Program Outcomes (POs)
Program Specific Outcomes (PSO)
Course Outcomes (COs)
&
CO PO-PSO Articulation Matrices

Department of Electrical Engineering

BRCM

College of Engineering & Technology

Program Outcomes (PO) as defined by NBA

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO)
At the end of the program, the student
PSO1: Ability to utilize logical and technical skills to model, simulate and analyze electrical components and systems and Empowering to provide socially acceptable technical solutions to real timeelectrical engineering problems with the application of modern and appropriate techniques for sustainable development.n to complex Electrical engineering problems in generation,transmission and distribution of electrical power and its control. Also contribute for the development of smart power grid and integrating green energy on it to meet the increasing demand of thesociety.

PSO2: Able to provide socially acceptable technical solution to complex Electrical engineering problems in generation, transmission and distribution of electrical power and its control. Also contributefor the development of smart power grid and integrating green energy on it to meet the increasing demand of the society.

B.Tech. EE 3rd Semester

Course: Analog Electronics
Course Code: PCC- EE-205G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	Students will be able to recall the basic knowledge of electronics devices.	L1 (Recall)
CO2	Students will be able to understand and functioning and characteristics of transistor BJT,MOSFET OP-AMP	L2 (Understand)
CO3	Student will be able to Apply the concept of operating mode of analog circuits.	L3 (Apply)
CO4	Student will be able to analyze the OP-AMP based circuit and linear and non linear application of OP-AMP ,and MOSFET and BJT based circuit	L4 (Analyse)
CO5	Student will be able to design the Analog circuits using analog components.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	0									1	3	2
CO2	3	1							2				3	3
CO3	2	3				2							3	3
CO4	2									3		3	2	2
CO5	2	1			3		1					2	2	3

Course-Electric Circuit Analysis
Course Code: PCC- EE- 201G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall about DC Network AC Network and Network Theorems.	L1 (Recall)
CO2	To Understand Solution of First and Second order networks, Relationship between two port networks.	L2 (Understand)
CO3	To Apply the Concept of Hurwitz polynomials, positive real functions. Properties of real immittance functions, Synthesis of LC driving point immittances, Synthesis of RC driving point impedances	L3 (Apply)
CO4	To Analyze Electrical Circuit Using Laplace Transforms and Two Port Network and Network Functions and DC Network theorem	L4 (Analyse)
CO5	To Evaluate different Electrical parameter of Network	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1			1						2	2	2
CO2	3	2	1		2	1						2	3	1
CO3	3	2	2	2	2	1						2	2	2
CO4	3	2	3	2	2	1						2	2	2
CO5	3	2	2		2	1						2	1	1

Course-Electrical Machines-I
Course Code: PCC-EE- 209G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concept of magnetic circuit.	L1 (Recall)
CO2	To Understand the construction, principle of operation and performance of DC machine.	L2 (Understand)
CO3	To Analyze the difference in operation of different DC machine configurations and characteristics of DC machine.	L4 (Analyse
CO4	To Evaluate the basic knowledge about motoring , generating and breaking mode of DC machine.	L5 (Evaluate)
CO5	To Design the single phase and three phase transformer circuit patameters	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2											3	1
CO2	3	3	1	2									2	3
CO3	3	2	2	3									3	2
CO4	3	3	2	3	1							2	2	1
CO5	3	2	2	2	1							2	2	2

Course-Measurement and Instrumentation
Course Code: PCC- EE- 210G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about the various measuring instruments.	L1 (Recall)
CO2	To Explain the construction operating principal of different electronic devices.	L2 (Understand)
CO3	To Analyses the performance of energy meter, wattmeter, power factor meter and frequency meter.	L3 (Apply)
CO4	To Evaluate the static character of instruments.	L4 (Analyse)
CO5	To Compare the measurement of parameter and variable with the help of AC and Dc bridges.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	1	1								3	2
CO2	3	2	1	1	2								2	1
CO3	3	3	2	2	1								3	3
CO4	3	1	2	2	2								1	1
CO5	3	1	3	1	1								1	1

Course-Engineering Mechanics
Course Code: ESC-202-G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concepts of Engineering Mechanics.	L1 (Recall)
CO2	To Understand the concepts of rigid bodies, vectors, tensors and co-ordinate systems.	L2 (Understand)
CO3	To Apply knowledge to solve in to derive the various important terms related to rigid body.	L3 (Apply)
CO4	To Analyze the various beams using different loading conditions and different support.	L4 (Analyse)
CO5	To Evaluate problems related to the bending Moment, gyroscopes, rigid body and torsion.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	1	1	1						3	2	2
CO2	3	3	2	1	1	1						3	3	1
CO3	3	3	2	2	1	1						3	2	2
CO4	3	3	2	2	1							3	2	2
CO5	3	2	2	1	1							3	1	1

Course-Environmental Studies
Course Code: MC-GES-106-G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall basic knowledge about environment.	L1 (Recall)
CO2	To Illustrate environmental pollutants.	L2 (Understand)
CO3	To Discuss individual efforts toward healthy environment.	L4 (Discuss)
CO4	To Analyse various activities contributing towards pollution.	L4 (Analyse)
CO5	To Evaluate various pollution control Methods.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3					1	1					2	3	3
CO2	3					2	2	1				1	3	2
CO3	1					3	3	1	2	1		2	3	1
CO4	1					3	3	1	2	1		2	3	1
CO5	1					2	2	1	1	1		3	3	2

