

**ELECTRONICS AND COMMUNICATION ENGINEERING****R-18 Course Outcomes**

<b>S.NO</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>COURSE OUTCOMES</b>
1	1821101	MATHEMATICS – I	1.Apply the essential tool of matrices in a comprehensive manner
			2.Describe the convergence of series
			3.Classify the functions of several variables which is useful in optimization techniques
			4.Define Beta and gamma functions and solve definite integrals.
			5.Determine the Fourier series of the functions.
2	1822102	ENGINEERING PHYSICS	1. Describe a mathematical wave equation using the principles of waves and oscillations
			2. Explain the role of semiconductors in different realms of physics and their applications in both science and technology.
			3. Apply the knowledge of Sciences to solve engineering problems by using Interference and Diffraction techniques.
			4. Analyze the working elements of different lasers and parameters.
3	1802103	Basic Electrical Engineering	1.Understand basic electric circuits and network solving techniques.
			2.Analyze RL, RC and RLC circuits for AC excitations
			3.Understand working principle, operation and construction of DC machines, 3-Ø induction motors and 1-Ø transformers
			4.Understand the components of low voltage electrical installations
			5.Solve the problems on EMF,Current ,Torque ,Regulation and Efficiency of DC machines ,3-Ø induction motor and 1-Ø transformer.
4	1803107	ENGINEERING GRAPHICS & DESIGN	1.Use CAD drafting and editing tools along with page templates ,title block & print settings
			2.Describe the geometric details of Engineering objects&Become familiar with Auto Cad 2D 3D drawings
			3.Understand Engineering drawing basic theory of projectionsrelated to points lines, planes and solids in different orientations and drafting them in cad software

			4. Analyze various sectional views related to Engineering Drawings and Create isometric drawings with 3d tools along with basic theory & procedures in engineering drawing
5	1822108	ENGINEERING PHYSICS LAB	1. Evaluate of the application of interference, diffraction phenomena along with laser
			2. Support the scientific process in the conduct and reporting of experimental investigations.
			3. Formulate the measurement technology, usage of new instruments and real time applications in engineering studies
			4. Justify the theoretical ideas and concepts covered in lecture by doing hands on in the experiments.
			5. Develop the characteristics of various materials in a practical manner and gain knowledge about various optical technique methods
			6. Compose experimental data to examine the physical laws.
6	1802106	Basic Electrical Engineering Lab	1. Understand the Kirchoff's laws by theoretically and practically.
			2. Determine the active and reactive power for RL, RC and RLC circuits.
			3. Determine equivalent circuit parameters on no-load and its performance on load of a 1- $\phi$ transformer.
			4. Analyze the characteristics of DC shunt motor and 3- $\phi$ Induction motor
			5. Identify various parts of DC and AC machines, fuse, MCB & Batteries.
7	1803110	WORKSHOP AND MANUFACTURING PRACTICES	1. Identify different manufacturing processes which are commonly employed in the industry
			2. Analyze the practical knowledge about fabricate components using different materials with their own hands
			3. Understand the knowledge of the dimensional accuracies and tolerances applicable for different manufacturing processes
			4. Experiment various basic House Wiring techniques such as connecting one lamp with one switch, connecting two lamps with one switch, connecting a fluorescent tube, Series wiring
8	1821201	MATHEMATICS – II	1. Solve the first order and higher order linear differential equations with constant coefficients.
			2. Apply Laplace Transforms in engineering problems.
			3. Evaluate multiple integrals.

			4. Understand Vector Calculus concepts and applications in engineering problems.
9	1823202	ENGINEERING CHEMISTRY	1. Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
			2.. Rationalize periodic properties such as ionization potential, electro negativity and oxidation states .
			3. Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
			4. List the major chemical reactions that are used in the synthesis and stereochemistry of molecules.
10	1824203	English	1. Describe the classification of words, sentences and their usages in sentences.
			2. Understand the difference between spoken and written English.
			3. Analyze the rules in language for changing the form of sentences.
			4. Illustrate the factors that influence grammar and vocabulary in speaking and writing
			5. Classify the parts of speech, tenses and sentence structures
11	1805204	PROGRAMMING FOR PROBLEM SOLVING	1. Understand the basics of computer system and C programming.
			2. Develop an algorithm to solve the problem.
			3. Apply proper branching and loop constructs to solve a complex problem
			4. Understand the concepts of arrays and strings to solve real time applications
			5. Apply modular approaches for solving complex problems
			6. Illustrate memory optimization for solving real world problems using structures and Unions
12	1823207	Chemistry Lab	1. Estimate rate constants of reactions from concentration of reactants/products as a function of time.
			2. Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc.
			3. Synthesize a small drug molecule and analyse a salt sample.
13	1805208	PROGRAMMING FOR PROBLEM SOLVING LAB	1. Analyze given problem and develop an algorithm
			2. Implement Code and debug programs in C language using various constructs

