SHREE VENKATESHWARA HI-TECH ENGINEERING COLLEGE, GOBI

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

REGULATION 2023

B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23ENT11	PROFESSIONAL ENGLISH–I	**CO1:** To use appropriate words in a professional context	K2
			CO2: To gain understanding of basic grammatic structures and use them in right context	K2
			CO3: To read and infer the denotative and connotative meanings of technical text	K2
			CO4: To read and interpret information presented in tables, charts and other graphic forms	K2
			CO5: To write definitions, descriptions, narrations and essays on various topics	K2

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	1	1	1	3	3	3	1	3	-	3
CO2	1	1	1	1	1	3	3	3	1	3	-	3
CO3	2	3	2	3	2	3	3	3	2	3	3	3
CO4	2	3	2	3	2	3	3	3	2	3	3	3
CO5	2	3	3	3	-	3	3	3	2	3	-	3
AVG	1.6	2.2	1.8	2.2	1.2	3	3	3	1.6	3	1.2	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23MAT11	MATRICES AND CALCULUS	**CO1:** Use the matrix algebra methods for solving practical problems	K2
			CO2: Apply differential calculus tools in solving various application problems	K3
			CO3: Use differential calculus ideas on several variable functions	K2
			CO4: Apply different methods of integration in solving practical problems	K3
			CO5: Apply multiple integral ideas in solving areas, volumes and other practical problems	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	1	-	-	-	-	2	-	2	3
CO2	3	3	1	1	-	-	-	-	2	-	2	3
CO3	3	3	1	1	-	-	-	-	2	-	2	3
CO4	3	3	1	1	-	-	-	-	2	-	2	3
CO5	3	2	1	1	-	-	-	-	2	-	2	3
AVG	3	3	1	1	-	-	-	-	2	-	2	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23PHT11	ENGINEERING PHYSICS	**CO1:** Understand the importance of mechanics	K1,K2
			CO2: Describe the Elastic property of solid materials and thermal conductivity of solids in industrial applications	K3
			CO3: Demonstrate a foundational knowledge in lasers	K2
			CO4: The students will get knowledge on fiber optics	K2
			CO5: Understand the importance of quantum physics.	K2

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	1	1	1	-	-	-	-	-	-
CO2	3	3	2	1	1	-	-	-	-	-	-	-
CO3	3	2	2	1	1	-	-	-	-	-	-	-
CO4	3	2	2	1	1	-	-	-	-	-	-	-
CO5	3	3	1	1	2	1	-	-	-	-	-	-
AVG	3	3	2	1	2	0.4	-	-	-	-	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23CYT11	ENGINEERING CHEMISTRY	**CO1:** To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.	K1,K2
			CO2: To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.	K2
			CO3: To apply the knowledge of phase rule and composites for material selection requirements.	K2,K3
			CO4: To recommend suitable fuels for engineering processes and applications.	K2
			CO5: To recognize different forms of energy resources and apply them for suitable applications in energy sectors	K2

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	1	2	3	2	-	-	-	-	-
CO2	3	3	1	1	1	1	-	-	-	-	-	-
CO3	3	2	2	1	1	1	-	-	-	-	-	-
CO4	3	2	1	1	1	1	-	-	-	-	-	-
CO5	3	1	3	2	1	2	-	-	-	-	-	-
AVG	3	2	2	1	1	2	3	-	-	-	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23CST11	PROBLEM SOLVING AND PYTHON PROGRAMMING	**CO1:** Develop algorithmic solutions for simple computational problems to develop and execute simple Python programs.	K1,K2
			CO2: Write the Algorithms for problem solving basics and strategies to solve complex problems	K3
			CO3: Compose simple Python programs using to illustrate variables data types and error messages.	K3
			CO4: Represent compound data using Python conditionals loops lists tuples dictionaries for solving problems	K2
			CO5: Create functions modules read and write data from/to files in Python programs	K2,K3

CO – PO & PSO MAPPING

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	3	3	2	-	-	-	-	-	2	2	3	3	3
CO2	2	3	3	3	2	-	-	-	-	-	2	-	3	3	3
CO3	2	2	-	2	2	-	-	-	-	-	1	-	3	3	3
CO4	1	2	-	-	1	-	-	-	-	-	1	-	2	3	3
CO5	2	2	-	-	2	-	-	-	-	-	1	2	2	3	3
AVG	2	3	3	3	2	-	-	-	-	-	2	2	3	3	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23TAT11	HERITAGE OF TAMILS	**CO1:** Gain knowledge about various literatures of Tamil	K1,K2
			CO2: Learn the uniqueness of Tamil cultural heritage	K2
			CO3: Find various art forms of Tamil Nadu	K2
			CO4: Understand the Thinai concepts in Tamil	K1, K2
			CO5: Distinguish the contribution of Tamils to Indian national movement and Indian culture	K2

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	1	1	1	-	1	-	-
CO2	-	-	-	-	-	1	1	1	-	1	-	-
CO3	-	-	-	-	-	1	1	1	-	1	-	-
CO4	-	-	-	-	-	1	1	1	-	1	-	-
CO5	-	-	-	-	-	1	1	1	-	1	-	-
AVG	-	-	-	-	-	1	1	1	-	1	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23CSL11	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	**CO1:** Develop algorithmic solutions to simple computational problems	K2,K3
			CO2: Develop and execute simple Python programs.	K3
			CO3: Implement programs in Python using conditionals and loops for solving problems.	K3
			CO4: Deploy functions to decompose a Python program	K3
			CO5: Process compound data using Python data structures and Utilize Python packages in developing software applications	K3,K4

