

Program Outcomes:

Courses	Programme Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
Basic Electrical & Electronic Engg.												
CO1: Basic idea of Semiconductors.	3		2	3	2		2	2	1			3
CO2: Idea of Diodes & Diode Circuits.	3	1	1	1	1	1	1	1	1		1	1
CO3: Basic idea of Bipolar Junction Transistors.	3	1	1	1	1	1	1	1	1		1	1
CO4: Students will be able to identify different electric elements & analyze network theorems.	3	1	1	1	1	1	1	1	1		1	1
CO5: Students will learn different laws of electromagnetic circuit & losses.	3	1	1	1	1	1	1	1	1		1	1
CO6: Students will learn the properties of alternating voltage & current.	3		2	3	2		2	2	1			3
Basic Electrical & Electrical Lab												
CO1: To be able to analyze Characteristics of Fluorescent lamps & Tungsten and Carbon filament lamps	3	1	1		2			3				
CO2: To be able to verify network theorems	3	1	2		3			2				
CO3: To be able to construction and study on R-L-C Series and parallel circuit	2	1	1		1			1				

CO4: To be Familiarization with passive and active electronic & measuring and testing equipment	3	1	1		1			1				
CO5: Study of I-V characteristics of Junction diodes, Zener diodes & BJTs.	2		2		3			1				
CO6: Study of Half and Full wave rectifiers	2	1	2		3			2				
PHYSICS-I												
CO1: Comprehension and applications of simple harmonic motion, damped vibration and forced vibration.	3	2				2		1	2		1	1
CO2: Comprehension, applications and demonstration of interference, diffraction and polarization of light.	3	2	1			2		1	3		1	1
CO3: Basic knowledge and applications of LASER and Holography.	2	2	2			1		1	2		1	1
CO4: Comprehension of evolution of quantum physics.	3	1	1			3		1	3		1	1
CO5: Elementary idea of crystal structure, characteristics and applications of X-rays.	3	3	1			2		1	2		1	1
PHYSICS-I LAB												
CO1: Application, demonstration of experiments on geometrical and physical properties of light as for example dispersive power, interference and diffraction.	2	2	1			2			3		1	1
CO2: Application, demonstration of experiments	3	2	1			3			3		1	1

on general properties of matter as for example elasticity and thermal conductivity												
CO3: Demonstration of experiments on electricity	2	2	1			2			2		1	1
Engineering Mathematics												
CO1: Students will get the concepts of Matrix and Successive differentiation	3		2	3	2		2	2	1			3
CO2: Students will get the concepts of Mean Value Theorems & Expansion of Functions	3		2	3	2		2	2	1			3
CO3: Students will get the concepts of Reduction formulae both for indefinite and definite integrals	3	1	1	1	1	1	1	1	1		1	1
CO4: Students will get the concepts of Calculus of Functions of Several Variables and Infinite Series	3	1	1	1	1	1	1	1	1		1	1
CO5: Students will get the concepts of Vector Algebra and Vector Calculus	3	1	1	1	1	1	1	1	1		1	1
Engineering Mechanics												
CO1: To develop a student's skills in analyzing a system, acted upon by forces under equilibrium with or without static friction while modeling a physical system.	3		2	3	2		2	2	1			3
CO2: To provide the student with some specific knowledge regarding centroid and centre of gravity and also the moment	3		2	3	2	-	2	2	1			3

of inertia of some basic shaped entities.												
CO3: To introduce the student with the mechanics of deformable bodies.	3	1	1	1	1	1	1	1	1		1	1
CO4: To impart the knowledge of basic laws used to analyze a physical system in motion the students.	3	1	1	1	1	1	1	1	1		1	1
Basic Electrical And Electronics												
CO1: Students will learn the concept of electrostatics & its laws. They will also learn about the Construction, concepts of Characteristics of DC Machine.	3	2		3	1	2		1	2	1	2	
CO2: Students will learn the concept Single phase transformer and three phase induction motor along with its phasor diagram, losses and efficiency calculation & characteristics	3	2		2	1	2		1	2	1	2	
CO3: Students will know the concept of three phase system, relationship between line and phase quantities, phasor diagrams with an overview of the general structure of electrical power system.	2	2		2	1	1			1	1	2	
CO4: Students will be able to distinguish the different Gate isolation techniques; draw and explain the I-V characteristics of FETs; Appreciate the utility of CMOS	3	2	1	2	1	1			1	1	2	

