE COVERED	No of Lectures allotted	Reference book Name with Chapter & Page No.	Date
	UNIT I			
1	Complex Numbers and Their Geometric Representation	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 6: Page No. 481- 493	
2	Polar Form of Complex Numbers, Power, Root and Principal Value	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 6: Page No. 494- 495 ; Page No.501-505	
3	Derivative and Analytic Function,	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 7: Page No.525-536	
4	Cauchy–Riemann Equations.	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 7: Page No.525-536 ; Page No. 538	
5	Laplace's Equation , harmonic function, Euler's Formula and de'Moivre's theorem,	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 7: Page No.539-541 ; Chapter 6: Page No. 497-501; Chapter 7: Page No. 538; Higher Engineering Mathematice by B.S. Grewal (Khanna Publications) Chapter 20: Page No.677-678 ; Page No.657	
6	Exponential Function, Trigonometric, Logarithm and Hyperbolic Functions	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 6: Page No. 505- 516 Higher Engineering Mathematice by B.S. Grewal (Khanna Publications) Chapter 19: Page No.656	
7	Taylor and Maclaurin Series	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication)	

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			Chapter 9: Page No.639-651	
8	Singularities and Zeros	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 7: Page No.574-578	
9	Line Integral in the Complex Plane, Cauchy's Integral Theorem,	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 7: Page No.560-566	
10	Cauchy's Integral Formula	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 7: Page No.566-574	
	UNIT II			
11	Laurent Series	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 9: Page No.652-661	
12	Residue theorem & Residue Integration Method for complex and real both function	2	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 7: Page No.585-598	
13	Conformal Mapping	2	Higher Engineering Mathematice by B.S. Grewal (Khanna Publications) Chapter 20: Page No.688-689	
14	Möbius Transformations	1	Schaum's outline,complex variables by Spiegel, Page No. 242-263	
15	Special Linear Fractional Transformations	1		
16	Applications: Electrostatic Fields, Use of Conformal Mapping. Modeling, Heat Problems, Fluid Flow. Poisson's Integral Formula for Potentials	3	Schaum's outline,complex variables by Spiegel , Page No. 280-310	

Note: Unit I and Unit II has to be completed before midterm exam.

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S.No.	TOPICS TO BE COVERED	No of Lectures allotted	Reference book Name with Chapter & Page No.	Date
	UNIT III			
1	Definition and existence condition of Laplace transformation , Laplace transformation of standard functions, properties of Laplace transformation (linearity, scaling and shifting)	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 13: page No.885-889	

2	Unit step function, Impulse function, Periodic function and their Laplace transform	1	Advanced Engineering Mathematics by H K.DASS(S.Chand Publication) Chapter 13: page No.895-896, Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 13: Page 469-470, and Page 478-483	
3	Laplace transform of derivatives of functions, Laplace transform of integrals of functions, differentiations of Laplace transform of functions, Integration of Laplace transform of functions	1	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 13: Page 454-458	
4	Inverse Laplace transformation, Convolution theorem	2	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 13: Page 460-467	
5	Solution of ordinary differential equations using Laplace transformation	1	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 13: Page 471-475	
6	Definition, existence condition, Euler's formula and example of Fourier series. Fourier series of Even and odd function	2	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 14: Page 486-500	
7	Half range Fourier series, Sine and Cosine Fourier series	1	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 14: Page 501-505	
8	Fourier Integral	1	Advanced Engineering Mathematice by V.P.Mishra and	

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			Prathiba Mishra (Bhavya Publishers) Chapter 15: Page 511-524	
9	Definition and existence condition of Fourier transformation, Fourier transformation of standard functions, properties of Fourier transformation (linearity, scaling, modulation and shifting etc.)	2	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 15: Page 526	
10	Fourier transform of derivatives of functions, Inverse Fourier transformation, Convolution theorem of Fourier transform	1	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 15: Page 527-532	
11	Application of Fourier Transform	1	Advanced Engineering Mathematice by V.P.Mishra and Prathiba Mishra (Bhavya Publishers) Chapter 15: Page 528-529	
12	Strum –Lioville Problem	1	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 10: Page 498-500	
	UNIT IV			
13	Variable Separable method	1	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 12: Page 540	
14	Basic Concepts of PDEs. Modeling: Vibrating String, Wave Equation. Solution by Separating Variables	2	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 12: Page 540-551	
15	Use of Fourier Series. D'Alembert's Solution of the Wave Equation. Characteristics. Modeling: Heat Flow from a Body in Space. Heat Equation:Solution by Fourier Series.	2	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 12: Page	

			553-558	
16	Steady Two-Dimensional Heat Problems. Dirichlet Problem. Heat Equation: Modeling Very Long Bars.	2	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 12: Page 558-571	
17	Solution by Fourier Integrals and Transforms. Modeling: Membrane, Two-Dimensional Wave Equation. Rectangular Membrane.	1	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 12: Page 571-584	
18	Laplacian in Polar Coordinates. Circular Membrane. Laplace's Equation in Cylindrical and Spherical Coordinates. Potentia	2	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 12: Page 585-596	
19	Solution of PDEs by Laplace Transforms.	1	Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Plus Publishing) Chapter 12: Page 600-601	

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