

Electrical Engineering Department
CO Attainment 2016-17 II year III SEM

CO	Title	Attainment Level	% Attainment
	Mathematics – III		
CO-1	Students are able to solve higher order Diff. Eq.	2.2	73.3
CO-2	Students are able to find Laplace Transform of function and how to solve Diff. Eq. using L.T.	2.2	73.3
CO-3	Students are able to solve Fourier Transform And how to solve Diff. Eq. using L.T.	1.6	53.3
CO-4	Students are able to solve Difference Eq. using Z-transform	1.8	60.0
CO-5	Students are able to find the Curl and Gradient of vector field function	2	66.7
CO-6	Students gain the knowledge of relation between Line, Surface & Volume integration.	2	66.7
	Network Analysis		
CO-1	To analyze behavior of basic circuit elements and to apply concepts of mesh and Node analysis in circuit theory	2.8	2.03.3
CO-2	To understand and apply the different network theorems.	2.6	86.7
CO-3	To apply transformation of a network to analyze time domain differential equations.	2.8	93.3
CO-4	To understand and apply Laplace transform in s domain.	2.4	80
CO-5	To study sinusoidal steady state analysis and Fourier series.	3	100
CO-6	To use Two port network theory for analyzing the circuits and study necessary conditions for driving point functions, transfer functions for their application to a given network for analyzing circuit design.	3	100
	Energy Resources & Generation		
CO-1	Students will be able to understand site selection, erection, parts and working of thermal and hydro power plant.	3	100
CO-2	Students will be able to understand site selection, erection, parts and working of Nuclear and diesel power plant.	2.6	86.7
CO-3	Students will be able to understand concepts related to solar energy and its measurement.	2.6	86.7
CO-4	Students will be able to understand classification and types of fuel cells along with site selection, erection, parts and working of wind energy	3	100

2.8

	generation.		
CO-5	Students will be able to understand concepts related to construction, different parts and working of Ocean and tidal energy.	3	100
CO-6	Students will be able to understand construction, working of MHD generation, biomass power generation and generation from other non-conventional energy resources.	3	100
	Electronics Devices & Circuits		
CO-1	Students will be able to understand definition, scope, objectives, and limitation of P-N junction diode, zener diode and rectifier circuits	3	100
CO-2	Student will be able to study and analyse Bipolar junction transistor with its characteristics.	3	100
CO-3	Students will be able to study typical transistor amplifier circuits.	2.8	93.3
CO-4	Students will be able to study and analyze amplifier circuits and different types of oscillator circuits with its applications	2.8	93.3
CO-5	Student will be able to study and analyse special function diodes with its characteristics.	3	100
CO-6	Students will be able to analyze types, characteristics, construction and applications of Field effect transistors.	3	100
	Electrical Measurements and Instrumentation		
CO-1	Students will be able to get the knowledge about working of AC and DC instruments.	3	100
CO-2	Students will be able to get the knowledge about how power can be measured, analysis of poly phase Load and Working of Energy meter	3	100
CO-3	Students will be able to get the knowledge about working of Instrument Transformer and special Measuring Instruments like PF meter, phase sequence meter and etc.	3	100
CO-4	Students will be able to measure the Unknown values of resistance capacitance and Inductance.	3	100
CO-5	Students will be able to get knowledge about different type of transducer and working of transducer.	3	100
CO-6	Students will be able to understand measurement of non-electrical quantities.	3	100

CO Attainment 2016-17 II year IV SEM

CO	Title	Attainment Level	% Attainment
	Electrical Machines -I		

CO-1	Students will be able to understand electrical Principles, laws and working of DC Machines.	3	100
CO-2	Student will be analyze the construction and characteristics and application of various types of DC Generators.	3	100
CO-3	Students will be able to analyze the construction and characteristics and application of Various types of DC Motors., and testing of motors according to Indian standards.	3	100
CO-4	Students will be able to understand the construction working principle of 1-phase transformer & losses. Students will be able conduct the various tests on the transformers according to Indian standards.	3	100
CO-5	Students will be able to understand the construction working principle of 3-phase transformer & losses. Students will be able conduct the various tests on the transformers according to Indian standards.	3	100
CO-6	Students will be able to analyze the Transformer and convert three phase transformers to multi-phase transformer.	3	100
Electromagnetic Theory			
CO-1	Apply vector calculus in orthogonal coordinate systems	1.6	53.3
CO-2	Analyze behavior of static electric fields in standard configurations	1.6	53.3
CO-3	Analyze behavior of dynamic electric fields in standard configurations	1.6	53.3
CO-4	Analyze behavior of static magnetic fields in standard configuration	1.8	60
CO-5	Analyze behavior of dynamic magnetic fields in standard configurations	1.6	53.3
CO-6	Describe and analyze electromagnetic wave propagation in free-space	1.6	53.3
Analog and Digital Circuits			
CO-1	Students will be able to understand the basics of Opamp and its characteristics.	3	100
CO-2	Student will apply the basic knowledge of opamp in developing various linear, non linear applications of Opamp.	3	100
CO-3	Students learn about the other linear IC's like 723, 78**, 79**, 555 timer, 565 PLL and their applications.	3	100
CO-4	Students will understand the digital characteristics of various logic circuits like NMOS, CMOS, TTL,	3	100

