ELECTRICAL AND ELECTRONICS ENGINEERING
COURSE OUTCOMES - R15

S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
1	1521101	Mathematics -I	CO 1	Apply differential equations to solve
			CO 2	Apply differential equations of higher
			CO 3	Determine the functions as series
			CO 4	Define radius of curvature and find
			CO 5	Determine the multiple integrals in
2	1521102	Mathematics - II	CO 1	Understand Vector Calculus concepts and analyze their applications in
			CO 2	Apply Laplace Transforms in
			CO 3	Determine the Fourier series expansion
			CO 4	Apply a range of techniques to find
3	1503103	Engineering Graphics	CO 1	Understand the conventions and the methods adopted and how to draw
			CO 2	Know the importance of projections of
			CO 3	Apply the concepts of section planes
			CO 4	Improve their visualization skills so that they can apply these skills in
4	1524104	English-1	CO 1	Describe the classification of words, sentences and their usages in sentences.
			CO 2	Understand the difference between
			CO 3	Analyze the rules in language for
			CO 4	Illustrate the factors that influence grammar and vocabulary in speaking
			CO 5	Classify the parts of speech, tenses and
5	1505105	Programming in C	CO 1	Understand the basics of computer
			CO 2	Analyze a given problem and develop
			CO 3	Apply proper branching and loop
			CO 4	Understand the concepts of arrays and
			CO 5	Apply modular approaches for solving
			CO 6	Illustrate memory optimization for solving real world problems using
6	1501106	Environmental Studies	CO 1	Gain a higher level of personal involvement and interest in
			CO 2	Understand the interconnection of
			CO 3	Influence their society in proper
			CO 4	Increases critical thinking and helps in analyzing the impact of developmental

S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
			CO 5	Learn the management of environmental hazards and disasters and have a clear understanding on
7	1505107	Programming in C Lab	CO 1	Analyze given problem and develop an
			CO 2	Implement Code and debug programs
			CO 3	Choose proper C language constructs
			CO 4	Organize and implement
8	1599108	Engineering Workshop	CO 1	Understand the basic knowledge of various tools and their use in different
			CO 2	Design and model various basic prototypes in the trade of fitting such as
			CO 3	Develop various basic prototypes in the trade of tin smithy such as rectangular
			CO 4	Understand basic House Wiring techniques such as connecting one
			CO 5	Understand various tools used in
B.Tech II-Sem				
S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
9	1522201	Engineering Physics	CO 1	Define properties of crystals like the presence of long-range order and periodicity, structure determination
			CO 2	Explain different realms of physics and their applications in both scientific and technological systems are achieved
			CO 3	Determine the classical estimates and laboratory observations of physical properties exhibited by materials would
			CO 4	Classify superconducting materials and nanomaterials along with their
10	152102	Mathematics - III	CO 1	Apply the essential tool of matrices in
			CO 2	Determine the roots of polynomial and transcendental equations by different
			CO 3	Determine the finite differences and
			CO 4	Apply different numerical methods to find differentiation and integration of a
			CO 5	Solve ordinary differential equations by using different numerical techniques.
11		Engineering	CO 1	Recall differences between hard and soft water, disadvantages of using hard
			CO 2	Understand the electrochemical

		Chemistry	CO 3	Apply suitable methods for treatment of water, fuel analysis, lubricants and	
			CO 4	Analyze the industrial based polymers,	
12	1524204		CO 1	Describe the classification of words, sentences and their usages in sentences.	
		English-2	CO 2	Understand the difference between	
			CO 3	Analyze the rules in language for	
			CO 4	Illustrate the factors that influence grammar and vocabulary in speaking	
			CO 5	Classify the parts of speech, tenses and	
13	1502205	Electrical Circuits	CO 1	Understand the basic electrical circuit elements in both DC and AC circuits,	
			CO 2	Apply kirchhoff's laws, network reduction techniques, mesh & nodal	
			CO 3	Apply dot convention, tie-set & cut-set	
			CO 4	Determine the RMS, Average values for different periodic waveforms,	
			CO 5	Analyze series & parallel resonant circuits, response of RLC circuits for	
14	1525206	Human Values and Professional Ethics	CO 1	Understand the moral issues and problems in engineering; find the solution to those problems.	
			CO 2	Understand the need for professional ethics, codes of ethics and roles,	
			CO 3	Gain exposure to Environment Ethics & computer ethics; know their	
15	1524207	English Language and Communication Skills Lab	CO 1	Describe objects, places and persons.	
			CO 2	Understand the listening process and	
			CO 3	Analyze phonetics with examples	
			CO 4	Illustrate different modes of	
			CO 5	Classify LSRW skills	
16	1599208	Physics and Chemistry Lab	CO 1	Examine the concept of error and its analysis by using experimental skills	
			CO 2	Determine the quantity of water sample by estimation of hardness of water,	
			CO 3	Evaluate molecular/system properties such as PH , viscosity, conductance of	
		B.Tech III-Sem			

