SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Basic Electronics		
Course Code	ECL0101[T]		
Course Outcomes & Bloom's Level	**CO1-** To become familiar with various types of semiconductors and basic electronic devices.**(BL1-Remember)** **CO2-** To understand the operation of various electronic devices.**(BL2-Understand)** **CO3-** To implement the concepts of semiconductors to various semiconductor devices.**(BL3-Apply)** **CO4-** To analyze the various electronic devices and their frequency response.**(BL4-Analyze)** **CO5-** To evaluate the performance of electronic devices such as diodes, transistors, function generators, and cathode ray oscilloscopes.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	-	-	1	1	-	-	-	-	1
CO2	1	1	1	1	1	1	-	-	1	1	-	-	2	2	2
CO3	1	1	1	1	1	-	-	-	-	1	-	-	2	3	2
CO4	1	1	1	1	1	-	-	-	1	1	-	-	3	3	2
CO5	1	1	1	1	1	-	-	-	1	1	-	-	2	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Introduction of Electric Vehicle Technology		
Course Code	EEL0132		
Course Outcomes & Bloom's Level	**CO1-** Identify EV concepts and parameters for better understanding of the EV technology**(BL1-Remember)** **CO2-** Analyze the EV Propulsion system for vehicular applications for their control. **(BL2-Understand)** **CO3-** Identify different energy sources used in EV.**(BL3-Apply)** **CO4-** Identify concepts of renewable energy sources**(BL4-Analyze)** **CO5-** Identify various alternative energy sources of energy.**(BL2-Understand)**		
Course Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	1	-	-	-	-	1	-	-	1	-	1	-	-
CO2	-	1	-	1	-	1	1	-	2	-	-	-	-	-	1
CO3	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
CO4	-	1	-	-	-	-	2	-	-	-	-	-	-	1	-
CO5	2	-	1	-	-	-	-	-	1	1	-	-	-	-	-
CO6	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Communication Skills & Colloquim		
Course Code	HUL0101[T]		
Course Outcomes & Bloom's Level	**CO1-** Comprehend and summarize characteristics & various structural principles prerequisite to Technical Communication **()** **CO2-** Classify and formulate the elementary intricacies of Scientific and Technical Writing using applicative grammar construct.□**(BL3-Apply)** **CO3-** Create cohesive technical paragraphs & text**(BL3-Apply)** **CO4-** Paraphrase text(s) and use appropriate referencing styles**(BL3-Apply)** **CO5-** Design and present/publish technical documents**()**		
Course Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG4(Quality education) SDG5(Gender equality) SDG10(Reduced inequalities)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	2	1	2	2	2	-	-	-	2	-	-	1	-	3
CO3	2	1	1	-	1	-	-	-	-	2	-	-	3	2	3
CO4	3	2	-	2	1	-	-	-	-	2	-	-	2	3	3
CO5	3	2	-	2	1	-	-	-	-	2	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Calculus For Engineers		
Course Code	MAL0101[T]		
Course Outcomes & Bloom's Level	**CO1-** Knowledge about the derivative and use of derivative to expand the functions and evaluation of Maxima and Minima.**(BL1-Remember)** **CO2-** Knowledge about the vector valued function directional derivative, gradient, divergence and curl with their properties**(BL2-Understand)** **CO3-** Applying: Partial derivatives and its applications apply to evaluate the Maxima and Minima.**(BL3-Apply)** **CO4-** Find the area under a given curve, length of an arc through integration as application to Beta and Gamma Function.**(BL4-Analyze)** **CO5-** Evaluating: Find the area and volume by applying the techniques of double and triple integrals., **(BL5-Evaluate)** **CO6-** Applications of vector valued function in integration to find line , surface and volume.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	2	2	-	-	-	-	-	-	-	-	2	3
CO2	2	3	1	2	2	-	-	-	-	-	-	-	-	2	3
CO3	2	2	1	1	1	-	-	-	-	-	-	-	-	1	3
CO4	1	2	-	-	-	-	-	-	-	-	-	-	-	1	2
CO5	-	2	-	-	-	-	-	-	-	-	-	-	-	1	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Engineering Mechanics	