CO – PO & PSO MAPPING

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	-	-	-	-	-	2	2	3	3	3
CO2	3	3	3	3	2	-	-	-	-	-	2	-	3	3	-
CO3	2	2	-	2	2	-	-	-	-	-	1	-	3	3	3
CO4	1	2	-	-	1	-	-	-	-	-	1	-	2	3	3
CO5	2	2	-	-	2	-	-	-	-	-	1	-	2	3	3
AVG	2	3	3	3	2	-	-	-	-	-	2	2	3	3	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23PCL11	PHYSICS LABORATORY	**CO1:** Understand the functioning of various Physics laboratory equipment	K2
			CO2: Use graphical models to analyse laboratory data	K2,K3
			CO3: Use mathematical models as a medium for quantitative reasoning and describing physical reality	K2,K3
			CO4: Access, process and analyse scientific information	K2,K4
			CO5: Solve problems individually and collaboratively	K3,K4

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	1	1	-	-	-	-	-	-	-
CO2	3	3	2	1	1	-	-	-	-	-	-	-
CO3	3	2	3	1	1	-	-	-	-	-	-	-
CO4	3	3	2	1	1	-	-	-	-	-	-	-
CO5	3	2	3	1	1	-	-	-	-	-	-	-
AVG	3	2.4	2.6	1	1	-	-	-	-	-	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23PCL11	CHEMISTRY LABORATORY	**CO1:** To analyse the quality of water samples with respect to the year acidity, alkalinity, hardness and DO.	K2,k4
			CO2: To determine the amount of metal ions through volumetric and spectroscopic techniques.	K2
			CO3: To analyse and determine the composition of alloys	K2,k4
			CO4: To learn simple method of synthesis of nano particles	K2
			CO5: To quantitatively analyse the impurities in solution by electro analytical techniques	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	1	-	-	2	2	-	-	-	-	2
CO2	3	1	2	-	-	1	2	-	-	-	-	1
CO3	3	2	1	1	-	-	1	-	-	-	-	-
CO4	3	1	2	-	-	2	2	-	-	-	-	-
CO5	2	1	2	-	1	2	2	-	-	-	-	1
AVG	2.8	1	1.6	1	1	1.4	1.8	-	-	-	-	0.8

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/I	23ENL11	ENGLISH LABORATORY	**CO1:** To listen to and understand general and complex academic information.	K2
			CO2: To listen to and understand different points of view in a discussion.	K2
			CO3: To speak fluently and accurately informal and informal communicative contexts.	K2
			CO4: To describe products and processes and explain their uses clearly as well as accurately	K2
			CO5: To express their opinions effectively in both formal and informal discussions suitable applications in energy sectors	K2

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	1	3	3	3	3	3	3	3
CO2	3	3	3	3	1	3	3	3	3	3	3	3
CO3	3	3	3	3	1	3	3	3	3	3	3	3
CO4	3	3	3	3	1	3	3	3	3	3	3	3
CO5	3	3	3	3	1	3	3	3	3	3	3	3
AVG	3	3	3	3	1	3	3	3	3	3	3	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23ENT21	PROFESSIONAL ENGLISH–II	**CO1:** To compare and contrast products and ideas in technical texts	K2
			CO2: To identify and report cause and effects in events, industrial processes through technical texts	K2
			CO3: To analyse problems in order to arrive at feasible solutions and communicate them in the written format	K2,K4
			CO4: To present their ideas and opinions in a planned and logical manner	K2
			CO5: To draft effective resumes in the context of job search	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	2	3	3	3
CO2	3	3	3	3	3	3	3	3	2	3	3	3
CO3	3	3	3	3	3	3	3	3	2	3	3	3
CO4	3	3	3	3	2	3	3	3	2	3	3	3
CO5	-	-	-	-	-	-	-	-	3	3	3	3
Avg	2.4	2.4	2.4	2.4	2.2	2.4	2.4	2.4	2.2	3	3	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23MAT21	NUMERICAL METHODS AND STATISTICS	**CO1:** Apply the numerical techniques of interpolation in various intervals and differentiation and integration for engineering problems	K3
			CO2: Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations	K2
			CO3: Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications	K4
			CO4: Apply the concept of testing of hypothesis for small and large samples in real lifeproblems	K3
			CO5: Apply the basic concepts of classifications of design of experiments in the field ofagriculture	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	1	1	-	-	-	2	-	2	3
CO2	3	3	1	1	1	-	-	-	2	-	2	2
CO3	3	3	1	1	1	-	-	-	2	-	2	3
CO4	3	3	1	1	1	-	-	-	2	-	2	3
CO5	3	3	1	1	1	-	-	-	2	-	2	3
AVG	3	3	1	1	1	-	-	-	2	-	2	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23PHT23	PHYSICS FOR ELECTRONICS ENGINEERING	**CO1:**Gain knowledge on the electrical properties of materials and their applications	K2
			CO2: Understand clearly of semiconductor physics and functioning of semiconductor devices	K2
			CO3: Get knowledge on theories and applications of dielectric materials	K2
			CO4: Understand the optical properties of materials and working principles of various optical devices	K2
			CO5: The students will understand the basics of ceramics, composites and nanomaterials.	K2,K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	-	-	-	-	-	-	-	-	-
CO2	3	2	1	-	-	-	-	-	-	-	-	-
CO3	3	2	1	-	-	-	-	-	-	-	-	-
CO4	3	2	1	-	-	-	-	-	-	-	-	-
CO5	3	1	1	-	-	-	-	-	-	-	-	-
AVG	3	1.8	1	-	-	-	-	-	-	-	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23ECT21	CIRCUIT ANALYSIS	**CO1:** The students will be able to explain circuit's behavior using circuit laws and analyze the mesh analysis and nodal analysis.	K2
			CO2: The students will be able to Apply the network theorems to determine behavior of the given DC and AC circuit.	K2
			CO3: The students will be able to Analyze steady state response and transient response for any RC, RL and RLC circuits.	K2
			CO4: The students will be able to Analyze the frequency response of series and parallel resonance circuits and coupled circuits.	K2,K3
			CO5: The students will be able to explain the concepts of three phase circuits and power measurements.	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	-	-	-	1	-	1	-	-
CO2	3	3	2	2	-	-	-	1	-	1	-	-
CO3	3	3	3	3	-	-	-	1	-	1	-	-
CO4	3	3	3	3	-	-	-	1	-	1	-	-
CO5	3	3	3	2	-	-	-	1	-	1	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23MET21	ENGINEERING GRAPHICS	**CO1:**Students will be able to apply the fundamentals of BIS conventions, specifications and dimensioning rules	K2
			CO2: Construct the conic curves, involutes and cycloid.	K2
			CO3: Solve practical problems involving projection of lines.	K2
			CO4: Draw the orthographic, isometric and perspective projections of simple solids.	K2
			CO5: Draw the development of simple solids.	K2