			3. Choose proper C language constructs to solve complex problems.
			memory utilization
14	1824209	English Language and Communication Skills Lab	1. Describe objects, places and persons.
			2. Understand the listening process and answer the questions related to it.
			3. Analyze phonetics with examples
			4. Illustrate different modes of communication skills
			5. Classify LSRW skills
15	1821301	Mathematics_111	polynomials.
			2. Define analytic function, singularities, poles and residues .
			3. Determine the differentiation of complex functions used in engineering problems and analyze images from z-plane to w-plane.
			4. Discuss the various special transformations.
			5. Analyze real definite integrals in definite regions.
16	1824302	Managerial economics&financial analysis	1. Acquire knowledge in principles and concepts of Managerial Economics and Accountancy
			2. Understand the Economic theories i.e., Demand, Production, Cost, Markets and Price
			3. Describe different types of Markets and competition, forms of organization and Methods of Pricing
			4. Examine the profitability of various Projects
			5. Utilize tools and techniques to analyze and interpret the key parameters of financial performance.
17	1804303	Electronic devices & circuits	1. Describe the operation of various Diodes, transistors and their applications
			2. Understand the operation of transistor circuits under different configurations
			3. Analyze the small signal analysis of BJT Amplifiers and of FET amplifiers
			4. Illustrate the Biasing of BJT and FET.
			5. Classify the family of MOS devices
18	1804304	Digital system design	1. Identify various number systems and binary codes.
			2. Understand the postulates, theorems and properties of Boolean algebra
			3. Show the correlation between the Boolean expression and their corresponding logic diagram.

			4. Analyze Combinational & sequential logic circuits.
			5. Solve Switching functions using Programmable Logic Devices
19	1804305	Signals & systems	1. Identify the various signals and operations on signals
			2. Describe the spectral characteristics of signals
			3. Illustrate signal sampling and its reconstruction
			4. Apply convolution and correlation in signal processing
			5. Analyze continuous and discrete time systems.
20	1804306	Network theory	1. Understand the basic concepts of magnetic circuits, resonance and network functions
			2. Solve DC and AC circuits by using various theorems.
			3. Analyze RL, RC and RLC for DC and AC transient response
			4. Analyze two port networks for Z, Y, ABCD, H parameters and its relationship between them
21	1805307	Python programming lab	1. Demonstrate the functions in Python programming.
			2. Illustrate Python programs with conditionals and loops
			3. Test functions for structuring Python programs.
			4. Design functions for structuring Python programs.
			5. Evaluate compound data using Python lists, tuples, dictionaries.
22	1804308	Electronic devices & circuits lab	1. Verify the V-I Characteristics of various diodes.
			2. Examine the load characteristics of rectifiers
			3. Verify the Input and Output characteristics of various transistors
			4. Experiment clipper and clamper circuits.
23	1899M1	Environmental science	1. Recall environmental concepts for the sustainable developmental activities towards the society.
			2. Summarize the interconnection of human dependence on this ecosystem.
			3. Solve environmental problems by gaining a higher level of knowledge and personal involvement.
			4. Outline the impact of developmental activities on environment and proper utilization of natural resources.
24	1823401	Biology for engineers	1. Understand the difference between lower organisms (prokaryotes) from higher organisms (eukaryotes).
			2. Interpret the relationship between the structure and function of nucleic acids.
			3. Understand the mechanism and process of important human functions

			4. Describe the proteins synthesization, recombinant DNA technology and its application in different fields.
			5. Apply biology for production of useful products for mankind
25	1804402	Probability theory &stochastic processes	1. Interpret probability by modeling sample spaces. 2. Apply various random processes like Gaussian, Exponential, Uniform and Poisson processes experimentally. 3. Compute PSD of Random process. 4. solve complex engineering problems involving random processes
26	1804403	Analog&digital circuits	1. Analyze the multistage amplifiers, feedback amplifiers and power amplifiers. 2. Design sinusoidal and non-sinusoidal oscillators 3. Design different multi-vibrator circuits 4. Illustrate time base generators 5. Understand the operation of various digital circuits
27	1802404	Control systems	1. Classify the types of control systems 2. Choose the method to solve the problems for time and frequency domain input systems 3. Compare the system stability for different inputs 4. Design lag, lead, lag-lead compensators in frequency domain
28	1804405	Linear IC applications	1. Understand characteristics of Op-Amps and 555 timers 2. Compare DC and AC characteristics of Op-Amps in the design and simulation of analog systems and subsystems 3. Apply Op-Amps and 555 Timers in various applications. 4. Analyze Data Converters and Active Analog Filter circuits in the development of Instrumentation and Control Systems
29	1804406	Electro magnetic theory& transmission lines	1. Understand the basics of Electro Statics and Magneto Statics. 2. Apply Maxwells equations in the derivation of fields. 3. Calculate Electric and magnetic fields due to various sources.

			4. Analyze the wave propagation in different media.
			5. Design the single and double stub matching using Smith chart.
30	1804407	Lab view programming	1. Write simple Lab view Programs
			2. Implement LavView programs with conditional statements.
			3. Perform operations on arrays and strings.
			4. Use SubVi"s for structuring LabView programs.
31	1804408	Analog & digital circuits lab	1. Analyze the circuits including MOSFET, BJT.
			2. Design analog electronic circuits using discrete components.
			3. Obtain frequency responses of amplification circuits.
			4. Measure parameters of analog circuits to compare experimental results in the laboratory with theoretical analysis.
			5. Verify the truth tables of various logic circuits.
32	1824409	Advanced english communication skills lab	1. Describe objects, places and persons.
			2. Understand the listening process and answer the questions related to it.
			3. Analyze phonetics with examples
			4. Illustrate different modes of communication skills
			5. Classify LSRW skills