S.No	COURSE CODE	COURSE TILTE	COURSE OUTCOMES	
17	1521301	Mathematics - IV	CO 1	Understand Vector Calculus concepts and analyze their applications in
			CO 2	Apply Laplace Transforms in
			CO 3	Determine the Fourier series expansion
			CO 4	Apply a range of techniques to find
18	1511302	Fluid Mechanics & Hydraulic Machinery	CO 1	Identify importance of various fluid properties at rest and in transit
			CO 2	Apply general governing equations for
			CO 3	Understand the concept of boundary
			CO 4	Classify velocity and pressure profiles
			CO 5	Analyze the performance
19	1504303	Electronic Devices & Circuits	CO 1	Describe the operation of various
			CO 2	Analyze rectifiers with and without
			CO 3	Compare BJT and FET circuits under
			CO 4	Illustrate the Biasing of BJT and FET.
			CO 5	Use various special semiconductor
20	1502304	Electromagnetic Fields	CO 1	Understand electric and magnetic fields due to electric charges and Steady
			CO 2	Analyze the Maxwell's equations for both time variant and invariant electric
			CO 3	Evaluate electric field and magnetic field by various laws such as
			CO 4	Determine potential, potential gradient, electric dipole, current and current
			CO 5	Determine force, torque, self inductance, statically and dynamically
21	1502305	Network Theory	CO 1	Understand the basic concepts of three phase circuits, resonance, network
			CO 2	Solve DC & AC circuits by using
			CO 3	Analyse R-L,R-C and R-L-C circuits
			CO 4	Evaluate the voltage, Current and
			CO 5	Analyse two port circuit behaviour for
22	1502306	Electrical Machines - I	CO 1	Understand construction, operation of
			CO 2	Understand armature reaction and commutation, starting methods and
			CO 3	Analyze the characteristics of DC
			CO 4	Evaluate the performance of DC
23	1511307	Fluid	CO 1	Understand solid foundation in fluid flow principles

S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
		Mechanics & Hydraulic Machinery Lab	CO 2	Analyze performance analysis in
			CO 3	Analyze a variety of practical fluid-flow devices and utilize fluid
			CO 4	Apply required flow rate and pressure
			CO 5	Choose the proper pump to optimize
24	1502308	Electrical Circuits and Simulation Lab	CO 1	Apply theorems for DC and AC
			CO 2	Obtain two-port network parameters
			CO 3	Design the electrical circuits using
			CO 4	Analyze RL, RC and RLC circuits
			CO 5	Measure active and reactive power for 3 phase balanced and unbalanced

B.Tech IV-Sem

S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
25	1514401	Analog Electronic Circuits	CO 1	Apply the h – parameter model to
			CO 2	Design negative feedback amplifier
			CO 3	Analyze various multistage amplifiers
			CO 4	Analyze power amplifier circuits
			CO 5	Design multivibrator circuits with
26	1504402	Switching Theory & Logic Design	CO 1	Understand the usage of number
			CO 2	Understand the postulates, theorems
			CO 3	Correlate the Boolean expression and
			CO 4	Design Combinational & sequential
			CO 5	Solve Switching functions using
27	1502403	Generation of Electrical Power	CO 1	Understand layout of various power plants and their operation, combined
			CO 2	Understand different types of turbines
			CO 3	Understand the basic concept of Solar and wind energy generation and their
			CO 4	Understand the basic concept of Biogas, Ocean energy generation and
28	1502404	Electrical and Electronics Measurements	CO 1	Classify the types of instruments and bridges.
			CO 2	Choose suitable instrument to measure Voltage, Current, Power, Energy and
			CO 3	Determine circuit parameters using
			CO 4	Measure Phase angle errors from CT's and PT's, magnitude and frequency
29	1502405		CO 1	Understand working principle, constructional details of transformer