Course Code	MEL0101[T]	
Course Outcomes & Bloom's Level	**CO1-** Remember the basics of sciences in effects of system of forces on rigid bodies in static and kinetic conditions**(BL1-Remember)** **CO2-** Understand the basics of sciences in effects of system of forces on rigid bodies in static and kinetic conditions.**(BL2-Understand)** **CO3-** Apply system of forces in the belts drive systems as power transmission devices, shafts and beams.**(BL3-Apply)** **CO4-** Analyze the beams and trusses with centre of mass and moment of inertia.**(BL4-Analyze)** **CO5-** Evaluate shear force and bending moment in designing of shafts and beams and trusses.**(BL5-Evaluate)**	
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	1	-	-	1	1	1	1	1	1
CO2	3	3	1	1	-	1	3	-	1	1	1	2	1	1	1
CO3	3	3	3	2	2	2	1	2	1	-	1	2	1	1	1
CO4	3	3	2	3	2	2	1	-	1	1	2	2	2	2	2
CO5	3	3	3	3	2	2	2	2	2	3	3	3	3	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Basic Electronics		
Course Code	ECL0101[P]		
Course Outcomes & Bloom's Level	**CO1-** To become familiar with various types of semiconductors and basic electronic devices.**(BL1-Remember)** **CO2-** To understand the operation of various electronic devices.**(BL2-Understand)** **CO3-** To implement the concepts of semiconductors to various semiconductor devices.**(BL3-Apply)** **CO4-** To analyze the various electronic devices and their frequency response.**(BL4-Analyze)** **CO5-** To evaluate the performance of electronic devices such as diodes, transistors, function generators, and cathode ray oscilloscopes.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	-	-	-	1	1	-	2	2	1
CO2	1	2	1	1	1	1	-	-	-	1	-	-	2	2	2
CO3	1	1	1	1	-	-	-	-	-	-	1	-	2	3	2
CO4	1	1	1	1	1	-	-	-	-	-	1	-	3	3	2
CO5	1	1	-	1	-	-	-	-	-	1	1	-	2	3	2
CO6	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical workshop practice	
Course Code	EEP0101	
Course Outcomes & Bloom's Level		
Course Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	-	1	-	-	1	-	-	-	1	-	-	-	-	-	1
CO3	-	-	21	-	-	-	-	-	-	2	-	2	-	-	-
CO4	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Communication Skills & Colloquim		
Course Code	HUL0101[P]		
Course Outcomes & Bloom's Level	**CO1-** Determine interpersonal skills and be an effective goal-oriented team player. **(BL1-Remember)** **CO2-** Classify and formulate the elementary intricacies of Scientific and Technical Writing using applicative grammar construct. **(BL2-Understand)** **CO3-** Examine attitudes, emotional intelligence and understand its influence on behavior.**(BL3-Apply)** **CO4-** Justify approaches to conflict resolution**(BL4-Analyze)** **CO5-** Evaluate Formal Communication.**(BL5-Evaluate)**		
Course Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	2	1	2	2	2	-	-	-	2	-	-	1	-	3
CO3	2	1	1	-	1	-	-	-	-	2	-	-	3	2	3
CO4	3	2	-	2	1	-	-	-	-	2	-	-	2	3	3
CO5	3	2	-	2	1	-	-	-	-	2	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Calculus For Engineers		
Course Code	MAL0101[P]		
Course Outcomes & Bloom's Level	**CO1-** Knowledge about the derivative and use of derivative to expand the functions and evaluation of Maxima and Minima.**(BL1-Remember)** **CO2-** Knowledge about the vector valued function directional derivative, gradient, divergence and curl with their properties**(BL2-Understand)** **CO3-** Applying: Partial derivatives and its applications apply to evaluate the Maxima and Minima.**(BL3-Apply)** **CO4-** Find the area under a given curve, length of an arc through integration as application to Beta and Gamma Function.**(BL4-Analyze)** **CO5-** Evaluating: Find the area and volume by applying the techniques of double and triple integrals., **(BL5-Evaluate)** **CO6-** Applications of vector valued function in integration to find line , surface and volume.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	2	2	-	-	-	-	-	-	-	-	2	3