Course-Electric Circuit Analysis Lab
Course Code: PCC- EE-203G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about measuring instrument and kit.	L1 (Recall)
CO2	To Study circuit creation & simulation software like MATLAB and Transient response of RC, RL circuit.	L2 (Study)
CO3	To Analyze a network of a given network function and verify its response.	L4 (Analyse)
CO4	To Verify Z" & "Y" ,"ABCD" parameters of a two port network, and Compensation theorem and Tellegen's theorem.	L5 (Verify)
CO5	To Design a DC or AC Network Using Software or simulation tool (P-Spice or Matlab)	L6 (Simulation)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1			1						2	2	2
CO2	3	2	1		2	1						2	3	1
CO3	3	2	2	2	2	1						2	2	2
CO4	3	2	3	2	2	1						2	2	2
CO5	3	2	2		2	1						2	1	1

Course-Electrical Machines-I Lab
Course Code: PCC-EE-211G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To RecaTo Recall the various measuring instrument.	L1 (Recall)
CO2	To Study and Measure the speed control of DC motor by methods.	L2 (Study)
CO3	To Apply the different methods for parallel operation of transformers.	L3 (Apply)
CO4	To Evaluate different Performance test on transformer and DC machine.	L5 (Evaluation)
CO5	To Compute and Plot various characteristics of DC Machine.	L6 (Computing)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1											2	2
CO2	3	3	2	2									3	1
CO3	3	2	2	2								2	2	2
CO4	3	3	2	2		2							2	2
CO5	3	2	2	2				2					1	1

Course-Analog Electronics Lab
Course Code: PCC-EE-207G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	Students will be able to recall the basic knowledge of electronics devices.	L1 (Recall)
CO2	Students will be able to understand and functioning and characteristics of transistor BJT,MOSFET OP-AMP	L2 (Illustrate)
CO3	Student will be able to Apply the concept of operating mode of analog circuits.	L3 (Apply)
CO4	Student will be able to analyze the OP-AMP based circuit and linear and non linear application of OP-AMP ,and MOSFET and BJT based circuit	L4 (Analyse)
CO5	Student will be able to design the Analog circuits using analog components.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3								2				3	2
CO2		3				2							3	1
CO3	2									3			3	2
CO4	2				3		1						2	2
CO5			3	2				3					2	1

Course - Measurement & Instrumentation Lab
Course Code: PCC- EE- 212G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about measuring instrument and laboratory equipment	L1 (Recall)
CO2	To Understand the calibration of electronic devices.	L2 (Illustrate)
CO3	To Analyze the measurement of resistance by different methods	L4 (Analyse)
CO4	To Evaluate the knowledge of different bridge.	L5 (Evaluate)
CO5	To Draw performance characteristics different transducer	L6 (Performance justfication)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	2					2	3			3	2
CO2		2	2						2				2	2
CO3	3	1	2	1					2				3	1
CO4	2	3	3	3					2				1	1
CO5	3	2	3	2					2				1	1

B.Tech. EE 4th Semester

Course: Biology for Engineers
Course Code: BSC-BIO-201G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concepts of Biology.	L1 (Recall)
CO2	To Understand about living organisms, type of cells and microbes. .	L2 (Understand)
CO3	To Apply Bimolecular Applications of biotechnology in Agriculture, Medicine, Environment	L3 (Apply)
CO4	To Analyse of Concept of genetic engineering	L4 (Analyse)
CO5	To Interpret Economic importance of microbes and Concept of genetic code, Central Dogma	L6 (Interpret)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	2			3			2		1	1	2
CO2	1	3	1	1			2			3		3	2	1
CO3	2	2	2	2			1			2		2	3	2
CO4	3	3	3	1			2			3		3	2	0
CO5	2	1	2	3			2			2		2	3	0

Course: Constitution of India
Course Code: MC-105G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the Meaning of the constitution law and constitutionalism.	L1 (Recall)
CO2	To Understand Historical perspective of the Constitution of India and Salient features and characteristics of the Constitution of India.	L2 (Understand)
CO3	To Apply the scheme of the Fundamental Duties and its legal status, the Directive Principles of State Policy.	L3 (Apply)
CO4	To Analyse Federal structure and distribution of legislative and financial powers between the Union and the States.	L4 (Analyse)
CO5	To Descibe Emergency Provisions : National Emergency, President Rule, Financial Emergency, Local Self Government – Constitutional Scheme in India	L5 (Desccribe)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	1				1	2	1			3	2
CO2	1	2	2	3				2	1	2			1	1
CO3	3	1	1	2				2	3	2			2	3
CO4	1	3	2	1				1	2	3			2	2
CO5	3	1	1	2				2	1	2			3	1

Course: Digital Electronic
Course Code: PCC-EE-202G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the digital signal, positive and negative logic, Boolean algebra, logic gates, logical variables, truth table, number systems, codes, and their conversion from to others.	L1 (Recall)
CO2	To Understand the minimization techniques to simply the hardware requirements for digital circuits	L2 (Understand)
CO3	To Apply the working mechanism and design guidelines of different combinational, sequential circuits and their role in the digital system design.	L3 (Apply)
CO4	To Analyze different types of digital electronic circuits using various mapping and mathematical methods.	L4 (Analyse)
CO5	To Design the different type of components - ADC and DAC, Semiconductor Memories and Programmable Logic Devices.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	2	1	1							2	2	1
CO2	2	1	1	1	2								1	1
CO3	2	3	1	3	1						2		2	2
CO4	3	1	2	2	2							1	2	2
CO5	3	2	3	1	1								1	1