S.No	COURSE CODE	COURSE TITLE		COURSE OUTCOMES
		Electrical Machines - II	CO 2	Analyse the characteristics, equivalent circuit, phasor diagrams of transformer
			CO 3	Choose different types of connections
			CO 4	Evaluate the performance of transformer and induction motor by
			CO 5	Explain starting and speed control methods for squirrel and slip ring
30	1502406	Power Systems - I	CO 1	Understand the economic aspects of generating systems and its load
			CO 2	Understand the construction and types of cables used for underground, types of primary and secondary distribution
			CO 3	Analyse the mechanical design aspects
			CO 4	Evaluate resistance, GMD, GMR, inductance and capacitance of
			CO 5	Determine the cost of electrical energy, tariff charges on consumers, voltage
31	1514407	Electronic Devices & Circuits Lab	CO 1	Analyze the V-I Characteristics of various diodes.
			CO 2	Analyze Input and Output
			CO 3	Analyze the load characteristics of
32	1502408	Electrical Machines - I Lab	CO 1	Analyze performance characteristics of
			CO 2	Evaluate speed, torque and efficiency
			CO 3	Distinguish various tests between DC

B.Tech V-Sem

S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
33	1525501	Managerial Economics and Financial Analysis	CO 1	Acquire knowledge in principles and concepts of Managerial Economics and
			CO 2	Understand the Economic theories i.e., Demand, Production, Cost, Markets
			CO 3	Describe different types of Markets and competition, forms of organization and
			CO 4	Examine the profitability of various
			CO 5	Utilize tools and techniques to analyze and interpret the key parameters of
34	1502502	Control Systems	CO 1	Understand the basic concepts of modelling of physical systems time and
			CO 2	Analysis the response of first and second order systems in time and
			CO 3	Analyse the stability of the system in

			CO 4	Design a suitable compensator for the stability improvement of the system in
35	1502503	Power Electronics	CO 1	Define the characteristics of SCR, turn
			CO 2	Illustrate the control schemes of AC-DC, DC-AC ,AC -AC and DC-DC
			CO 3	Apply the concepts of controlled
			CO 4	Analyse the voltage control strategies
			CO 5	Compare the various pulse width modulations and harmonic mitigation
36	1502504	Power Systems - II	CO 1	Understand system modelling
			CO 2	Classify the transmission lines, faults
			CO 3	Evaluate the performance of line reactance diagram and fault currents of
			CO 4	Categorise earthing methods
37	1502505	Electrical Machines - III	CO 1	Understand the Construction and Operation of Synchronous Machines
			CO 2	Construct the Power Angle Characteristics and V and Inverted V
			CO 3	Analyze various Voltage Regulation Methods, Synchronization Methods,
			CO 4	Determine Load Sharing, Synchronizing Power and Torque Of
38	1514206	Digital Signal Processing (CBCC-I)	CO 1	Interpret, represent and process discrete/digital signals and systems
			CO 2	Understand discrete and fast fourier
			CO	Apply Z-transforms in digital system
			CO 4	Design FIR and IIR Digital Filter for
39	1514507	SIGNALS AND SYSTEMS (CBCC-I)	CO 1	Identify the various signals and operations on signals.
			CO 2	Describe the spectral characteristics of
			CO 3	Illustrate signal sampling and its
			CO 4	Apply convolution and correlation in
			CO 5	Analyze continuous and discrete time
40	1514508	Embedded Systems (CBCC-I)	CO 1	Describe the differences between the general computing system and the
			CO 2	Illustrate the basic programming
			CO 3	Design real time embedded systems
			CO 4	Apply program modeling and
41	1502509	Electrical Measurements	CO 1	Compare and calibrate various measuring Instruments