CO2	2	3	1	2	2	-	-	-	-	-	-	-	-	2	3
CO3	2	2	1	1	1	-	-	-	-	-	-	-	-	1	3
CO4	1	2	-	-	-	-	-	-	-	-	-	-	-	1	2
CO5	-	2	-	-	-	-	-	-	-	-	-	-	-	1	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Engineering Mechanics		
Course Code	MEL0101[P]		
Course Outcomes & Bloom's Level	**CO1-** CO1 Remember the basics of sciences in effects of system of forces on rigid bodies in static and kinetic conditions**(BL1-Remember)** **CO2-** CO2 Understand the basics of sciences in effects of system of forces on rigid bodies in static and kinetic conditions.**(BL2-Understand)** **CO3-** CO3 Apply system of forces in the belts drive systems as power transmission devices, shafts and beams.**(BL3-Apply)** **CO4-** CO4 Analyze the beams and trusses with centre of mass and moment of inertia. **(BL4-Analyze)** **CO5-** CO5 Evaluate shear force and bending moment in designing of shafts and beams and trusses.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	1	-	-	1	1	1	1	1	1
CO2	3	3	1	1	-	1	3	-	1	1	1	2	1	1	1
CO3	3	3	3	2	2	2	1	2	1	-	1	2	1	1	1
CO4	3	3	2	3	2	2	1	-	1	1	2	2	2	2	2
CO5	3	3	3	3	2	2	2	2	2	3	3	3	3	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Essentials of Information Technology		
Course Code	CSL0201		
Course Outcomes & Bloom's Level	**CO1-** Understand the basics of Computer systems like types, I/O devices, storage of computer systems (Knowledge, Understand)**(BL1-Remember)** **CO2-** Apply the various networking concepts, topologies and remove deadlocks. (Apply).**(BL2-Understand)** **CO3-** Explain various memory management techniques and Analyze the concept of Sub-programs and blocks (Analysis)**(BL3-Apply)** **CO4-** Design the concept of software, operating system for better utilization of external system (Design)**(BL4-Analyze)** **CO5-** Evaluating the various algorithm, its solution and other communication techniques. (Investigation).**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	-	-	-	-	-	-	-	-	1	1	2
CO2	1	2	-	-	-	-	-	-	-	-	-	-	3	3	2
CO3	-	-	1	-	-	-	-	-	-	-	-	-	3	2	2
CO4	-	-	-	2	-	-	-	-	-	-	-	-	2	2	2
CO5	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Principles of Electrical Engineering	
Course Code	EEL0201	
Course Outcomes & Bloom's Level	**CO1-** Predict the behavior of any electrical circuits, Formulate and solve complex DC circuits.**(BL1-Remember)** **CO2-** Predict the behavior of any electrical circuits, Formulate and solve complex single phase AC circuits.**(BL2-Understand)** **CO3-** Predict the behavior of any electrical circuits, Formulate and solve complex Three phase AC circuits.**(BL3-Apply)** **CO4-** Identify the type of electrical machine used for that particular application. Realize the requirement of transformers in transmission and distribution of electric power and other applications.**(BL4-Analyze)** **CO5-** Predict the behavior of various measuring instruments in electrical engineering**(BL5-Evaluate)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	2	1	1	-	-	-	-	-	1	1	1	1	2
CO2	1	1	2	1	1	1	-	1	-	-	1	1	2	3	1
CO3	2	1	2	1	2	-	1	-	-	-	1	1	1	2	2
CO4	1	1	1	2	1	-	-	-	-	-	1	1	3	1	3
CO5	1	1	1	2	1	-	-	-	-	-	1	-	2	2	1
CO6	1	1	1	1	1	-	-	-	-	-	1	1	1	3	2

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Architecture of Electric Vehicle and solar Panels		
Course Code	EEL0233		
Course Outcomes & Bloom's Level	**CO1-** Identify various types of EV's and their characteristics**(BL1-Remember)** **CO2-** Describe battery basics and their types in EV and HEV.**(BL2-Understand)** **CO3-** Identify various types of electrical machines used in EV installation.**(BL3-Apply)** **CO4-** Describe Solar panel design and integration. **(BL4-Analyze)** **CO5-** Identify installation and commissioning of solar panel.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✓	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	1	-	1	-	-	1	-	-	-	-	1	-