Course: Electrical Machines-II
Course Code: PCC-EE-206G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concept of rotating magnetic fields.	L1 (Recall)
CO2	To Explain the construction, principle of operation and performance of AC machine.	L2 (Illustrate)
CO3	To Analyze performance characteristics of AC machine.	L4 (Analyse)
CO4	To Evaluate the basic knowledge about motoring , generating and breaking mode of AC machine.	L5 (Determining)
CO5	To Compare the performance of induction and synchrouns machine.	L6 (Compare)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	3	3							1	2	1
CO2	1	2	2	1	2								3	1
CO3	3	3	1	2	1						2		1	2
CO4	2	3	2	3	3							3	2	3
CO5	3	1	2	1	1								2	1

Course: Electromagnetic Fields
Course Code: PCC-EE-216G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the knowledge of vector calculus.	L1 (Recall)
CO2	To Understand the basic laws of Electromagnetism.	L2 (Understand)
CO3	To Applying the electromagnetism laws for obtain the electric magnetic fields for simple configuration under static condition.	L3 (Apply)
CO4	To Analyze time varying electric and magnetic fields.	L4 (Analyse)
CO5	To Evaluate the Maxwell equation in different form and different media to understand the propagation of EM waves.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	1	1								3	2
CO2	2	1	3	1	3						3		2	2
CO3	3	3	1	1	1								2	3
CO4	2	3	2	2	2							2	1	1
CO5	3	1	3	1	2								2	3

Course: Mathematics-III
Course Code: BSC-MATH-204G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the mathematical tools needed in evaluating statistical data and find roots of polynomial.	L1 (Recall)
CO2	To Understand how to find roots of polynomial and transcendental equations using numerical methods and solution the different type of numerical and statistical problem with the help of numerical methods and statistics.	L2 (Understand)
CO3	To Apply the statistical tools including measures of central tendency, correlation and solve problems involving random variables and numerical analysis.	L3 (Apply)
CO4	To Analyse the statistical methods of studying data samples and solution of numerical problems.	L4 (Analyse)
CO5	To Evaluate/Solve different type of differentiation and integration in numerical method and problems related to statistics (Hypothesis testing).	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	3				3	3	1			2	1
CO2	2	1	2	1				1	2	3			3	2
CO3	3	3	1	2				2	3	2			2	3
CO4	3	2	3	1				2	3	3			3	2
CO5	3	2	2	2				2	2	2			3	3

Course: Signals and System
Course Code: PCC-EE-214G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic concept of various signals with their mathematical description and representation of continuous and discrete time signals.	L1 (Recall)
CO2	To Understand the knowledge about the input output relationship for different systems.	L2 (Understand)
CO3	To Apply the knowledge of different mathematical tools (F.T,DTFT,LT and ZT) to resolve the signal in frequency domain .	L3 (Apply)
CO4	To Analyze the limitations and application of different tools in C.T. & D.T. signals and system.	L4 (Analyse)
CO5	To Design the first and second order system filters.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	1	1							2	1	2
CO2	3	2	2	1	3								2	3
CO3	1	3		2	1								2	1
CO4	3	1	2	2	2							1	2	3
CO5	2	2	3	1									1	1

Course: Transmission and Distribution
Course Code: PCC- EE-210G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about the structure and present day scenario of a power system.	L1 (Recall)
CO2	To Explain the mechanical design of transmission line with skin effect and proximity effect.	L2 (Explain)
CO3	To Analyses the performance of transmission line as well as transmission and distribution lines parameter.	L4 (Analyse)
CO4	To Evaluate and compare various cables and insulator grading as well as rating.	L5 (Evaluate)
CO5	To Design a proper transmission and distribution structure of a power system.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	2	3	1								2	2
CO2	2	2	1	1	2								2	2
CO3	2	3	2	2	3								1	3
CO4	1	1	1	2	2								2	3
CO5	2	1	3	1	1								1	1

Course: Digital Electronics Lab
Course Code: PCC-EE-204G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about measuring instrument and kit	L1 (Recall)
CO2	To Explain the asynchronous, synchronous digital circuit and Flip-Flop conversion. Also basic knowledge about TTL and Flip- Flop. Gates	L2 (Understand)
CO3	To Analyze the function using k-maps and operation of shift register	L3 (Apply)
CO4	To Verify the operation of Multiplexer,Demultiplxer & counter	L4 (Analyse)
CO5	To Design counter and seven segment display unit.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	1	1	3							1	1	1
CO2	3	2	3	1	2								2	1
CO3	2	3	1	2	1						3		2	2
CO4	1	1	2	3	2							2	1	2
CO5	2	2	1	1	3								1	1

Course: Electrical machine-2 Lab
Course Code: PCC-EE-208G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the various measuring instrument	L1 (Recall)
CO2	To Study and Measure the speed control of induction motor by rotor resistance control.8. Study of Power (Load) sharing between two Three Phase alternators in parallel operation Condition.	L2 (Understand)
CO3	To Apply the different methods for Synchronization of two Three Phase Alternators	L3 (Apply)
CO4	To Evaluate different Performance test on synchronous generator and Induction motor	L4 (Analyse)
CO5	To Compute and Plot varioue characteristics of Machine	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	3	3	3							1	1	2
CO2	1	1	1	1	2								3	3
CO3	1	3	3	2	2						2		2	1
CO4	2	1	2	2	2							3	2	2
CO5	1	1	3	2	1								2	1