S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
		Measurements Lab	CO 2	Identify balanced conditions among
			CO 3	Measure the percentage errors among
42	1502510	Electrical Machines – II Lab	CO 1	Identify parts of transformers and AC
			CO 2	Determine the performance of
			CO 3	Choose the apparatus in experimental circuit based on loading and rating of
B.Tech VI-Sem				
S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
43	1514601	Linear and Digital IC Applications	CO 1	Understand the DC and AC characteristics of operational amplifiers
			CO 2	Understand CMOS, Bipolar logic families and fundamentals of VHDL
			CO 4	Analyze various waveforms using OP-
			CO 5	Apply the concepts of VHDL for
			CO 6	Apply OP-AMPs in various IC
44	1514602	Microprocessors & Microcontrollers	CO 1	Define various components and list out various features of microprocessors
			CO 2	Describe the internal block diagram of microprocessors and peripherals,
			CO 3	Develop algorithm and assembly
			CO 4	Apply an appropriate algorithm,
45	1502603	Power Semiconductor Drives	CO 1	Understand block diagram and
			CO 2	Analyze single and multi quadrant operation of DC drives and their speed
			CO 3	Analyze the operation of stator and rotor side speed control methods of
			CO 4	Analyze the operation of synchronous
			CO 5	Understand energy conservation in electrical drives with the usage of
46	1502604	Power Systems - III	CO 1	Understand the network matrices, types of buses, basic stability concepts and
			CO 2	Analyze the stability of the power
			CO 3	Analyze system transients, travelling of surges, termination of lines under
			CO 4	Evaluate Y and Z bus, load flow
47	1502605	Power System	CO 1	Understand optimal operation and unit commitment of thermal unit,
			CO 2	Analyze economic operation criteria and unit commitment of thermal unit,
			CO 3	Analyze load frequency control

		Operation and Control	CO 4	Design suitable controllers to improve LFC dynamics in single and two area
48	1514606	Instrumentation (CBCC - II)	CO 1	Understand the types of errors occuring
			CO 2	Differentiate types of data transmission
			CO 3	Apply digital techniques to measure
			CO 4	Choose suitable transducers for
49	1502607	Soft Computing Techniques (CBCC - II)	CO 1	Understand architecture and approach to Artificial intelligence
			CO 2	Understand the fundamental theory and concepts of neural networks, Identify
			CO 3	Understand the concepts of fuzzy sets, knowledge representation using fuzzy
			CO 4	Apply neural networks and fuzzy
50	1513608	OptimizationTechniques (CBCC - II)	CO 1	Understand the different methods of optimization and be able to suggest a technique for a specific problem.
			CO 2	Understand how optimization can be used to solve industrial problems of
			CO 3	Apply knowledge of optimization to
51	1524609	Advanced English Communication Skills Lab (Audit Course)	CO 1	Describe Speaking and listening skills
			CO 2	Understand various kinds of reports
			CO 3	Analyze behavioural skills
			CO 4	Illustrate various employability skills
			CO 5	Classify the verbal and non-verbal
52	1502610	Power Electronics & Simulation Lab	CO 1	Understand the characteristics of MOSFET and IGBT, forced
			CO 2	Analyze the output voltage performance of single phase half and
			CO 3	Analyze the output voltage performance of AC voltage controller,
			CO 4	Design and simulate the three phase
53	1502611	Control Systems & Simulation Lab	CO 1	Understand the performance of second order system, PID controller, synchros
			CO 2	Analyze the characteristics of magnetic
			CO 3	Evaluate stability of linear systems in
			CO 4	Convert transfer function to state space

S.No	COURSE CODE	COURSE TILTE	COURSE OUTCOMES	
			B.Tech VII-Sem	
54	1525701	Management Science	CO 1	Understand the principles and
			CO 2	Understand the various concepts, approaches and theories of
			CO 3	Compare and contrast organization structure designs and charts diligently
			CO 4	Understand the role, functions of the
			CO 5	Identify the elements of Operations management and develop PERT/CPM
			CO 6	Analyze the concept of strategic planning and implementation and apply
55	1502702	Advanced Control Systems	CO 1	Understand the concept of state State techniques common physical
			CO 2	Analyse the stability of linear and nonlinear Systems describing functions
			CO 3	Construct the state model of linear time invariant systems Phase trajectories
			CO 4	Determine Eigenvalues state transition matrix examine the controllability and
			CO 5	Design compensators controllers state
56	1502703	High Voltage Dc Transmission	CO 1	Understand various converter and Inverter circuits
			CO 2	Analyze the applications of high voltage transmission system along with
			CO 3	Apply various protection system for
			CO 4	Understand the use of filters for DC
57	1502704	Switch Gear and Protection	CO 1	Identify the Main Components And
			CO 2	Understand Fault Clearing Phenomena And Feasibility Protection Systems
			CO 3	Understand Construction And Working Of Various Types Of Circuit Breakers
			CO 4	Applying Conventional And Numerical Relays The Protection Of Rotating
58	1502705	Electrical Distribution Systems	CO 1	Understand The Concept Of Load Load Characteristics, Scada, Distribution
			CO 2	Classify Various Loads In Distribution
			CO 3	Estimate Voltage And Current In
			CO 4	Analyse Distribution Feeder
			CO 5	Analyse Voltage Drop And Power Loss Calculations For Radial Networks And