CO2	-	-	1	-	-	-	1	-	-	1	-	2	-	-	-
CO3	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	1	-	2	-	2	-	-	-	-	-	-	1
CO5	-	-	2	-	-	-	-	-	-	-	1	-	1	-	-
CO6	2	-	-	-	1	-	-	-	3	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Statistics For Engineers		
Course Code	MAL0203		
Course Outcomes & Bloom's Level	**CO1-** To remember basic concept of about the design data collection plans and basic tools of descriptive statistics.**(BL1-Remember)** **CO2-** To understand the identify relationship between two variables using scatter plot and Interpret a simple correlation. To understand the Knowledge about the different types of continuous distribution with their properties and applications.**(BL2-Understand)** **CO3-** To apply the test and make hypothesis by Student's t-test, F-test, chi-square test, Z test, goodness of fit.**(BL3-Apply)** **CO4-** To analyze the concept of sampling distribution of a statistic and its properties, difference between parameter and statistic.**(BL4-Analyze)** **CO5-** To evaluate and describe the properties of unbiasedness. Also identifying and provide an application the null hypothesis, alternative hypothesis and test statistic. **(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	1	-	-	-	-	1	-	1
CO2	3	3	1	3	3	2	-	1	-	1	-	-	2	-	2
CO3	3	2	-	1	3	-	-	-	-	-	-	-	1	3	2
CO4	3	2	-	2	-	-	-	-	-	-	-	-	-	3	1
CO5	2	2	-	1	-	-	-	-	-	-	-	-	-	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Environmental Pollution and global issues		
Course Code	MCL0201		
Course Outcomes & Bloom's Level	**CO1-** CO1. Develop environmental scientists and engineers and sensitize them towards environmental issues.**(BL2-Understand)** **CO2-** CO2. To acquire analytical skills in assessing environmental impacts through a multidisciplinary approach**(BL3-Apply)** **CO3-** CO3. Ability to distinguish between various methods of various pollution analysis**(BL4-Analyze)** **CO4-** CO4.Acquire expertise and skills needed for the Environmental Management Systems and techniques of monitoring, Environment audit, Environmental Impact Analysis, environment instrumentation and control systems and for the projects development, implementation, and maintenance.**(BL5-Evaluate)** **CO5-** CO5. Students acquire skills for to communicate, prepare, plan and implement the environmental management project**(BL6-Create)**		
Course Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✓ Environment ✓	**SDG (Goals)**	SDG2(Zero hunger) SDG3(Good health and well-being) SDG5(Gender equality) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG10(Reduced inequalities) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production) SDG13(Climate action) SDG14(Life below water) SDG15(Life on land) SDG16(Peace Justice and strong institutions) SDG17(Partnerships for the goals)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	1	2	1	2	2	2	-	-	-	2	-	-	1	-	3
CO3	2	1	1	-	1	-	-	-	-	-	-	-	3	2	3
CO4	2	2	-	2	1	-	-	-	-	-	-	-	2	3	3
CO5	2	2	-	2	1	-	-	-	-	-	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Making of modern India		
Course Code	MCL0202		
Course Outcomes & Bloom's Level	**CO1-** At the end of this course, students would be intellectually well equipped to have a sense of modern Indian history and culture.**(BL1-Remember)** **CO2-** The students will have an understanding of making of India as a nation and salient features of modern India**(BL2-Understand)** **CO3-** It will help students to develop their personality and thinking horizon for being a good and concerned Indian citizen**(BL3-Apply)**		
Course Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✓ Environment ✕	**SDG (Goals)**	SDG4(Quality education) SDG5(Gender equality) SDG15(Life on land)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	1	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	-	-	1	-	-	1	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Engineering Graphics	