CO – PO & PSO MAPPING

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
CO2	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
CO3	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
CO4	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
CO5	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
AVG	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23MET22	BASIC CIVIL AND MECHANICAL ENGINEERING	**CO1:**The student will be able to Understand the Civil and Mechanical Engineering components of Projects.	K2
			CO2: Summarise the planning of building, infrastructure and working of Machineries	K2
			CO3: Apply the knowledge gained in respective discipline.	K3
			CO4: The student will be able to Identify the components used in power plant s and demonstrate working principles of petrol and diesel engine.	K3
			CO5: The student will be able to Elaborate the components of refrigeration and Air conditioning cycle.	K2,K3

CO – PO & PSO MAPPING

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	1	-	-	2	2	1	2	-	1	-	-	-
CO2	2	-	-	-	-	-	3	2	2	2	-	2	-	-	-
CO3	2	-	-	-	-	-	3	2	2	2	-	2	-	-	-
CO4	2	-	-	-	-	-	2	2	2	2	-	2	-	-	-
CO5	2	-	-	-	-	-	2	2	2	2	-	2	-	-	-
AVG	2	-	-	1	-	-	2	2	1	2	-	1	-	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23TAT21	TAMILS AND TECHNOLOGY	**CO1:** Relate the weaving ceramic technology of Tamils	K1
			CO2: Understand the knowledge of Tamil's in design and construction technology	K2
			CO3: Recognise the manufacturing technology knowledge of Tamils	K2
			CO4: Criticize agriculture and Ishery knowledge of Tamils	K2
			CO5: Apply scientific Tamil in various online platforms	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	-	-	-	-	1	1	1	1	1	-	1
CO2	2	-	-	-	-	2	2	2	2	2	-	2
CO3	2	-	-	-	-	2	2	2	2	2	-	2
CO4	1	-	-	-	-	1	1	1	1	1	-	1
CO5	2	-	-	-	-	2	2	2	2	2	-	2
AVG	2	-	-	-	-	2	2	2	2	2	-	2

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23ECL21	CIRCUIT ANALYSIS LABORATORY	**CO1:** Verify KVL & KCL.	K3
			CO2: Verify Super Position Theorems	K3
			CO3: Verify Thevinin & Norton theorem.	K4
			CO4: Design RL and RC circuits.	K4
			CO5: Design RLC circuits.	K2,K4

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	1	-	-	-	-	-	1	-	-
CO2	3	3	2	1	-	-	-	-	-	1	-	-
CO3	3	3	3	1	-	-	-	-	-	1	-	-
CO4	3	3	3	2	-	-	-	-	-	1	-	-
CO5	3	3	3	2	-	-	-	-	-	1	-	-
AVG	3	3	2.6	1.4	-	-	-	-	-	1	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23MEL21	ENGINEERING PRACTICES LABORATORY	**CO1:** The students will be able to Make a wooden model using carpentry Process.	K2
			CO2: The students will be able to make various shapes using welding processes	K3
			CO3: The students will be able to make various shapes using manufacturing processes like machining and sheet metal work.	K4
			CO4: Wires various electrical joints in common household electrical wire network.	K4
			CO5: Solder and test simple electronic circuits. Assemble and test simple electronic components on PCB.	K2,K4

CO – PO & PSO MAPPING

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	3	-	-	-	-	-	-	-	-	2	1	1
CO2	3	-	-	3	-	-	-	-	-	-	-	-	2	1	1
CO3	3	-	-	3	-	-	-	-	-	-	-	-	2	1	1
CO4	3	-	-	3	-	-	-	-	-	-	-	-	2	1	1
CO5	3	-	-	3	-	-	-	-	-	-	-	-	2	1	1
AVG	3	-	-	3	-	-	-	-	-	-	-	-	2	1	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
I/II	23ENL21	COMMUNICATION LABORATORY	**CO1:** Speak effectively in group discussions held in a formal/semi formal contexts	K2
			CO2: Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions	K2
			CO3: Create emails, letters and effective job applications with resume	K2
			CO4: Write critical reports to convey data and information with clarity and precision	K2
			CO5: Deliver suitable instructions and recommendations for safe execution of tasks	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	3	1	3	3	3	3	3	3	3
CO2	2	3	3	3	1	3	3	3	3	3	3	3
CO3	2	2	3	3	1	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3
Avg	2.4	2.8	3	3	1.8	3	3	3	3	3	3	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23EET31	ELECTRICAL MACHINES - I	**CO1:** Understand the concept of magnetic circuits	K2
			CO2: Explain the principle, types, effect of armature reaction and commutation of DC generator.	K2
			CO3: Analyze the performance characteristics of DC motor using various testing methods	K4
			CO4: Understand the principle, equivalent circuit and performance of a single phase transformer.	K2
			CO5: Analyze the various transformer connection for specific application.	K4