Course: Transmission and Distribution LAB
Course Code: PCC-EE-212G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about measuring instrument and laboratory equipment.	L1 (Recall)
CO2	To Understand the Power System blocks in MATLAB, transmission line parameters and proximity and skin effect	L2 (Understand)
CO3	To Analyze the Ferranti effect in a model of transmission line.	L3 (Apply)
CO4	To Evaluate the transmission line parameters	L4 (Analyse)
CO5	To Design short and long transmission line using MATLAB.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	1	3	1								2	3
CO2	2	2	1	1	2								2	1
CO3	3	1	2	2	1								3	3
CO4	2	2	3	2	2								1	2
CO5	3	1	2	1	1								2	1

B.Tech. EE 5th Semester

Course: Electrical Drives
Course Code: PEC-EE-03G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge of electric drives	L1 (Recall)
CO2	To Understand the basic of multi-quadrant operation of DC drives	L2 (Understand)
CO3	To Analysis the characteristic of Dc motor induction motor.	L4 (Analyse)
CO4	To Evaluate the principles of speed control of Dc motor and induction motor.	L5 (Evaluate)
CO5	To Devolve the power electronic converter used for induction motor speed control.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3						1		2		2		1	1
CO2	3	3	2	2					3			1	2	2
CO3	3	3	1	3								1	2	2
CO4	3	3	3	2					2		1	1	3	1
CO5	3		3		2							1	3	3

Course: Economics for Engineers
Course Code: HSMC-01G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Describe the Basics of Economic Theories terminology, Cost concepts and Pricing Policies Used in Engineering Economics.	L1 (Recall)
CO2	To Summarize the measures of national income, the functions of banks and concepts of globalization	L2 (Understand)
CO3	To Discuss how supply and demand change when a product's price changes	L4 (Analyse)
CO4	To Use the Concept of Demand to explain the Outcomes of markets for individuals firms and society	L5 (Evaluate)
CO5	To Analyze how a change in price and income affects the behaviour of buyers and sellers.	L4 (Analyse)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1													1	1
CO2	3												2	1
CO3		3	2										3	3
CO4	2	3		2									2	2
CO5	3		2	2									2	1

Course: Microprocessor& Microcontroller
Course Code: PCC-EE-309G

S.N0.	Course outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge of microprocessor and microcontroller.	L1 (Recall)
CO2	To Understand the construction, principle of operation and pin configuration and architecture of microprocessor ,microcontroller and peripheral devices	L2 Understand
CO3	To Write the programming by the understanding of instruction sets of microprocessor and microcontroller.	L2 (Define and understand)
CO4	To Analyze the interfacing of microcontroller and peripheral devices	L4 (Analyse)
CO5	To Design the programming machines using microprocessor and microcontroller	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1									3				3	2
CO2	2	2	3	3	3								3	3
CO3	2		3	3	3								2	2
CO4			3	3						2			3	3
CO5	3	3	2		2	2				2		3	3	3

Course: Power system-1
Course Code: PCC-EE-301G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall basic concept of power system structure.	L1 (Recall)
CO2	To Explain the various power system components.	L2 (Illustrate)
CO3	To Use the basic knowledge of protection schemes and circuit breaker.	L2 (Define and understand)
CO4	To Analyze fault current for different current fault.	L4 (Analyse)
CO5	To Evaluate concept of HVDC power transmission and renewable energy generation.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3		2	2				2	2		2	3	2
CO2	3	3	3	2	3				2	2		2	3	1
CO3	3	3	3	2	3				2	2		2	2	2
CO4	3	3	3	2	3				2	2		2	3	1
CO5	3	3	3	2	3					2		2	3	3

Course: Computer Aided Electrical Machine Design
Course Code: PCC-EE-313G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Remember the basic parameter of Electrical Machine and its features and limitations	L1 (Remember)
CO2	To Understand complete detailed design of all static and rotating Machines and the specified limits for Specific electric and magnetic loading	L2 (Understand)
CO3	To Analyze Operating characteristics of Electrical Machine.	L4 (Analyse)
CO4	To Evaluate different design parameter of all static and rotating Machines.	L5 (Evaluate)
CO5	To Synthesize efficient algorithm and make a flow chart for all static and rotating machine	L6 (Synthesize)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	2	1								3	1
CO2	3	2	2	2	2								3	3
CO3	3	3	2	2	2								2	2
CO4	3	1	2	2	2								3	3
CO5	3	1	3	1	1	2	2	1	2	1	1	2	3	2

Course: Control System
Course Code: PCC-EE-305G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge of system transfer function.	L1 (Recall)
CO2	To Understand the, knowledge of time and frequency systems.	L2 (Understand)
CO3	To Apply the basic knowledge state space reparation.	L3 (Apply)
CO4	To Analyze the concept of satiability and its assessment for LTI system.	L4 (Analyse)
CO5	To Design simple feedback controller	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3		2	2				2	2		2	3	2
CO2	3	3	3	2	3				2	2		2	3	1
CO3	3	3	3	2	3				2	2		2	2	2
CO4	3	3	3	2	3				2	2		2	3	1
CO5	3	3	3	2	3					2		2	3	3