CO5: Student will analyse the different OPAMP circuits and apply the knowledge of network theory to OPAMP circuits.	1	2	-	1	1	1			2	1	3	
CO6: Student must acquire the proficiency to express binary numbers, convert binary to decimal and vice versa, draw truth tables for different logic operations, design Gates and simple digital circuits using the Gates	3	3	3	3	3	2			3	3	2	
Basic Computation & Principles of Computer Programming												
CO1:- Students will learn the concept of fundamentals of Computer, Arithmetic & logic gates, Assembly language, high level language, compiler and assembler and operating systems, Algorithm & flow chart.	2	3	3	3						2		
CO2:- Students will learn the concept of C character set identifiers and keywords, data type & sizes, variable names, declaration, statements		3	3	3						2		
CO3:- Students will learn the concept of Arithmetic operators, relational and logical operators, type, conversion, Standard input and output, formatted output and input		3	3	3						2		
CO4:- Students will learn the concept of Flow of Control and program Structures		3	3	3						2		

will also gather knowledge about various types of solid properties.												
CO2: Students will obtain knowledge about structure, bonding and reactivity of organic molecules. They will also obtain idea about various types of fuels, their generation and uses.	3	2								1		
CO3: Students will develop knowledge of direction, spontaneity, thermochemistry, randomness of chemical reaction.	3	1								1		
CO4: To design efficient engines, quantitative relation between heat and work and to solve advanced problems and research based on Thermodynamics.	3	1								1		
CO5: Students will develop idea about conductance, electrochemical cell, fuel cell and their working principle.	3	1								1		
CO6: Students will gain idea about various types of polymers, their uses and development.	3	1								1		
Engineering Mathematics												
CO1: Students will learn the concept of Ordinary differential equations (ODE)- First order and first degree	3		2	3	2		2	2	1			3
CO2: Students will learn the concept of ODE Higher order and first degree	3		2	3	2		2	2	1			3

knowledge of the different type of fluids and their properties and also how to measure the pressure by manometer addition to these, to provide the knowledge of how to measure the flow rate and velocity fluid flow by using venturimeter ,orifice meter and pitot tube.													
Analog & Digital Electronics													
CO1:- 1. Student will get the knowledge of Amplifiers and a stable & Monostable Multivibrators	3	2	2	2							3		
CO2:- Student will get the knowledge of Pre-requisite of Digital Electronics	3	2	2	2							3		
CO3:- Student will get the knowledge of Binary Number System & Boolean Algebra	3	2	2	2							3		
CO4:- Student will get the knowledge of Combinational & Sequential Circuits, Registers, counters	3	2	2	2							3		
CO5:- Student will get the knowledge of A/D and D/A conversion techniques, some Logic families(TTL, ECL, MOS and CMOS)	3	2	2	2									
Data Structure & Algorithm													
CO 1: Student will get the knowledge of asymptotic notations to analyze the consumption of resources (time/space) of an algorithm.	1	3	3	3						2	3		

CO 2: Effective implementation of stack, queue and list ADT to manage the memory using static and dynamic allocations.	2	3	3	3						2	3		
CO 3: Student will get the knowledge of binary search tree to design applications like expression trees.		3	3	3						2	3		
CO 4: Student will get the knowledge of graphs for solving real life problems like shortest path		3	3	3						2	3		
CO 5: Student will get the knowledge of comparison-based search algorithms and sorting algorithms.		3	3	3						2	3		
CO 6: Identify appropriate data structure and algorithm for a given contextual problem and develop in C.		3	3	3						2	3		
Computer Organization													
CO1: Student will get the knowledge of Analyze the designing process of combinational and sequential circuits	3	3	3	3	3	1				1	3		
CO2: Demonstrate understanding of how to Design of ALU.	3	3	3	3	3	1				1	3		
CO3: Identify the addressing modes used in macro instructions	3	3	3	3	3	1				1	3		
CO4: Demonstrate understanding of control unit and memory organization	3	3	3	3	3	1				1	3		
CO5: Demonstrate understanding of instruction pipelining and RISC architectures	2	2	2		3	1				1	3		