S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
59	1502706	High Voltage Engineering (CBCC - III)	CO 1	Understand the behaviour of various insulation materials, generation of high
			CO 2	Analyze the behaviour of insulation systems, circuits for generation and
			CO 3	Determine the breakdown strength of
			CO 4	Analyze dynamic response of high
			CO 5	Apply suitable testing methods using
60	1502707	POWER QUALITY (CBCC - III)	CO 1	The different power quality problems in the power system.
			CO 2	Understand the effect of harmonics in the system and the equipment which
			CO 3	Examine the voltage variations and over voltage transients and
			CO 4	Analyze the concepts on measuring and
61	1502708	Switch Mode Power Converter (CBCC - III)	CO 1	Analyze the operation of different isolated and non-isolated DC-DC converters
			CO 2	Analyze the operation of different resonant converters such as series,
			CO 3	Analyze the state space model and
			CO 4	Design P, PI, PID controller parameters for isolated and non-isolated DC-DC
62	1514709	Micro Processors & Micro Controllers Lab	CO 1	Develop algorithm and assembly language programs to solve problems.
			CO 2	Analyze abstract problems and apply a combination of hardware and software
			CO 3	Choose an appropriate algorithm,
			CO 4	Design the microprocessor based
63	1502710	Power Systems & Simulation Lab	CO 1	Evaluate sequence Impedances of 3 Phase Alternator and Transformers.
			CO 2	Compare the fault Currents for Different Faults on un-loaded
			CO 3	Analyse the Characteristics of Relays.
			CO 4	Solve The Power Flow Problems Using
B.Tech VIII-Sem				
S.No	COURSE CODE	COURSE TILTE		COURSE OUTCOMES
64	1502801	Utilization of Electric Power	CO 1	Understand different types of electric
			CO 2	Understand the basic principle of electric traction including speed– time
			CO 3	Understand the method of calculation of various traction systems for braking,

			CO 4	Choose appropriate drive for the industrial purpose, proper illumination
65	1502802	Flexible AC Transmission Systems	CO 1	Understand the operating principles of
			CO 2	Choose proper controllers for specific
			CO 3	Understand the importance of
			CO 4	Analyse the role of SVC & STATCOM
			CO 5	Analyse the use of control schemes of TCSC, TSSC, GSC in improving the
66	1502803	Electrical Machine Design	CO 1	Understand various design
			CO 2	Estimate the design specifications of DC machines, Transformers, Induction
			CO 3	Analyze the choice between various parameters like type of windings,
			CO 4	Analyze the heating and cooling of
67	1502804	Special Electrical Machines (CBCC - IV)	CO 1	Gain knowledge on special types of machines and their applications
			CO 2	Understand the construction and
			CO 3	Analyze drive circuits used for stepper
			CO 4	Analyze control circuits for special
68	1502805	Energy Auditing & Demand Side Management (CBCC - IV)	CO 1	Understand energy auditing practices, energy conservation schemes, energy economics and management
			CO 2	Analyze energy conservation measures, energy auditing practices, energy
			CO 3	Design an appropriate energy conservation scheme for commercial
			CO 4	Choose appropriate technique for
69	1502806	Reliability Engineering & Applications to Power Systems	CO 1	Understand the basic reliability concepts, density and distribution functions and network modeling.
			CO 2	Apply different reliability functions and time dependent reliability
			CO 3	Understand the concept of Markov modeling and component repairable
			CO 4	Apply various reliability fundamental

			CO 1	Understand the theme of the seminar.
70	1502807	Seminar	CO 2	Identify and discuss current real-world
			CO 3	Distinguish and integrate differing forms of knowledge and academic disciplinary approaches with that of the
			CO 4	Improve oral and written
			CO 5	Explore an appreciation of the self in relation to its larger diverse social and
			CO 6	Apply principles of ethics and respect
71	1502808	Project Work	CO 1	Demonstrate a sound technical
			CO 2	Understand problem identification,
			CO 3	Design engineering solutions to
			CO 4	Communicate with engineers and the
			CO 5	Demonstrate the knowledge, skills and