Course: Control System Lab
Course Code: LC-EE-307G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	Recall the various measuring instrument.	L1 (Recall)
CO2	To Understand the, open loop system and close loop system.	L2 (Understand)
CO3	To Apply the basic knowledge of control action in different device like, industrial PLC control, light intensity control.	L3 (Apply)
CO4	To Analyze and Evaluate in PID controller	L4 (Analyse)
CO5	To Design the pole –zero configuration in s-plane for the transfer function.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2										1	3	1
CO2	2	2										1	3	1
CO3	2	2										1	2	0
CO4	2	2		2								1	3	1
CO5	2	2		2								1	3	1

Course: Computer Aided Electrical Lab
Course Code: LC-EE-315G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall about metlab software.	L1 (Recall)
CO2	To Write a program to measure the main dimension of an induction motor, synchronous motor	L3 (Apply)
CO3	To Write a program to measure the core and yoke design of transformer	L3 (Apply)
CO4	To Evaluate main dimension of an induction motor, synchronous motor and DC machine. .	L5 (Evaluate)
CO5	To Evaluate main dimension of an induction motor, synchronous motor and DC machine. Transformer using simulation	L6 (Design

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	2	2	2							1	2	2
CO2	3	2	1	1	2								3	1
CO3	3	3	1	2	1						1		2	2
CO4	3	2	2	2	2							3	2	2
CO5	3	1	3	1	1								1	1

Course: Microprocessor& Microcontroller Lab
Course Code: LC-EE-311G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the various measuring instrument.	L1 (Recall)
CO2	To Understand the, open loop system and close loop system.	L2 (Understand)
CO3	To Apply the basic knowledge of control action in different device like, industrial PLC control, light intensity control.	L3 (Apply)
CO4	To Analyze and Evaluate in PID controller	L4 (Analyse)
CO5	To Design the pole –zero configuration in s-plane for the transfer function.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		2			2								1	3
CO2	2	3		2	2								3	2
CO3	2				2					3			2	1
CO4	2			2	2		3			3			1	1
CO5		2					2			2			3	1

Course: Power Systems–I Lab
Course Code: LC-EE-303G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall about metlab software.	L1 (Recall)
CO2	To Write a program to measure the main dimension of an induction motor, synchronous motor	L2 (Understand)
CO3	To Write a program to measure the core and yoke design of transformer	L4 (Analyse)
CO4	To Evaluate main dimension of an induction motor, synchronous motor and DC machine. .	L5 (Evaluate)
CO5	To Evaluate main dimension of an induction motor, synchronous motor and DC machine. Transformer using simulation	L6 (Simulation)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	2										1	3
CO2	2	2	2	1									2	2
CO3	2	2	2	1									2	2
CO4	2	2	2	1									2	2
CO5	2	2	2										2	2

Course: Power plant engineering
Course Code: OEC-EE-07G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	Analyze the Structure of materials, imperfection and diffusion mechanism	L4 (Analyse)
CO2	Interpret the deformation of materials and Illustrate concept of mechanical failure of materials (Fracture, Fatigue and creep).	L2 (Illustrate)
CO3	Define the concept of phase & phase diagram & understand the basic terminologies associated with metallurgy. Label, construction and identification of phase diagrams and reactions.	L2 (Understand)
CO4	Importance of the heat treatment process & types along with concluding significance of properties of microstructure materials. Determining surface hardening phenomenon & its types, concept of hardenability & demonstrate the test used to find hardenability of steels.	L5 (Determining)
CO5	Identify Plain Carbon steels on the basis of properties & uses, effect of alloying elements and choose wear resisting steels for specific applications.	L 6 (Inentify)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												1	1
CO2		3	2										2	2
CO3	2	3		2									2	2
CO4	3		2	2									2	1
CO5	3	2			2								2	2

Course: Practical traning-1
Course: PT-EE-317G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	Participate in the projects in industries during his or her industrial training.	L3 (Participate)
CO2	Describe use of advanced tools and techniques encountered during industrial training and visit	L5 (Describe)
CO3	Interact with industrial personnel and follow engineering practices and discipline prescribed in industry.	L4 (Interaction)
CO4	Develop awareness about general workplace behavior and build interpersonal and team skills	L4 (Analyse)
CO5	Prepare professional work reports and presentations..	L6 (Report)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1		2	0	2	0	2	1	1	2	1	3
CO2	1	1	1	1			2	2	2	2	1	2	2	2
CO3	1	1	1	1	2	0	2	2	2	2	1	1	2	2
CO4	1	1	1	1	2		2	2	1	2	1	2	2	2
CO5	1	1	1		2	0	2	2	2	2	2	3	2	2

B.Tech. EE 6th Semester

Course: Advance Electric Drives
Course Code: PEC-EE-18G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concept of electric drives.	L1 (Recall)
CO2	To Understand the concept of electric drives. And concept of DSP based motion control drives.	L2 (Understand)
CO3	To Apply principle of operation and performance of electric drives	L3 (Apply)
CO4	To Analyze performance characteristics of multi quadrant drives	L4 (Analyse)
CO5	To Evaluate the basic knowledge about motoring, generating and breaking mode of AC machine.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	2	2	1						1	2	2
CO2	2	2	2	1	3	2							3	1
CO3	3	1	1	3	1	3							2	2
CO4	2		2	2	2	2							2	1
CO5	1	3	1	1	1	2	2	3	2	1	1	2	3	3