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	-	-	-	-	-	1	-	-	3	2	1
CO2	3	3	2	2	-	-	-	-	-	1	-	-	3	3	2
CO3	3	3	3	3	-	-	-	-	-	1	-	-	3	3	3
CO4	3	3	3	3	-	-	-	-	-	1	-	-	3	3	3
CO5	3	3	3	2	-	-	-	-	-	1	-	-	3	3	3
Avg	3	3	2	2	-	-	-	-	-	1	-	-	3	3	2

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23EET32	ELECTROMAGNETIC FIELDS	**CO1:** Visualize and explain Gradient, Divergence, and Curl operations on electromagnetic vector fieldsand identify the electromagnetic sources	K2
			CO2: Compute the electrostatic fields, electric potential, energy density along with their applications	K3
			CO3: Analyse the magneto static fields, magnetic flux density, vector potential along with their applications	K4
			CO4: Understand the different methods of emf generation and Maxwell's equations	K2
			CO5: Explain the concept of electromagnetic waves and characterizing parameters.	K2

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	3	1	-	-	-	1	3	2	1
CO2	3	2	1	2	-	-	1	1	-	-	-	1	3	2	1
CO3	3	2	1	2	-	-	1	1	-	-	-	1	3	2	1
CO4	3	2	1	2	-	-	1	1	-	-	-	1	3	2	1
CO5	3	2	1	2	-	-	1	1	-	-	-	1	3	2	1
Avg	3	2	1	2	-	-	1.4	1	-	-	-	1	3	2	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23EET33	DIGITAL LOGIC CIRCUITS	**CO1:** Apply Boolean algebra and number systems to design the digital circuits	K3
			CO2: Design and realize the combinational circuits using logic gates	K4
			CO3: Analyze the synchronous and asynchronous sequential circuits and design the synchronous sequential circuits using basic flip flops	K4
			CO4: Examine the operation of various Programmable Logic Devices and logic families.	K2
			CO5: Develop simple programs in VHDL.	K6

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	1	-	-	-	-	-	1	-	-	3	-	-
CO2	3	2	3	1	-	-	-	-	-	1	-	-	3	1	-
CO3	3	2	3	1	-	-	-	-	-	1	-	-	3	1	-
CO4	3	2	3	1	-	-	-	-	-	1	-	-	3	1	-
CO5	3	2	-	-	-	-	-	-	-	1	-	-	3	1	-
Avg	3	2	2	1	-	-	-	-	-	1	-	-	3	1	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23ECT34	ELECTRON DEVICES AND CIRCUITS	**CO1:** Explain the structure and operation of PN junction devices (diode, Zener diode, LED and Laser diode	K2
			CO2: Design clipper, clamper, half wave and full wave rectifier, regulator circuits using PN junction diodes	K3
			CO3: Analyze the structure and characteristics BJT, FET, MOSFET, UJT, Thyristor and IGBT	K4
			CO4: Analyze the performance of various configurations of BJT and MOSFET based amplifier	K4
			CO5: Explain the characteristics of MOS based cascade and differential amplifier	K2

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1		-	-	-	-	-	-	-	-	-	-	3	2	-
CO2	3		-	-	-	2	-	-	-	-	-	-	3	2	-
CO3	3	1	-	-	-	-	-	-	2	-	-	-	3	2	-
CO4	3		-	-	-	-	-	-	2	-	-	-	3	2	-
CO5	3	1	-	-	-	-	-	-	2	-	-	-	3	2	-
Avg	1	3	-	-	-	1	-	-	2	-	-	-	3	2	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23CST34	C PROGRAMMING AND DATA STRUCTRURES	**CO1:** Identify the basic concept of data structure and identify the list data structures and its operations.	K2
			CO2: Develop applications using stack and queue data structures.	K3
			CO3: Develop applications to retrieve records from database using hashing techniques.	K4
			CO4: Compare efficiency of various searching techniques using different tree data structures.	K3
			CO5: Compare efficiency of various sorting techniques using different data structures	K3

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	2	2	3	-	-	-	-	-	-	-	-	-	-	2	-
CO3	2	3	3	-	-	-	-	-	-	-	-	-	-	3	-
CO4	2	3	3	-	-	-	-	-	-	-	-	-	-	3	-
CO5	2	3	3	-	-	-	-	-	-	-	-	-	-	3	-
Avg	2	3	2	-	-	-	-	-	-	-	-	-	-	2	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23MAT33	PROBABILITY AND COMPLEX FUNCTIONS	**CO1:** Understand the fundamental knowledge of the concepts of probability have knowledge of standard distributions which can describe real life phenomenon.	K2
			CO2: Understand the basic concepts of two dimensional random variables and apply in engineering problems and knowledge of standard distributions which can describe real life phenomenon.	K2
			CO3: Apply the concept of random processes in engineering disciplines	K3
			CO4: To develop an understanding of the standard techniques of complex variable theory in particular analytic function and its mapping property.	K3
			CO5: To familiarize the students with complex integration techniques and contour integration techniques which can be used in real integrals	K3

CO – PO & PSO MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	-	-	-	-	-	2	-	-	1
CO2	3	3	3	-	-	-	-	-	2	-	-	1
CO3	3	3	2	-	-	-	-	-	2	-	-	1
CO4	3	3	2	-	-	-	-	-	2	-	-	1
CO5	3	3	3	-	-	-	-	-	2	-	-	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23EEL31	ELECTRICAL MACHINES LABORATORY – I	**CO1:** Analyze the performance characteristics of various DC generators	K2,K4
			CO2: Understand the performance characteristics of various DC motors.	K2
			CO3:Predetermine the losses and control the speed of a DC motor	K3
			CO4:Predetermine the losses and efficiency of Single Phase Transformer	K3
			CO5: Determine the efficiency of Single Phase Transformer.	K3