Course Code	MEL0202	
Course Outcomes & Bloom's Level	**CO1-** To get the fundamentals of engineering graphics, geometrical construction and its applications.**(BL1-Remember)** **CO2-** To understand the basic concept of engineering graphics through real-life examples. **(BL2-Understand)** **CO3-** To implement the different engineering graphics concepts over appropriate drawing dataset. **(BL3-Apply)** **CO4-** To analyze the drawing performance of engineering graphics techniques.**(BL4-Analyze)** **CO5-** To evaluate the drawing performance of engineering graphics techniques on a corresponding object.**(BL5-Evaluate)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	-	3	3	-	-	3	-	2
CO2	2	-	2	2	1	2	-	-	3	3	-	-	3	2	2
CO3	-	-	2	1	1	-	-	-	2	1	-	-	3	2	2
CO4	-	1	2	3	1	-	-	-	-	-	-	-	3	-	2
CO5	-	1	1	2	1	-	-	-	-	-	-	-	3	-	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Programming Logics		
Course Code	CST0201		
Course Outcomes & Bloom's Level	**CO1-** Remember: Recall the syntax and basic concepts of C programming.**(BL1-Remember)** **CO2-** Understand: Explain the meaning of C programming constructs and how they work together**(BL2-Understand)** **CO3-** Apply : Apply the various conditional and looping statement and functional programming.**(BL3-Apply)** **CO4-** Analyzing: Analyze and evaluate C programming code to identify errors and optimize performance.**(BL4-Analyze)** **CO5-** Evaluate : Evaluate the effectiveness of C programming solutions and propose improvements.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	2	-	-	-	-	-	-	-	2	3	1
CO2	1	2	1	2	2	1	-	-	-	-	-	-	1	-	3
CO3	2	-	1	-	-	2	-	-	-	-	-	-	3	2	2
CO4	2	1	-	2	1	-	-	-	-	-	-	-	3	3	2
CO5	2	2	-	2	1	-	-	-	-	-	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Circuit Theory and Networks	
Course Code	EEL0302	
Course Outcomes & Bloom's Level	**CO1-** • To introduce different circuit elements and theorems**(BL1-Remember)** **CO2-** • To find out different circuit parameters**(BL3-Apply)** **CO3-** • Implement theorems and logic in analysis of circuits**(BL3-Apply)** **CO4-** • Familiarize with steady state and transient analysis**(BL2-Understand)** **CO5-** Circuit implementation or design.**(BL3-Apply)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	1	-	-	-	1	1	2	2	3
CO2	1	1	1	1	1	1	-	-	-	-	1	-	3	3	2
CO3	1	1	1	1	1	1	-	-	-	-	1	1	3	2	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	3	3
CO5	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical & Electronic Materials	
Course Code	EEL0304	
Course Outcomes & Bloom's Level	**CO1-** to understand different conducting materials**(BL2-Understand)** **CO2-** to understand different semiconducting materials**(BL2-Understand)** **CO3-** to understand different magnetic materials**(BL2-Understand)** **CO4-** to understand different insulating materials**(BL2-Understand)** **CO5-** to classify different materials**(BL3-Apply)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Energy Storage Systems for electric vehicles		
Course Code	EEL0334		
Course Outcomes & Bloom's Level	**CO1-** Understand the basic history of electric vehicles.**(BL1-Remember)** **CO2-** Discuss the various energy storage systems**(BL2-Understand)** **CO3-** Analyze the battery characteristics & parameters**(BL3-Apply)** **CO4-** Enlighten the battery management system**(BL5-Evaluate)** **CO5-** Apply the knowledge battery testing, disposal & recycling to avoid environmental pollution for the betterment of society**(BL3-Apply)**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	1	-	-	1	1	-	-	-	1	-	1	-
CO2	-	1	-	-	1	-	-	-	1	1	-	-	-	-	-
CO3	2	-	1	-	-	1	-	-	-	-	-	-	-	-	1
CO4	-	-	-	2	-	-	1	-	2	-	-	-	1	-	-
CO5	-	-	-	-	1	-	-	2	-	-	2	-	-	-	-
CO6	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Digital Electronics and Logic Design	
Course Code	EEL0340	