Course: Digital Signal Processing
Course Code: PEC-EE-04G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge of digital signal and processing system	L1 (Recall)
CO2	To Understand the basic the like sampling, interpolation, aliasing and operations, convolution and correlation.	L2 (Understand)
CO3	To mathematical Analysis and application of DFT & FFT.	L4 (Analyse)
CO4	To Evaluate practical knowledge of signal processing operation by using software.	L5 (Evaluate)
CO5	To Design implementation of digital filter.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	3	3	1								3	1
CO2	2	2	1	1	2	1							1	3
CO3	1	3	3	2	3								2	2
CO4	2	2	2	2	2								2	1
CO5	1	1	3	1	1	2	2	2	3	1	1	2	2	3

Course: Power Electronics
Course Code: PCC-EE-306G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about Power Diode, Power MOSFET, SCR, IGBT, and Power Semiconductor Devices this is essential in concept building in Power electronics subject.	L1 (Recall)
CO2	To Understand the, Conduction scheme of converter, choppers, commutation technique of SCR, Pulse transformer	L2 (Illustrate)
CO3	To Apply the basic knowledge of Power Electronics Devices and construct chopper and Inverter circuit.	L3 (Apply)
CO4	To Analyze and Evaluate one, two, three, six and twelve pulse converts, force commutative converter, Modified McMurray bridge inverter, which is applicable to industrial application	L4 (Analyse)
CO5	To Design various switching, protection circuit and drive circuits Inverter, and Chopper circuit with R- Load and Highly inductive load. Step-up chopper for control of various power switches; Phase controlled rectifier,	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	2	1							1	3	2
CO2	2	1	2	3	2								3	3
CO3	3	2	2	2	3								1	3
CO4	1	1	3	2	2								3	1
CO5	1	3	3	1	3	2	3	1	2	2	3	2	1	3

Course: Electronics Design Lab
Course Code: PCC -EE-310G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the Noise in electronic systems; Sensors and signal conditioning circuits.	L4 (Analyse)
CO2	To Understand the, CPLDs, and FPGAs, PCB design and layout; System assembly considerations.	L2 (Illustrate)
CO3	To Apply Embedded systems concept for group projects involving electronic hardware	L3 (Apply)
CO4	To Analyze Interfacing of analog and digital systems	L4 (Analyze)
CO5	To Design Embedded systems, Electronic system design employing microcontrollers	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	3	1	2	1							1	2	3
CO2	2	2	2	1	2								1	2
CO3	3	3	1	2	3								2	1
CO4	1	2	2	3	2							3	3	3
CO5	1	2	1	1	1	2	3	1	3	1	3	3	1	3

Course: ORGANIZATIONAL BEHAVIOUR
Course Code: HSMC-02G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Identify how effectively and efficiently a manager manages their employees	L3 (Identify)
CO2	To Discuss own behaviour, attitudes and ethical views with students	L4 (Discuss)
CO3	To Analyse the conflicts within an organization.	L4 (Analyse)
CO4	To Analyse how to improve the functional behaviour within an organization	L4 (Analyse)
CO5	To Develop communication and administrative skills.	L6 (Developed)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1				1	2	2	3	3	1	3	2	2
CO2	2	2				2	3	1	2	2	2	2	1	3
CO3	3	1				3	1	2	1	1	1	1	2	1
CO4	1	3				2	3	1	2	2	1	2	2	2
CO5	2	1				3	1	2	1	1	1	2	1	3

Course: Power Electronics Lab
Course Code: PCC-EE-308G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	Students will be able to Recall the various experiment instruments.	L1 (Recall)
CO2	Student will be able to Study diffenrent firing Circuite, Comutation Scheme.	L2 (Study)
CO3	To Apply the Fully Control Convertor Scheme for speed control of motor.	L3 (Apply)
CO4	To Analyze Static Characterstics of Power Electronics Device.	L4 (Analyze)
CO5	To Design various protection Scheme of SCR and Invertor Circuit.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	2	1								1	3
CO2	2	1	3	3	2								3	1
CO3	1	2	1	2	2								1	2
CO4	1	2	1	1	3								3	1
CO5	3	1	3	1	1	2	3	1	3	1	3	2	2	3

Course: Power Systems– II
Course Code: PCC - EE-302G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall basic of power system economics.	L1 (Recall)
CO2	To Explain the methods to control the voltage, frequency, power flow.	L2 (Understand)
CO3	To Apply the stability constraints in synchronous grid.	L3 (Apply)
CO4	To Analyze a power system in steady state by using numerical methods.	L4 (Analyze)
CO5	To Design a stable power system network	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	1	1								1	1
CO2	3	2	3	1	1						1		2	1
CO3	1	3	2	3	2							2	3	3
CO4	2	1	2	2	2								1	1
CO5	3	1	3	1	1	2	3	1	3	3	2	3	2	1

Course: Power Systems–II Lab
Course Code: LC -EE-304G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the various measuring instrument and experimental equipment.	L1 (Recall)
CO2	To understand PV modules and their characteristics like open circuit voltage, short circuit current, Fill factor, Efficiency, wind energy, wind speed versus power generation.	L2 (Understand)
CO3	To Analyze negative and zero sequence reactances of an alternator and fault current for L-G, L-L, L-L-G and L-L-L faults at the terminals of an alternator at very low excitation.	L4 (Analyze)
CO4	To evaluate usining software steady state, transient and sub-transient short circuit currents in an alternator	L5 (Evaluvation)
CO5	To Simulate using software fault in Power System.	L6 (Simulation)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	1	1								1	1
CO2	3	2	2	2	2						1		2	3
CO3	2	1	2	3	1							2	1	2
CO4	1	2	3	2	2								2	1
CO5	1	1	1	3	1	2	3	1	3	1	3	2	3	2