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	-	-	-	-	2	-	-	3	3	-
CO2	3	3	3	2	2	-	-	-	-	2	-	-	3	3	-
CO3	3	3	2	1	1	-	-	-	-	2	-	-	3	1	-
CO4	3	3	3	3	2	-	-	-	-	2	-	-	3	1	-
CO5	2	1	1	-	-	-	-	-	-	-	-	-	3	1	-
Avg	3	3	2	2	1	-	-	1	-	1	-	-	3	2	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23ECL32	ELECTRONIC DEVICES AND CIRCUITS LABORATORY	**CO1:** Analyze the characteristics of PN, Zener diode and BJT in CE,CC,CB configurations experimentally	K2,K4
			CO2: Analyze the characteristics of JFET and UJT experimentally	K2,K4
			CO3: Analyze frequency response characteristics of a Common Emitter amplifier experimentally	K2,K4
			CO4: Analyze the characteristics of RC phase shift and LC oscillators experimentally.	K4
			CO5: Analyze the characteristics of half-wave and full-wave rectifier with and without filters experimentally	K4

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO 12	PSO1	PSO2	PSO 3
CO1	-	-	-	3	3	-	-	1.5	-	-	3	-	-	3	3
CO2	-	-	3	3	3	-	-	1.5	-	-	3	-	-	3	3
CO3	-	3	2	3	-	-	-	1.5	-	-	3	-	-	3	3
CO4	-	3	3	3	-	-	-	1.5	-	-	3	-	-	3	3
CO5	-	-	-	-	3	-	-	1.5	-	-	3	-	-	3	3
Avg	-	3	2.7	3	3	-	-	1.5	-	-	3	-	-	3	3

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/III	23CSL34	C PROGRAMMING AND DATA STRUCTURES LABORATORY	**CO1** Use different constructs of C and develop applications	K2
			CO2: Write functions to implement linear and non-linear data structure operations	K3
			CO3: Suggest and use the appropriate linear / non-linear data structure operations for a given problem .	K4
			CO4: Apply appropriate hash functions that result in a collision free scenario for data storage and Retrieval.	K3
			CO5: Implement Sorting and searching algorithms for a given application	K3

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	2	2	1	1	-	1	2	1	3	2	1	3
CO2	1	2	1	2	2	-	-	-	1	1	1	2	2	2	2
CO3	2	3	1	2	3	-	-	-	1	1	1	2	2	1	2
CO4	2	1	-	1	1	-	-	-	2	1	1	2	2	3	1
CO5	1	2	1	2	2	1	1	-	1	2	1	3	2	2	3
Avg	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EET41	ELECTRICAL MACHINES - II	**CO1:** Acquire knowledge about the constructional details and principle of operation of alternators	K2
			CO2: Analyze the performance characteristics of synchronous motor	K4
			CO3: Understand the Construction, principle of operation and performance of induction machines	K2
			CO4: To know about Starting and speed control of three Phase induction motors	K2
			CO5: To gain the knowledge on Construction, principle of operation and performance of single phase induction motors and special machines.	K3

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	-	-	1	-	-	-	-	3	3	2
CO2	3	3	2	3	3	-	-	1	-	-	-	-	3	3	2
CO3	3	3	2	3	3	-	-	1	-	-	-	-	3	3	2
CO4	3	3	2	3	3	-	-	1	-	-	-	-	3	3	2
CO5	3	3	1	1	2	-	-	1	-	-	-	-	3	3	2
Avg	3	3	1.6	2.3	2.6	-	-	1	-	-	-	-	3	3	2

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EET42	LINEAR INTEGRATED CIRCUITS	**CO1:**Analyze the DC and AC characteristics of the Op-amp	K4
			CO2: Develop simple Op-amp based circuits for linear applications	K6
			CO3: Design and analyze the Op-Amp for non linear applications.	K4,K6
			CO4: Construct A/D and D/A converters for signal processing applications and analyse the effect ofsingle power supply Op-Amp	K3
			CO5: Design and Analyze various application circuits using Special IC's.	K6

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	-	-	-	-	-	-	-	-	-	-	1	2	-
CO2	3	3	3	-	-	-	-	-	-	-	-	-	3	2	2
CO3	3	3	3	-	-	-	-	-	-	-	-	-	3	2	2
CO4	2	2	2	-	-	-	-	-	-	-	-	-	3	2	2
CO5	2	3	3	-	-	-	-	-	-	-	-	-	3	2	3
Avg	3	2	3	-	-	-	-	-	-	-	-	-	3	2	2

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EET43	MICROPROCESSOR AND MICROCONTROLLER	**CO1:**Explain the basic concepts of 8085 microprocessor	K2
			CO2: Understand the different interface with 8085	K2
			CO3: Summarize the basic concepts of 8051 microcontroller	K2
			CO4: Interface peripheral devices with 8051 microcontroller	K3
			CO5: Analyze about PIC microcontroller and programming.	K4

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	-	3	2	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	3	2	-
CO3	3	2	1	1	1	-	-	-	-	-	-	-	1	3	-
CO4	3	2	1	1	1	-	-	-	-	-	-	-	1	3	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	3	3	-
Avg	3	2	1	1	1	-	-	-	-	-	-	-	2	3	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EET44	TRANSMISSION AND DISTRIBUTION	**CO1:** Analyze the line parameters of overhead transmission lines	K2,K4
			CO2: Determine the voltage regulation and transmission efficiency of short, medium and long transmission lines	K2
			CO3: Classify the different types of cables and insulators and estimate the string efficiency of insulators	K2
			CO4: Analyze the performance of single and three phase distribution system.	K4
			CO5: Exemplify the utilization of electric energy in heating and welding applications	K3