	ECL.		
CO-5	Students will be able to design various combinational circuits and hence can develop more complicated ones.	3	100
CO-6	Students will be able to analyze sequential circuits and can apply the knowledge of flip flops in designing more complicated circuits.	3	100
	Mathematics-IV		
CO-1	Students gain the knowledge how to find the harmonic function	1.8	60
CO-2	Students gain the knowledge how to solve complex integration along closed curve	2	66.7
CO-3	Students are able to solve Partial Diff. Eq.	1.6	53.3
CO-4	Students are able to solve Special function. (Legendre's and Bessel's function)	1.6	53.3
CO-5	Students are able to find the probability.	2.2	73.3
CO-6	Students are able to find the correlation coefficient and regression between two variables.	2	66.7
	Numerical Methods & Computer Programming		
CO-1	Students will be able to understand errors, accuracy & Stability of algebraic equations	3	100
CO-2	Students will be able to solve algebraic equations with various method	3	100
CO-3	Students will be able to find roots of algebraic equations using various Gaussian methods	3	100
CO-4	Students will be able find out the differential & integral values of data	2.8	93.3
CO-5	Students will be able to solve differential method	3	100
CO-6	Students will be able to develop the program for numerical methods using c.c++.	2.4	80

CO Attainment 2016-17 III year V SEM

CO	Title	Attainment Level	% Attainment
	Control System – I		
CO-1	Students will be able to learn the basics of various types of control systems and automatic systems.	3	100
CO-2	Students will be able to build the mathematical model of system from differential equation and vice versa and shall know the better effects of feedback due to parameter variations.	3	100
CO-3	Students will be able to apply the basic knowledge to formulate the input output relationship of various component used in control system and their applications in building control	3	100

	system.		
CO-4	Students will be able to perform and study a time domain analysis of control system and different performance measures and finally know about behavior of the system.	3	100
CO-5	Students will be able to learn the concept of stability , poles and zeros , using routh Hurwitz criteria and relative stability by bode plot, polar plot, Nyquist plot and be able to design and analyze the given system in frequency domain.	3	100
CO-6	Students will be able to build state space model of system in different forms.	3	100
	Micro Processor And Microcontroller		
CO-1	The Student will learn internal organization of some popular microprocessor / microcontroller.	0.6	20
CO-2	Impart the knowledge about the instruction set.	0.6	20
CO-3	Understand the basic idea about data transfer schemes and its applications.	0.4	13.3
CO-4	The student will learn hardware and software interaction and integration.	0.4	13.3
CO-5	The Student will learn the design of microprocessor / microcontroller base system.	0	0
	Electrical Machine – II		
CO-1	To impart the knowledge on fundamental of AC rotating machine	3	100
CO-2	To impart the knowledge on constructional details, principle of operation of 3 phase alternator and synchronous motor	3	100
CO-3	To impart the knowledge on constructional details, principle of operation, performance, starter, speed control and braking of 3 phase induction motor.	3	100
CO-4	To impart the knowledge on constructional details, principle of operation, type of 1 phase induction motor and special machine.	3	100
	Signal and System		
CO-1	Classify systems based on their properties and determine the response of LSI system using convolution.	0.6	20
CO-2	Examine system properties based on impulse response the Fourier analysis.	0.4	13.3
CO-3	Use the fourier transform to analyse continuous and discrete time signal and system.	0.4	13.3
CO-4	Understand the process of sampling and the effects of aliasing.	0.4	13.3

CO-5	Apply the Z – transform to analyze the discrete – time signals and systems.	0	0
	Communications Skills		
CO-1	To understand basic of communications and different barriers related to it.	3	100
CO-2	Improving listening and speaking abilities.	2	66.7
CO-3	To understand different reading techniques and technical writing techniques.	3	100