Course: VHDL and Digital Design
Course Code: OEC-EE-03G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the construction, principle of combinational and sequential circuit & microcomputer & programmable device	L1 (Recall)
CO2	To Understand the concept of modeling & simulation & its role in digital evalution.	L2 (Understand)
CO3	To Analyze performance characteristics of microcomputers & combinational and sequential circuit.	L4 (Analyze)
CO4	To Evaluate the basic VHDL statements & logical operators.	L5 (Evaluvation)
CO5	To Create Digital circuit such as comparators, multiplexers, demultiplexers, encoders & microcomputers.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	1	1							1	1	1
CO2	3	1	2	3	2								2	2
CO3	1	3	1	2	3						2		3	3
CO4	2	3	`	3	2							1	2	2
CO5	3	1	3	1	1								1	1

B.Tech. EE 7th Semester

Course: Electronic Principles
Course Code: OEC-EE-451G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about electronic device, digital electronics and display system.	L1 (Recall)
CO2	To Understand the knowledge about the behavior of electronic device, digital electronics and display system.	L2 (Understand)
CO3	To Analyze theoretical and practical knowledge of electronic device, digital electronics and display system.	L4 (Analyze)
CO4	To Evaluate the output of digital circuit and electronic circuit.	L5 (Evaluvation)
CO5	To Desgin the display system, digital and electronics devices.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	2	1								3	3
CO2	3	2	2	2	2								3	3
CO3	3	3	2	2	2								2	2
CO4	3	1	2	2	2								3	1
CO5	3	1	3	1	1	2	2	1	2	1	1	2	3	2

Course: Microcontroller Based System Design
Course Code: PEC- EE-413G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge of PIC MC	L1 (Recall)
CO2	To Understand use of interrupts and timers.	L2 (Understand)
CO3	To Analysis the functional block of ARM processer.	L4 (Analysis)
CO4	To Evaluate on the peripheral dives for data communication and transfer.	L5 (Evaluvation)
CO5	To Design computing plat fame and software engineering problem.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3						1		2		2		1	1
CO2	3	3	2	2					3			1	2	2
CO3	3	3	1	3								1	2	2
CO4	3	3	3	2					2		1	1	3	3
CO5	3		3		2							1	3	2

Course: Renewable energy and Distributed Generation
Course Code: OEC-EE-403G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic of various renewable energy sources.	L1 (Recall)
CO2	To Understand the distributed generation system in autonomous /grid connected modes.	L2 (Understand)
CO3	To Analyze the integrated operation of renewable energy sources.	L4 (Analysis)
CO4	To Evaluate the impact of distributed generation on power system..	L5 (Evaluvation)
CO5	To construct the power electronic interface with grid.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3						1		2		2		1	1
CO2	3	3	2	2					3			1	2	2
CO3	3	3	1	3								1	2	2
CO4	3	3	3	2					2		1	1	3	1
CO5	3		3		2							1	3	3

Course: Project Stage-1
Course Code: Proj-EE-423G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall and finalized the topic.	L1 (Recall)
CO2	To Study of published literature work on the assigned topic	L2 (Study)
CO3	To Preparing an Action Plan and mathology for conducting the investigation.	L3 (Preparation)
CO4	To Evaluate the project cost.	L5 (Evaluate)
CO5	Student will present the PPT on the concerned Topic.	L6 (Presentation)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	2	1				2	2		2	1	3
CO2	2	1	2	1	3				2	1		3	3	1
CO3	2	3	1	3	2	2			2	3	2	2	2	2
CO4	3	2	2	2	3	1		1	2	1	1	2	3	3
CO5	1	1	3	1	2	2	3	2	2	1	2	1	3	2

Course: Summer intership
Course Code: INT-EE-425G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall and enhance the topic assigned in the light of report prepared under project stage-1.	L1 (Recall)
CO2	To Study of published literature on the assigned topic.	L2 (Understand)
CO3	To Preparing an Action Plan for conducting the investigation.	L3 (Apply)
CO4	To Evaluate the project and prepare thesis work.	L5 (Evaluate)
CO5	To Present Summer Intership Persentation.	L5 (Persentation)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	2	1				2	2		2	1	3
CO2	2	1	2	1	3				2	1		3	3	1
CO3	2	3	1	3	2	2			2	3	2	2	2	2
CO4	3	2	2	2	3	1		1	2	1	1	2	3	3
CO5	1	1	3	1	2	2	3	2	2	1	2	1	3	2

Course: Power management
Course Code: PEC-EE-401G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about the present power scenario	L4 (Analyse)
CO2	To Understand the knowledge about the general layout of various engineering equipments.	L2 (Understand)
CO3	To Analyze theoretical and practical knowledge power utility of Haryana.	L4 (Analyze)
CO4	To Evaluate the various risk and hazards in the concern area.	L5 (Evaluate)
CO5	To Develop the state and central electrical power cooperation	L6 (Inentify and choose)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												1	1
CO2		3	2										2	2
CO3	2	3		2									2	2
CO4	3		2	2									2	1
CO5	3	2			2	2							2	2