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	1	-	-	3	-	-
CO2	3	3	-	-	-	-	-	-	-	1	-	-	3	-	-
CO3	3	2	-	-	-	-	-	-	-	1	-	-	1	-	-
CO4	3	-	-	-	-	-	-	-	-	1	-	-	-	1	-
CO5	3	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Avg	3	1	-	-	-	-	-	-	-	1	-	-	1	1	-

SHREE VENKATESHWARA HI-TECH ENGINEERING COLLEGE, GOBI

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EET45	MEASUREMENTS AND INSTRUMENTATION	**CO1:**Understand the working principle of meters for measurement of Voltage and Current	K2
			CO2: To Know the working principle of meters for measurement of Power and Energy	K2
			CO3 Apply potentiometers and instrument transformers for measurement of electrical parameters	K3
			CO4: Measure the unknown impedance using AC bridges	K4
			CO5: Explore the recent developments in Digital Measurements and Instruments.	K4

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	-	-	-	-	-	-	-	3	3	-
CO2	3	2	1	1	1	-	-	-	-	-	-	-	3	3	-
CO3	3	2	1	1	1	-	-	-	-	-	-	-	3	3	-
CO4	3	2	1	1	1	-	-	-	-	-	-	-	3	3	-
CO5	3	1	-	-	-	-	-	-	-	-	-	-	2	2	-
Avg	3	2	1	1	1	-	-	-	-	-	-	-	3	3	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23CYT41	ENVIRONMENTAL SCIENCES AND SUSTAINABILITY	**CO1:** Recognize and understand the functions of environment, ecosystems and biodiversity and their conservation.	K2
			CO2: Identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.	K2
			CO3: Apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.	K3
			CO4: Understand the different goals of sustainable development and apply them for suitable technological advancement and societal development.	K2
			CO5: Demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization..	K3

CO – PO & PSO MAPPING

CO /PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02
CO1	2	1	-	-	-	2	3	-	-	-	-	2	3	2
CO2	3	2	-	-	-	3	3	-	-	-	-	2	3	2
CO3	3	-	1	-	-	2	2	-	-	-	-	2	3	2
CO4	3	2	1	1	-	2	2	-	-	-	-	2	3	2
CO5	3	2	1	-	-	2	2	-	-	-	-	1	3	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EEL41	ELECTRICAL MACHINES LABORATORY – II	**CO1:** Compute the voltage regulation of alternators using different methods	K2
			CO2: Analyze the performance characteristics of alternators with parallel operation	K4
			CO3: Analyze the load characteristics, circle diagram, and braking methods of three phase induction motor	K4
			CO4: Analyze the speed control characteristics of three phase induction motor.	K4
			CO5: Demonstrate the load characteristics of self-excited induction generator and single phase induction motor.	K3

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	3	-	2	1	-	-	-	3	-	-	-	3	1	-
CO2	-	3	-	2	2	-	-	-	3	-	-	-	3	1	-
CO3	2	3	-	1	3	-	-	-	3	-	-	-	3	1	-
CO4	-	3	-	3	3	-	-	-	3	-	-	-	2	1	-
CO5	-	1	-	-	1	-	-	-	3	-	-	-	2	1	-
Avg	1	3	-	2	2	-	-	-	3	-	-	-	3	1	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EEL42	LINEAR AND DIGITAL CIRCUITS LABORATORY	**CO1:** Ability to understand and implement Boolean Functions.	K2
			CO2: Ability to understand the importance of code conversion	K2
			CO3: Ability to Design and implement circuits with digital ICs like decoders, multiplexers, register.	K3
			CO4: Ability to acquire knowledge on Application of Op-Amp.	K3
			CO5: Ability to Design and implement counters using analog ICs like timers, VCOs and digital ICs like Flip-flops and counters	K4

CO – PO & PSO MAPPING

CO/ PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	3	-	2	1	-	-	-	3	-	-	-	3	1	-
CO2	-	3	-	2	2	-	-	-	3	-	-	-	3	1	-
CO3	2	3	-	1	3	-	-	-	3	-	-	-	3	1	-
CO4	-	3	-	3	3	-	-	-	3	-	-	-	2	1	-
CO5	-	1	-	-	1	-	-	-	3	-	-	-	2	1	-
Avg	1	3	-	2	2	-	-	-	3	-	-	-	3	1	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
II/IV	23EEL43	MICROPROCESSOR AND MICROCONTROLLER LABORATORY	**CO1:**Write a program to perform different arithmetic and logic operation in 8085	K3
			CO2: Program for code conversions in 8085.	K3
			CO3: Acquire knowledge on A/D and D/A. using 8085	K2
			CO4: Understand the interfacing of serial communication with 8051.	K2
			CO5: Write a simple programs using PIC Microcontroller.	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	3	1	2	-	1	2	3	-	1	1	3	-
CO2	3	2	1	3	1	2	-	1	2	3	-	1	1	3	-
CO3	3	3	2	3	2	2	-	1	2	3	-	1	2	3	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avg	3	3	1	3	1	2	-	1	2	3	-	1	1	3	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/V	23EET51	POWER SYSTEM ANALYSIS	**CO1:** Model the components of a power system and develop the single line diagram, per unit impedance diagram and bus admittance matrix	K3
			CO2: Apply Gauss-Seidel, Newton-Raphson and fast decoupled methods to solve power flow problems	K3
			CO3: Analyse the behaviour of the power system under symmetrical faults	K4
			CO4: Analyse the behaviour of the power system under unsymmetrical faults using symmetrical components	K4
			CO5: Analyse the transient stability of a power system using equal area criterion and numerical methods	K4