Analog & Digital Electronics Lab													
CO1: Demonstrate understanding of how to Design a Class A amplifier and a Phase-Shift Oscillator	3	2	2	2	3								
CO2: Demonstrate understanding of how to Design a Full Adder using basic gate	3	2	2	2	3								
CO3: Demonstrate understanding of how to Realize of RS / JK / D flip flops using logic gates and Synchronous Up/Down counter	3	2	2	2	3								
CO4: Demonstrate understanding of how to Design of Shift Register using J-K / D Flip Flop and MOD- N Counter.	3	2	2	2	3								
Data Structure & Algorithm Lab													
CO1: Implementation of array operations			3	3	3	3	3	1					
CO2: Implementation of stack, queue and list ADT to manage the memory using static and dynamic allocations			3	3	3	3	3	1					
CO3: Implementation of binary search tree to design applications like expression trees			3	3	3	3	3	1					

CO4: develop code for real life problems like shortest path and MST using graph theory.			3	3		3		3	3	1		
CO5: Implementation of comparison-based search algorithms and sorting algorithms.			3	3		3		3	3	1		
Computer Organization Lab												
CO1:- Familiarity with IC-chips, e.g. Multiplexer, Decoder, Encoder Comparator	3	3	3	2	2	2		3	3	1		
CO2:- Demonstrate understanding of how to Design an Adder/Subtractor composite unit.	3	3	3	2	2	2		3	3	1		
CO3:- Demonstrate understanding of how to Design a BCD adder.	3	3	3	2	2	2		3	3	1		
CO4:- Demonstrate understanding of how to Design of a 'Carry-Look-Ahead' Adder circuit.	3	3	3	2	2	2		3	3	1		
CO5:- Demonstrate understanding of how to Use a multiplexer unit to design a composite ALU.	3	3	3	2	2	2		3	3	1		
CO6:- Demonstrate understanding of how to Use ALU chip for multi-bit arithmetic operation.	3	3	3	2	2	2		3	3	1		
CO7:- Demonstrate understanding of how to	3	3	3	2	2	2		3	3	1	3	3

Implement read write operation using RAM IC.													
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Numerical Methods													
CO1:- develop method for Approximation in numerical computation	3	3	3	3		2			2	2			
CO2:- To Develop method of Interpolation.	3	3	3	3		2			2	2			
CO3:- To apply Numerical integration	3	3	3	3		2			2	2			
CO4:- Numerical solution of a system of linear equations	3	3	3	3		2			2	2			

CO5:- Student Will be able to apply Numerical solution of Algebraic equation	3	3	3	3		2			2	2		
CO6:- Student Will be able to apply Numerical solution of ordinary differential equation	3	3	3	3		2			2	2		
Communication Engg & Coding Theory												
CO1:- Student will get the knowledge of Communication system, Analog Modulation & Demodulation, Noise, SNR Analog-to	3	2	1	1					1			
CO2:- Student will get the knowledge of Digital Transmission:	3	2	1	1					1			
CO3: Student will get the knowledge of Digital Carrier Modulation & Demodulation Techniques	3	2	1	1					1			
CO4: Student will get the knowledge of Information Theory & Coding	3	2	1	1					1			
Formal Language & Automata Theory												
CO1: The student will be able to define a system and recognize the behavior of a system. They will be able to minimize a system and compare different systems		3	3	3	2				2	3		
CO2: Student will convert Finite Automata to regular expression. Students will be able to check equivalence between regular linear grammar and FA.		3	3	3	2				2	3		