CO Attainment 2016-17 III year VI SEM

CO	Title	Attainment Level	% Attainment
	Electrical Power –I		
CO-1	Students will be able to learn the basics of various fundamentals of electrical power generation , transmission & distribution.	3 3	100
CO-2	Students will be able to learn transmission line parameters, their calculations also the effects on transmission lines & its effects on the communication system.	3	100
CO-3	Students will be able to learn electrical characteristics of transmission line such as types of transmission lines, various effects on transmission & per unit representation of power system.	3	100
CO-4	Students will be able to learn load flow studies and its equation, Comparison of various methods like GS & NR.	2.8	93.3
CO-5	Students will be able to learn Mechanical design along with the types of insulators also the knowledge of voltage distribution across the string and introduction to HV, LV and EHV.	3	100
CO-6	Students will be able to learn information regarding conductors and insulation, different types of underground cable parameters.	3	100
	Optimization Techniques		
CO-1	Students will be able to learn the applications of optimization, optimization problems and its techniques.	2.4	80
CO-2	Students will be able to learn linear programming through theorems, graphical methods, solution of system using various methods.	2.4	80
CO-3	Students will be able to learn advanced linear programming through duality theorem, dual simplex method and transportation problems.	2.4	80

CO-4	Students will be able to learn non-linear programming through unimodal function, fibonacci search method and golden section method, non constraints optimization.	2.8	93.3
CO-5	Students will be able to learn CPM and PERT introduction through network representation of project and crashing of project.	2.4	80
CO-6	Students will be able to learn dynamic programming through multi stage decision processes, sub optimization and various solution methods.	2.4	80
	Power Electronics		
CO-1	To illustrate the construction, characteristics of thyristor family and understand the basic principle of operation of SCR.	0.4	13.3
CO-2	To illustrate the operation of various triggering circuits for series and parallel operation of SCR's and various protection circuits of thyristors.	0	0
CO-3	To analysis and design AC/DC rectifier circuit.	0.2	6.7
CO-4	To analysis and design DC/AC inverter circuit.	0	0
CO-5	To analysis and design DC/DC converter circuit.	0.6	20
CO-6	To examine different applications of power converters.	0	0
	Computer Aided Machine Design		
CO-1	Students will be able to learn the applications of transformer and induction motor and application regarding representation using piece wise linearization and least square error method.	3	100
CO-2	Students will be able to formulate the mathematical modelling of transformer design, output equation, design dimension of core and yoke.	3	100
CO-3	Students will be able to learn the fundamentals of electrical circuits and thermal circuits of cooling method.	3	100
CO-4	Students will be able to learn the basics of induction motor stator design, electrical and magnetic loading, types and design of winding.	2.8	93.3
CO-5	Students will be able to learn the concept of air-gap length design, mmf calculations, magnetizing components, etc.	3	100
CO-6	Students will be able to learn the mathematical modelling of core loss from design data, winding resistance and leakage reactance from designed data also parameters effect on performance.	3	100

	Electrical Energy Utilization		
CO-1	Students will be able to maintain electric drives used in an industries	2.6	86.7
CO-2	Students will be able to identify a heating/ welding scheme for a given application	2.8	93.3
CO-3	Students will be able to maintain/ Trouble shoot various lamps and fittings in use	3	100
CO-4	Students will be able to figure-out the different schemes of traction schemes and its main components	3	100
CO-5	Students will be able to design a suitable scheme of speed control for the traction systems	3	100
CO-6	Students will be able to identify the job/higher education / research opportunities in Electric Utilization industry.	3	100

CO Attainment 2015-16 II year III SEM Section -A

CO	Title	Attainment Level	% Attainment
	Mathematics – III		
CO-1	Students are able to solve higher order Diff. Eq.	1.4	46.7
CO-2	Students are able to find Laplace Transform of function and how to solve Diff. Eq. using L.T.	1.4	46.7
CO-3	Students are able to solve Fourier Transform And how to solve Diff. Eq. using L.T.	1.4	46.7
CO-4	Students are able to solve Difference Eq. using Z-transform	1.4	46.7
CO-5	Students are able to find the Curl and Gradient of vector field function	1.4	46.7
CO-6	Students gain the knowledge of relation between Line, Surface & Volume integration.	1.4	46.7
	Network Analysis		
CO-1	To analyze behavior of basic circuit elements and to apply concepts of mesh and Node analysis in circuit theory	3	100
CO-2	To understand and apply the different network theorems.	3	100
CO-3	To apply transformation of a network to analyze time domain differential equations.	2.4	80
CO-4	To understand and apply Laplace transform in s domain.	2.4	80
CO-5	To study sinusoidal steady state analysis and Fourier series.	2.4	80
CO-6	To use Two port network theory for analyzing	2.4	80