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	-	-	-	-	-	-	1	3	2	1
CO2	3	3	3	2	3	-	-	-	-	-	-	1	3	2	1
CO3	3	3	3	3	2	-	-	-	-	-	-	1	3	2	1
CO4	3	3	3	3	2	-	-	-	-	-	-	1	3	2	1
CO5	3	3	3	3	2	-	-	-	-	-	-	1	3	2	2
Avg	3	3	3	3	2	-	-	-	-	-	-	1	3	2	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/V	23EET52	POWER ELECTRONICS	**CO1:** Explain the static and switching characteristics of power semiconductor devices	K2
			CO2: Analyse single phase and three phase controlled rectifiers	K4
			CO3: Analyse the operation of DC-DC converters such as buck, boost and buck-boost converters	K4
			CO4: Analyse the operation of voltage source inverters and apply PWM techniques	K4
			CO5: Describe the operation of AC voltage controllers, matrix converters and cycloconverters	K2

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	-	-	-	-	-	-	1	3	2	1
CO2	3	3	2	2	2	-	-	-	-	-	-	1	3	3	1
CO3	3	3	3	2	2	-	-	-	-	-	-	1	3	3	1
CO4	3	3	3	2	2	-	-	-	-	-	-	1	3	3	2
CO5	3	2	2	1	2	-	-	-	-	-	-	1	3	2	1
Avg	3	3	2	2	2	-	-	-	-	-	-	1	3	3	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/V	23EET53	CONTROL SYSTEMS	**CO1:** Compute the transfer function of physical systems using block diagram reduction and signal flow graph	K3
			CO2: Analyse the time response of first and second order systems and determine steady state errors	K3
			CO3: Analyse the frequency response of systems using Bode and polar plots	K3
			CO4: Analyse the stability of linear systems using Routh-Hurwitz, root locus and Nyquist criteria	K4
			CO5: Design compensators and analyse systems using state variable techniques	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	1	-	-	-	-	-	-	1	2	3	1
CO2	3	3	2	2	1	-	-	-	-	-	-	1	2	3	1
CO3	3	3	2	2	2	-	-	-	-	-	-	1	2	3	1
CO4	3	3	3	3	2	-	-	-	-	-	-	1	2	3	2
CO5	3	3	3	2	2	-	-	-	-	-	-	2	2	3	2
Avg	3	3	2	2	2	-	-	-	-	-	-	1	2	3	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/V	23EEL51	POWER ELECTRONICS LABORATORY	**CO1:** Analyse the switching characteristics of power semiconductor devices such as SCR, MOSFET and IGBT	K3
			CO2: Analyse the performance of single phase and three phase controlled rectifiers	K4
			CO3: Analyse the operation of DC-DC converters and choppers	K4
			CO4: Analyse the operation of single phase and three phase inverters	K4
			CO5: Simulate power electronic converters and AC voltage controllers using software tools	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	-	-	-	2	2	-	1	3	2	1
CO2	3	3	2	3	2	-	-	-	2	2	-	1	3	3	1
CO3	3	3	2	3	2	-	-	-	2	2	-	1	3	3	1
CO4	3	3	2	3	2	-	-	-	2	2	-	1	3	3	2
CO5	3	2	2	2	3	-	-	-	2	2	-	2	3	2	2
Avg	3	3	2	3	2	-	-	-	2	2	-	1	3	3	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/V	23EEL52	CONTROL AND INSTRUMENTATION LABORATORY	**CO1:** Determine the transfer function and time response of electrical and electromechanical systems	K3
			CO2: Design and analyse P, PI and PID controllers and compensators	K4
			CO3: Measure resistance, inductance and capacitance using AC and DC bridges	K3
			CO4: Analyse the characteristics of transducers such as LVDT, strain gauge and thermocouple	K3
			CO5: Simulate and analyse the stability of control systems using software tools	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	-	-	-	2	2	-	1	2	3	1
CO2	3	3	3	3	2	-	-	-	2	2	-	1	2	3	2
CO3	3	2	2	3	1	-	-	-	2	2	-	1	2	3	1
CO4	3	2	2	3	2	-	-	-	2	2	-	1	2	3	1
CO5	3	3	2	2	3	-	-	-	2	2	-	2	2	3	2
Avg	3	3	2	3	2	-	-	-	2	2	-	1	2	3	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/VI	23EET61	PROTECTION AND SWITCHGEAR	**CO1:** Explain the causes of abnormal operating conditions and the principle of operation of protective relays	K2
			CO2: Apply protection schemes for generators, transformers, busbars and motors	K3
			CO3: Apply protection schemes for transmission lines and feeders	K3
			CO4: Explain arc phenomena and the operation and selection of circuit breakers	K2
			CO5: Describe numerical relays and over-voltage protection of power system equipment	K2