CO3: Students will be able to minimize context free grammar. Student will be able to check equivalence of CFL and PDA. They will be able to design Turing Machine.		3	3	3	2				2	3		
CO4:- Students will be able to design Turing machine		3	3	3	2				2	3		
Computer Architecture												
CO1:- Student will get the knowledge of basic computer architecture	3	3	3	3	2	2			2	3		
CO2:- Student will get the knowledge of Hierarchical memory technology	3	3	3	3	2	2			2	3		
CO3:- Student will get the knowledge of Instruction-level parallelism	3	3	3	3	2	2			2	3		
CO4:- Student will get the knowledge of Multiprocessor architecture and Non von Neumann architectures	3	3	3	3	2	2			2	3		
Technical Report Writing & Language												
CO1:- To inculcate a sense of confidence in the students.					3		3		3			
CO2:- To help them become good communicators both socially and professionally.					3		3		3			
CO3:- To assist them to enhance their power of Technical Communication					3		3		3			
Lab Practice												

CO1:- Demonstrate understanding of Newton forward /backward, Lagrange's interpolation.	3	3	1	1	1			3	3	1		
CO2 Demonstrate understanding of numerical integration using Trapezoidal rule, Simpson's 1/3 rule, Weddle's rule.	3	3	1	1	1			3	3	1		
CO3:- Demonstrate understanding of numerical solution of a system of linear equations using Gauss elimination and Gauss-Seidel iterations.	3	3	1	1	1			3	3	1		
CO4:- Demonstrate understanding of numerical solution of Algebraic Equation by Regular-falsi and Newton Raphson methods.	3	3	1	1	1			3	3	1		
CO5:- Demonstrate understanding of ordinary differential equation: Euler's and Runge-Kutta methods.	3	3	1	1	1			3	3	1		
CO6:- Demonstrate understanding of Software Packages: Matlab / Scilab / Labview / Mathematica.	3	3	1	1	1			3	3	1		
Communication Engg & Coding Theory												
CO1:- Generation of Amplitude Modulation (Design using transistor or Balanced Modulator Chip (to view the	2	3		3				2	2			

wave shapes)												
CO2:- Generation of FM using VCO chip (to view the wave shapes)	2	3	3					2	2			
CO3:- Generation of PAM	2	3	3					2	2			
CO4:- Generation of PWM & PPM (using IC 555 Timer)	2	3	3					2	2			
Software Tools												
CO1:- Demonstrate understanding of Visual Basic/VC++ & Concept about form Project, Application, Tools, Toolbox, Controls & Properties		3	3	3	3	3		3	3			
CO2:- Case studies of any real world software with the help of visual programming aids.		3	3	3	3	3		3	3			
Computer Architecture Lab												
CO1:- Demonstrate understanding of HDL introduction	3	3	3	2	2			3	3			
CO2:- Demonstrate understanding of Basic digital logic base programming with HDL	3	3	3	2	2			3	3			
CO3:- Demonstrate understanding of 8-bit Addition, Multiplication, Division	3	3	3	2	2			3	3			
CO4:- Demonstrate	3	3	3	2	2			3	3			

understanding of 8-bit Register design												
CO5:- Demonstrate understanding of Memory unit design and perform memory operations.	3	3	3	2	2			3	3			
CO6:- Demonstrate understanding of 8-bit simple ALU design	3	3	3	2	2			3	3			
Economics for Engineers												
CO1:- Awareness of Economic Decisions Making process and Engineering Costs & Estimation									3	1		3
CO2:- Students will get the knowledge of Cash Flow, Interest and Equivalence									3	1		3
CO3:- Students will get the knowledge of Inflation And Price Change and Economic Decision Trees									3	1		3
CO4:- Students will get the knowledge of Depreciation, Capital Allowance Methods, Replacement and Cost Accounting									3	1		3
Design & Analysis of Algorithm												
CO1:- Students will get the knowledge of basic algorithm, Complexity Analysis		3	3	3	2	2			2	3		