	the circuits and study necessary conditions for driving point functions, transfer functions for their application to a given network for analyzing circuit design.		
	Energy Resources & Generation		
CO-1	Students will be able to understand site selection, erection, parts and working of thermal and hydro power plant.	3	100
CO-2	Students will be able to understand site selection, erection, parts and working of Nuclear and diesel power plant.	3	100
CO-3	Students will be able to understand concepts related to solar energy and its measurement.	2.4	80
CO-4	Students will be able to understand classification and types of fuel cells along with site selection, erection, parts and working of wind energy generation.	3	100
CO-5	Students will be able to understand concepts related to construction, different parts and working of Ocean and tidal energy.	3	100
CO-6	Students will be able to understand construction, working of MHD generation, biomass power generation and generation from other non-conventional energy resources.	3	100
	Electronics Devices & Circuits		
CO-1	Students will be able to understand definition, scope, objectives, and limitation of P-N junction diode, zener diode and rectifier circuits	3	100.0
CO-2	Student will be able to study and analyse Bipolar junction transistor with its characteristics.	3	100.0
CO-3	Students will be able to study typical transistor amplifier circuits.	3	100.0
CO-4	Students will be able to study and analyze amplifier circuits and different types of oscillator circuits with its applications	3	100.0
CO-5	Student will be able to study and analyse special function diodes with its characteristics.	3	100.0
CO-6	Students will be able to analyze types, characteristics, construction and applications of Field effect transistors.	3	100.0
	Electrical Measurements and Instrumentation		
CO-1	Students will be able to get the knowledge about working of AC and DC instruments.	1.4	46.7
CO-2	Students will be able to get the knowledge about how power can be measured, analysis of poly phase Load and Working of Energy meter	1.4	46.7

CO-3	Students will be able to get the knowledge about working of Instrument Transformer and special Measuring Instruments like PF meter, phase sequence meter and etc.	1.4	46.7
CO-4	Students will be able to measure the Unknown values of resistance capacitance and Inductance.	1.4	46.7
CO-5	Students will be able to get knowledge about different type of transducer and working of transducer.	1.4	46.7
CO-6	Students will be able to understand measurement of non-electrical quantities.	1.4	46.7

CO Attainment 2015-16 II year III SEM Section -B

CO	Title	Attainment Level	% Attainment
	Mathematics – III		
CO-1	Students are able to solve higher order Diff. Eq.	0	0
CO-2	Students are able to find Laplace Transform of function and how to solve Diff. Eq. using L.T.	0.2	6.6
CO-3	Students are able to solve Fourier Transform And how to solve Diff. Eq. using L.T.	0.6	20
CO-4	Students are able to solve Difference Eq. using Z-transform	0.6	20
CO-5	Students are able to find the Curl and Gradient of vector field function	0	0
CO-6	Students gain the knowledge of relation between Line, Surface & Volume integration.	0	0
	Network Analysis		
CO-1	To analyze behavior of basic circuit elements and to apply concepts of mesh and Node analysis in circuit theory	2.4	80
CO-2	To understand and apply the different network theorems.	2.4	80
CO-3	To apply transformation of a network to analyze time domain differential equations.	2.4	80
CO-4	To understand and apply Laplace transform in s domain.	2.4	80
CO-5	To study sinusoidal steady state analysis and Fourier series.	2.4	80
CO-6	To use Two port network theory for analyzing the circuits and study necessary conditions for driving point functions, transfer functions for their application to a given network for analyzing circuit design.	2.4	80
	Energy Resources & Generation		