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	-	2	-	-	-	-	-	1	3	2	1
CO2	3	3	3	2	1	2	-	-	-	-	-	1	3	2	1
CO3	3	3	3	2	1	2	-	-	-	-	-	1	3	2	1
CO4	3	2	2	1	-	2	-	-	-	-	-	1	3	1	1
CO5	3	2	2	1	2	2	-	-	-	-	-	2	3	2	2
Avg	3	2	2	1	1	2	-	-	-	-	-	1	3	2	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/VI	23EEI61	ELECTRIC DRIVES	**CO1:** Explain the dynamics, speed-torque characteristics and braking methods of electric drives	K2
			CO2: Analyse the performance of converter fed and chopper fed DC motor drives	K4
			CO3: Analyse the speed control of induction motor drives using stator and rotor side control methods	K4
			CO4: Analyse the control of synchronous motor and brushless DC motor drives	K3
			CO5: Conduct experiments on electric drives and apply closed loop control techniques	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	-	-	-	-	-	-	-	1	3	2	1
CO2	3	3	2	2	2	-	-	-	1	1	-	1	3	3	1
CO3	3	3	2	2	2	-	-	-	1	1	-	1	3	3	1
CO4	3	3	2	2	2	-	-	-	1	1	-	1	3	3	2
CO5	3	3	2	3	3	-	-	-	2	2	-	2	3	3	2
Avg	3	3	2	2	2	-	-	-	1	1	-	1	3	3	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
III/VI	23EEL61	POWER SYSTEM LABORATORY	**CO1:** Develop the bus admittance and bus impedance matrices of power systems using software tools	K3
			CO2: Perform power flow analysis using Gauss-Seidel and Newton-Raphson methods	K3
			CO3: Analyse symmetrical and unsymmetrical faults in power systems	K4
			CO4: Analyse the transient stability, economic dispatch and load frequency control of power systems	K4
			CO5: Conduct tests on protective relays and insulators and analyse the results	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	-	-	-	2	2	-	1	3	2	1
CO2	3	3	2	3	3	-	-	-	2	2	-	1	3	2	1
CO3	3	3	3	3	3	-	-	-	2	2	-	1	3	2	1
CO4	3	3	3	3	3	-	-	-	2	2	-	2	3	2	2
CO5	3	2	2	3	2	-	-	-	2	2	-	1	3	2	1
Avg	3	3	2	3	3	-	-	-	2	2	-	1	3	2	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
IV/VII	23EET71	HIGH VOLTAGE ENGINEERING	**CO1:** Explain the causes and effects of over-voltages and the principles of insulation coordination	K2
			CO2: Explain the breakdown mechanisms in gaseous, liquid and solid dielectrics	K2
			CO3: Explain the methods of generation of high AC, high DC and impulse voltages and currents	K2
			CO4: Apply suitable techniques for the measurement of high voltages and high currents	K3
			CO5: Explain the high voltage testing of electrical apparatus and non-destructive insulation testing	K2

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	-	2	2	-	-	-	-	1	3	2	1
CO2	3	2	1	1	-	1	2	-	-	-	-	1	3	1	1
CO3	3	2	2	1	1	1	1	-	-	-	-	1	3	2	1
CO4	3	3	2	2	2	1	-	-	-	-	-	1	3	2	1
CO5	3	2	2	2	1	2	1	-	-	-	-	1	3	2	1
Avg	3	2	2	1	1	1	2	-	-	-	-	1	3	2	1

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
IV/VII	23UHV71	UNIVERSAL HUMAN VALUES - 2	**CO1:** Understand the need, basic guidelines, content and process of value education	K2
			CO2: Distinguish between the needs of the self and the body and understand harmony in the human being	K2
			CO3: Understand harmony in the family and society and the values in human relationships	K2
			CO4: Understand harmony in nature and existence and the holistic perception of co-existence	K2
			CO5: Apply the holistic perspective to professional ethics and develop ethical human conduct	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	2	2	3	-	2	-	3	-	-	-
CO2	-	-	-	-	-	2	2	3	-	2	-	3	-	-	-
CO3	-	-	-	-	-	3	2	3	2	2	-	3	-	-	-
CO4	-	-	-	-	-	3	3	3	-	2	-	3	-	-	-
CO5	-	-	-	-	-	3	3	3	2	3	-	3	-	-	-
Avg	-	-	-	-	-	3	2	3	2	2	-	3	-	-	-

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
IV/VII	23EEL71	MINI PROJECT	**CO1:** Identify and formulate an engineering problem through literature survey	K3
			CO2: Design a suitable solution using engineering principles and standards	K4
			CO3: Implement the solution using appropriate hardware and software tools	K4
			CO4: Work effectively as a member of a team and manage the project activities	K3
			CO5: Prepare the technical report and present the project outcomes effectively	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	1	2	1	-	2	2	2	2	3	3	2
CO2	3	3	3	3	2	2	2	1	2	2	2	2	3	3	2
CO3	3	3	3	3	3	2	2	1	3	2	2	2	3	3	3
CO4	2	2	2	2	2	2	1	2	3	3	3	2	2	2	2
CO5	2	2	1	2	2	1	-	2	2	3	2	2	2	2	2
Avg	3	3	2	2	2	2	2	2	2	2	2	2	3	3	2

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
IV/VII	23EEL72	SUMMER INTERNSHIP	**CO1:** Apply the theoretical knowledge gained to solve practical problems in an industrial environment	K3
			CO2: Understand the working culture, processes and safety practices of the industry	K2
			CO3: Analyse the industrial problems and use modern tools and techniques	K4
			CO4: Work as an individual and as a team member with professional ethics	K3
			CO5: Prepare a report and present the internship experience effectively	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	2	-	-	2	2	2	2	3	2	2
CO2	2	1	1	1	2	3	2	2	2	2	1	2	2	2	2
CO3	3	3	2	3	3	2	1	-	2	2	2	2	3	3	2
CO4	2	2	1	1	1	2	2	3	3	3	2	2	2	2	2
CO5	1	1	1	1	1	1	-	2	2	3	2	3	2	2	2
Avg	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2

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B.E EEE COURSE OUTCOMES (CO)

At the end of the course, students will be able to:

YR/SEM	COURSE CODE	COURSE NAME	COURSE OUTCOMES (CO)	KNOWLEDGE LEVEL
IV/VIII	23EEL81	PROJECT WORK	**CO1:** Identify and formulate a real-world engineering problem through a detailed literature survey	K3
			CO2: Design a solution to the problem by considering societal, safety and environmental aspects	K4
			CO3: Implement and validate the solution using modern engineering tools	K5
			CO4: Analyse and interpret the results, and draw valid conclusions	K4
			CO5: Prepare the project report, present the work effectively and function as a team	K3

CO – PO & PSO MAPPING

CO/ PO /PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	2	2	2	2	2	2	3	3	3	3
CO2	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3
CO3	3	3	3	3	3	2	2	2	3	2	3	3	3	3	3
CO4	3	3	3	3	3	2	2	2	2	2	2	3	3	3	3
CO5	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2
Avg	3	3	3	3	3	2	2	2	2	2	3	3	3	3	3