CO1: Student will get the practical knowledge of UNIX/Linux Operating System commands		2	2	3	3	3		2	2				
CO2: Student will get the practical knowledge of C++		2	2	3	3	3		2	2				
CO3: Student will get the practical knowledge of implementation (like Dynamic memory allocation and Linked Lists etc) using C++.		2	2	3	3	3		2	2				
Object Oriented Programming (IT)													
CO1: Implement Object Oriented Programming Concepts(class, constructor, overloading, inheritance, overriding) in java.		2	2	3	3	3		2	2				
CO2: Use and create packages and interfaces in a Java program		2	2	3	3	3		2	2				
CO3: Use graphical user interface in Applets,swing		2	2	3	3	3		2	2				
CO4: Implements exception handling in Java.		2	2	3	3	3		2	2				
CO5: Implement Multithreading in java.		2	2	3	3	3		2	2				
CO6: Use of Input/output Streams in java.		2	2	3	3	3		2	2				

Principles of Management												
CO1:- Students will get the knowledge of Basic management concepts					3		3				3	3
CO2:- Students will get the knowledge of Management, Society ,People Management and Managerial Competencies					3		3				3	3
CO3:- Students will get the concepts of Leadership, Decision making and Economic, Financial & Quantitative Analysis					3		3	2			3	3
CO4:- Students will get the concepts of Customer Management and Operations & Technology Management					3		3				3	3
Data Base Management System												
CO1:- Students will get the concepts of DBMS, Data Models(like Entity-Relationship Model, relational Databases), and Database		3	3	3	2	2			2	3		
CO2:- Students will get the concepts of Relational Algebra, Relational Calculus		3	3	3	2	2			2	3		
CO3:- Students will get the concepts of SQL and Integrity Constraints		3	3	3	2	2			2	3		
CO4:- Students will get the concepts Normalization		3	3	3	2	2			2	3		

Computer Networks												
CO1:- Students will get the concepts of Data Communication and Networking, Reference models		3	3	3	3	2			1	3		
CO2:- Students will get the concepts of error detection & correction methods		3	3	3	3	2			1	3		
CO3:- Students will get the concepts of Internetworking & devices, Routing techniques		3	3	3	3	2			1	3		
CO4:- Students will get the concepts of protocols like DNS, SMTP, SNMP, FTP, HTTP etc		3	3	3	3	2			1	3		
CO5:- Students will get the concepts of Security		3	3	3	3	2			1	3		
CO6:- Students will get the concepts of some Modern topics(like ISDN services & ATM)		3	3	3	3	2			1	3		
Computer Graphics												
CO1:- Students will get the concepts of Graphics display devices, different types of graphics drawing algorithms.	1	3	3	3	2	2				2		
CO2:- Students will get the concepts of 2D and 3D Geometrical Transformations	1	3	3	3	2	2				2		
CO3:- Students will get the concepts of Viewing, Curves and surfaces	1	3	3	3	2	2				2		
CO4:- Students will get the concepts of Hidden Line/surface elimination techniques	1	3	3	3	2	2				2		

CO5:- Students will get the concepts of some Scan Conversion algorithms	1	3	3	3	2	2				2		
CO6:- Students will get the concepts of Illumination and Shading Models	1	3	3	3	2	2				2		
Multimedia Technology												
CO1:- Students will get the concepts of Multimedia Systems		2	3	2	2	2				2		
CO2:- Students will get the concepts of Text, Audio Text and Audio tools		2	3	2	2	2				2		
CO3:- Students will get the concepts of MIDI Image and Video Image , synchronization accuracy specification factors		2	3	2	2	2				2		
CO4:- Students will get the concepts of Storage models and Access Techniques of Multimedia devices		2	3	2	2	2				2		
CO5:- Students will get the concepts of Image segmentation and video segmentation		2	3	2	2	2				2		
CO6:- Students will get the concepts of Document Architecture, Content Management and the application of multimedia		2	3	2	2	2				2		
Data Base Management System Lab												
CO1:- To study of Creating Database		3	3		3			3	3			
CO2:- To study of Table and Record Handling SQL commends		3	3		3			3	3			