CO-1	Students will be able to understand site selection, erection, parts and working of thermal and hydro power plant.	2.6	86.6
CO-2	Students will be able to understand site selection, erection, parts and working of Nuclear and diesel power plant.	2.6	86.6
CO-3	Students will be able to understand concepts related to solar energy and its measurement.	2.4	80
CO-4	Students will be able to understand classification and types of fuel cells along with site selection, erection, parts and working of wind energy generation.	2.4	80
CO-5	Students will be able to understand concepts related to construction, different parts and working of Ocean and tidal energy.	2.4	80
CO-6	Students will be able to understand construction, working of MHD generation, biomass power generation and generation from other non-conventional energy resources.	2.4	80
	Electronics Devices & Circuits		
CO-1	Students will be able to understand definition, scope, objectives, and limitation of P-N junction diode, zener diode and rectifier circuits	3	100
CO-2	Student will be able to study and analyse Bipolar junction transistor with its characteristics.	3	86.6
CO-3	Students will be able to study typical transistor amplifier circuits.	2.6	86.6
CO-4	Students will be able to study and analyze amplifier circuits and different types of oscillator circuits with its applications	2.6	86.6
CO-5	Student will be able to study and analyse special function diodes with its characteristics.	2.4	80
CO-6	Students will be able to analyze types, characteristics, construction and applications of Field effect transistors.	2.4	80
	Electrical Measurements and Instrumentation		
CO-1	Students will be able to get the knowledge about working of AC and DC instruments.	0.2	6.7
CO-2	Students will be able to get the knowledge about how power can be measured, analysis of poly phase Load and Working of Energy meter	0.2	6.7
CO-3	Students will be able to get the knowledge about working of Instrument Transformer and special Measuring Instruments like PF meter, phase sequence meter and etc.	0.2	6.7
CO-4	Students will be able to measure the Unknown	0.2	6.7

	values of resistance capacitance and Inductance.		
CO-5	Students will be able to get knowledge about different type of transducer and working of transducer.	0.2	6.7
CO-6	Students will be able to understand measurement of non-electrical quantities.	0.2	6.7

CO Attainment 2015-16 II year IV SEM

CO	Title	Attainment Level	% Attainment
	Electrical Machines -I		
CO-1	Students will be able to understand electrical Principles, laws and working of DC Machines.	3	100
CO-2	Student will be analyze the construction and characteristics and application of various types of DC Generators.	3	100
CO-3	Students will be able to analyze the construction and characteristics and application of Various types of DC Motors., and testing of motors according to Indian standards.	2.4	80
CO-4	Students will be able to understand the construction working principle of 1-phase transformer & losses. Students will be able conduct the various tests on the transformers according to Indian standards.	2.8	93.3
CO-5	Students will be able to understand the construction working principle of 3-phase transformer & losses. Students will be able conduct the various tests on the transformers according to Indian standards.	3	100
CO-6	Students will be able to analyze the Transformer and convert three phase transformers to multi-phase transformer.	3	100
	Electromagnetic Theory		
CO-1	Apply vector calculus in orthogonal coordinate systems	3	100
CO-2	Analysebehaviour of static electric fields in standard configurations	2.4	80
CO-3	Analysebehaviour of dynamic electric fields in standard configurations	2.4	80
CO-4	Analysebehaviour of static magnetic fields in standard configuration	2.4	80
CO-5	Analysebehaviour of dynamic magnetic fields in standard configurations	2.4	80
CO-6	Describe and analyse electromagnetic wave	2.4	80

	propagation in free-space		
	Analog and Digital Circuits		
CO-1	Students will be able to understand the basics of opamp and its characteristics.	3	100
CO-2	Student will apply the basic knowledge of opamp in developing various linear, non-linear applications of OPAMP.	3	100
CO-3	Students learn about the other linear IC's like 723, 78**, 79**, 555 timer, 565 PLL and their applications.	2.6	86.6
CO-4	Students will understand the digital characteristics of various logic circuits like NMOS, CMOS, TTL, ECL.	3	100
CO-5	Students will be able to design various combinational circuits and hence can develop more complicated ones.	2.4	80
CO-6	Students will be able to analyse sequential circuits and can apply the knowledge of flip flops in designing more complicated circuits.	2.6	86.6
	Mathematics-IV		
CO-1	Students gain the knowledge how to find the harmonic function	3	100
CO-2	Students gain the knowledge how to solve complex integration along closed curve	3	100
CO-3	Students are able to solve Partial Diff. Eq.	2.6	86.6
CO-4	Students are able to solve Special function. (Legendre's and Bessel's function)	3	100
CO-5	Students are able to find the probability.	2.4	80
CO-6	Students are able to find the correlation coefficient and regression between two variables.	2.6	86.6
	Numerical Methods & Computer Programming		
CO-1	Students will be able to understand errors, accuracy & Stability of algebraic equations	3	93.3
CO-2	Students will be able to solve algebraic equations with various method	3	100
CO-3	Students will be able to find roots of algebraic equations using various Gaussian methods	2.8	93.3
CO-4	Students will be able find out the differential & integral values of data	2.4	80
CO-5	Students will be able to solve differential method	2.6	86.6
CO-6	Students will be able to develop the program for numerical methods using c.c++.	2.8	93.3