Course: Fundamentals of Management
Course Code: HSMC -08G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Describe the Basics of Management and the role of Management in an organization.	L2 (Understand)
CO2	To Explain the Importance of Staffing and Training	L2 (Understand)
CO3	To Discuss the concept of Material management and Inventory Control.	L2 (Understand)
CO4	To Analyze the components of Marketing and Advertising.	L4 (Analyze)
CO5	To Assess the Various sources of Finance and Capital Structure.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1						2		2		2		1	3	2
CO2				1		1		3		3		2	3	2
CO3					1	3		2		2		2	3	2
CO4				2		2		2	1	1		2	2	3
CO5							1	1		1		2	1	1

EE 8th Semester

Course: General proficiency
Course Code: GP-EE-426G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Express a sense of professionalism	L1 (Recall)
CO2	Students will be able to Practice and improve their communications skill.	L2 (Illustrate)
CO3	To Analyze his/her overall personal developments.	L3 (Apply)
CO4	To Develop his/her personality in terms of quality such as reciving, responding, attitude and outlook.	L4 (Analyse)
CO5	To Evaluate his /her efforts on the basic of performance/achievements in different walks of life.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	3	2	1		1		2		1	3	1
CO2	1	2	2	2	2	3		2					1	2
CO3	1	2	1	3	1	1		1			1	2	1	2
CO4	3	3	2	2	2	3		3	1		2	3	3	3
CO5	1	2	3	3	3	2		2	2		1	2	1	2

Course: INTELLIGENT INSTRUMENTATION FOR ENGINEERS
Course Code: OEC-ECE-452-G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concept of intelligent instrumentation & interfacing of instruments with computer.	L4 (Analyse)
CO2	To Explain the construction, principle of operation and performance of serial & parallel communication line & star networks and low pass filters and hingh pass filters.	L2 (Illustrate)
CO3	To Analyze performance characteristics of intelligent instrumentation and spike filters and low and high pass filters.	L4 (Analyse)
CO4	To Evaluate the performance of low pass filter and high pass filter & star networks and bus networks.	L5 (Evaluate)
CO5	To Design the intelligent instrumentation and low pass filter and high pass filter.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	1	1							1	3	3
CO2	1	2	1	2	2								3	2
CO3	3	3	2	1	2				1		2		2	2
CO4	1	1	2	2	2				3			2	3	3
CO5	1	2	3	1	1	3	1		1			2	3	1

Course: Project stage-2
Course Code: PROJ-EE-422G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall and enhance the topic assigned in the light of report prepared under project stage-1.	L1 (Recall)
CO2	To review and Explain of the approach to the problem relating to assigned topic.	L2 (Illustrate)
CO3	To review and Explain of the approach to the problem relating to assigned topic.	L3 (Apply)
CO4	To Evaluate the project and prepare thesis work	L4 (Analyse)
CO5	To Modeling /Simulation/Design/Problem Solving Experiment as needed	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	2	1				2	2		2	1	3
CO2	2	1	2	1	3				2	1		3	3	1
CO3	1	3	1	3	2	2			2	3	2	2	2	2
CO4	3	2	2	2	3	1		1	2	1	1	2	3	3
CO5	1	1	1	1	2	2	3	2	2	1	2	1	3	2

Course: Special Electrical Machines
Course Code: PEC-EE-402G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concept of rotating magnetic fields.	L1 (Recall)
CO2	To Explain the construction, principle of operation and performance of AC machine.	L2 (Illustrate)
CO3	To Analyze performance characteristics of AC machine.	L4 (Analyse)
CO4	To Evaluate the basic knowledge about motoring , generating and breaking mode of AC machine.	L5 (Evaluate)
CO5	To Compare the performance of induction and synchrouns machine.and BLDC or PMSM motors	L6 (Inentify and choose)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	2	2	2							2	2	2
CO2	3	2	1	1	3								3	1
CO3	1	3	2	3	2						1		2	2
CO4	3	2	2	2	3							3	1	3
CO5	1	1	3	1	1								1	1

Course: Seminar
Course Code: SEM-EE-424G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Express a sense of professionalism	L1 (Recall)
CO2	To Practice and improve their communications skill.	L2 (Illustrate)
CO3	To Analyze his/her overall personal developments.	L3 (Apply)
CO4	To Develop his/her personality in terms of quality such as reciving, responding, attitude and outlook.	L4 (Analyse)
CO5	To Evaluate his /her efforts on the basic of performance/achievements in different walks of life.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	3	3	3	2	2	1	2	2	1		2	2
CO2	2	1	3	2	2	2	2	3	2	1	2	2	3	3
CO3	1	3	2	2	3	2	2	1	1	3	1	2	1	2
CO4	3	2	1	1	2	1	2	1	2	1	2	1	3	3
CO5	3	3	3	3	3	2	2	1	2	1	1	2	3	1

Course: Solar Thermal Applications
Course Code: OEC- EE-402G

S.N0.	Course Outcomes	RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge of soler thermal energy	L4 (Analyse)
CO2	To Understand concept about solar energy systems and devices.	L2 (Understand)
CO3	To Apply the concept about storage of solar energy system and devices.	L3 (Apply)
CO4	To Analysis solar system in detail along with practical case studies.	L4 (Analyse)
CO5	To installation and Design the solar grid thermal application.	L6 (Design)

CO PO-PSO Articulation Matrices

Course Outcomes (Cos)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	1	1								3	3
CO2	2	2	3	2	2							1	2	1
CO3	3	1	1	3	3								1	2
CO4	2	2	1	2	2							3	2	3
CO5	1	1	2	1	1	2	3	1	3	1	2	2	3	1