CO3:- To study of Retrieving Data from a Database		3	3		3			3	3			
CO4:- To study of Creating and manipulating Views		3	3		3			3	3			
Network Lab												
CO1: Familiarization with transmission media,connector,Hubs,Switches and installation of NIC		3	3	3	3			3	3			
CO2: Implementation of client server applications with TCP/UDP Socket Programming in a standalone machine		3	3	3	3			3	3			
CO3: Implementation of client server applications with TCP/UDP Socket Programming in a network.		3	3	3	3			3	3			
CO4: Implementation of a Prototype Multithreaded Server		3	3	3	3			3	3			
Operating System Lab												
CO1: Demonstrate understanding of Shell programming		3	3	3	3			3	3			
CO2: Demonstrate understanding of how to starting a new process, replacing a process image, duplicating a process image, waiting for a process, zombie process.		3	3	3	3			3	3			

CO3: Demonstrate understanding of how to send signals.		3	3	3	3			3	3			
CO4: Demonstrate understanding of how to synchronize processes		3	3	3	3			3	3			
CO5: Demonstrate understanding of Inter-process communication		3	3	3	3			3	3			
Seminar												
CO1: To identify various real world problems.									3			
CO2: To develop and enhance leadership skills.								3				
CO3: To improving communication skills, presentation skills and other soft skills.									3			
Software Engineering												
CO1: To illustrate different phases of developing high end software in an industry.		3	3	3	2	2				3	3	3
CO2: To recognize different techniques of software testing, reusability of software and software maintenance.		3	3	3	2	2				3	3	3
CO3: To identify different challenges in maintaining or updating old software.		3	3	3	2	2				3	3	3
CO4: To justify the		3	3	3	2	2				3	3	3

CO1:- Students will get the concepts of Artificial intelligence		3	3	3	3	3			2	2		
CO2:- Students will get the concepts of Intelligent Agents And issues in the design of search programs.		3	3	3	3	3			2	2		
CO3:- Students will get the concepts of Search techniques and Heuristic search strategies, Adversarial search		3	3	3	3	3			2	2		
CO4:- Students will get the concepts Knowledge & reasoning of predicate logic and Representing knowledge using rules, Probabilistic reasoning		3	3	3	3	3			2	2		
CO5:- Students will get the concepts,Planning , Natural Language processing , Learning and Expert Systems. language like		3	3	3	3	3			2	2		
CO6:- Students will get the concepts of of Basic knowledge of programming like Prolog & Lisp.		3	3	3	3	3			2	2		
Distributed Operating System												
CO1:- Students will get the concepts of Distributed System And Operating System Structures		2	3	3	3	2				2		

Artificial Intelligence Lab													
CO1:- Students will learn Programming using PROLOG	2		3	3	3								
CO2:- Students will learn Programming using LISP		3	3	3	3								
Internet Technology Lab													
CO1: To use the Applet, Java Script and Perl in web design.			3	2									
CO2: To write programs for the communication between the client and the server.		3			3								
CO3: To create web pages using HTML and XML.		3	3	3									
Project I													
CO1: Students will get the concepts of real world problems								3		3			3
CO2: Students will get the concepts of design methodologies & its implementation		3	3	3			3			3			3
CO3: Students will get the concepts of testing methodologies & its implementation							3			3			3
CO4: Students will get the				3						3	3		3

concepts of Advanced programming techniques												
CO5: Students will get the concepts of Technical report writing							3			3		3
Organizational Behavior												
CO1: To be familiarized with various aspects of organizational behavior, personality and attitude, perception, motivation etc.						1	3	3	3		3	3
CO2: To explain about group behavior, communication and leadership.						1	3	3	3		3	3
CO3: To analyze various features of leadership and organizational politics.						1	3	3	3		3	3
Cryptography & Network Security												
CO1: To discuss on various types of attacks and their characteristics.		3	3	3	3	3				1		
CO2: To illustrate the basic concept of encryption and decryption for secure data transmission.		3	3	3	3	3				1		
CO3: To Analyze and compare various cryptography techniques.		3	3	3	3	3				1		
CO4: To explain the concept of digital signature and its		3	3	3	3	3				1		