Course Outcomes & Bloom's Level	**CO1-** to introduces number systems and code systems. **(BL2-Understand)** **CO2-** To explains about Boolean operations and different logic gates**(BL2-Understand)** **CO3-** to understand and explains about the concept of data processing circuits like encoder, decoder, multiplexer and demultiplexer**(BL3-Apply)** **CO4-** to understand about the types of latches and flip-flops**(BL2-Understand)** **CO5-** to design different electronics circuits**(BL3-Apply)**	
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Engineering Mathematics		
Course Code	MAL0306		
Course Outcomes & Bloom's Level			
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	-	-	1	2	2	2	-	-	-	2	-	-	1	-	3
CO3	-	-	1	-	1	-	-	-	-	-	-	-	3	2	3
CO4	-	-	-	2	1	-	-	-	-	-	-	-	2	3	3
CO5	-	-	-	2	1	-	-	-	-	-	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Object Oriented Programming by Java		
Course Code	CSP0303		
Course Outcomes & Bloom's Level	**CO1-** To remember the basic principles of the object-oriented programming **(BL1-Remember)** **CO2-** Understand the basic concept of the object-oriented programming **(BL2-Understand)** **CO3-** Apply the logic of oops in java **(BL3-Apply)** **CO4-** Able to Analyze inheritance and abstraction **(BL4-Analyze)** **CO5-** Demonstrate an introductory understanding of graphical user interfaces, multithreaded programming, and event-driven programming**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	2	2	-	-	-	-	-	-	2	2	2
CO2	1	1	-	2	2	2	-	-	-	-	-	-	2	2	3
CO3	2	1	1	-	1	-	-	-	-	-	-	-	2	3	2
CO4	2	1	1	2	1	-	-	-	-	-	-	-	3	2	3
CO5	1	-	-	2	1	-	-	-	-	-	-	-	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Industrial Training-I		
Course Code	EET0302		
Course Outcomes & Bloom's Level	**CO1-** Engage in industry initiatives during their industrial training.**(BL2-Understand)** **CO2-** Discuss the utilization of sophisticated tools and methodologies encountered during industrial training and visits.**(BL4-Analyze)** **CO3-** Engage with industrial personnel and adhere to engineering procedures and discipline mandated by the industry.**(BL5-Evaluate)** **CO4-** Enhance knowledge of overall workplace conduct and cultivate interpersonal and team competencies.**(BL2-Understand)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG4(Quality education) SDG5(Gender equality) SDG7(Affordable and clean energy) SDG10(Reduced inequalities) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO3	1	1	1	1	1	1	-	-	-	-	1	1	2	3	3
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	3	3
CO5	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Analog & Digital Communication	
Course Code	ECL0427	
Course Outcomes & Bloom's Level	**CO1-** comprehensive knowledge of analog and digital communication;**(BL1-Remember)** **CO2-** understand the modulation and demodulation technologies and apply whenever essential.**(BL2-Understand)** **CO3-** have a practical experience of different communication technologies and can identify and analyze**(BL3-Apply)** **CO4-** practical experience of communication methods and evaluate different process.**(BL5-Evaluate)** **CO5-** develop different project based works and fond solutions**(BL3-Apply)**	
Course Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Machines-I	
Course Code	EEL0405	
Course Outcomes & Bloom's Level	**CO1-** Predict the behavior of single phase transformer**(BL1-Remember)** **CO2-** Predict the behavior of three phase transformer**(BL2-Understand)** **CO3-** Predict the behavior of electro mechenical energy conversion**(BL3-Apply)** **CO4-** Predict the behavior of DC machine**(BL4-Analyze)** **CO5-** Predict the behavior of DC motor**(BL5-Evaluate)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	-	1	-	-	1	1	2	3	2
CO2	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO3	1	1	-	1	1	1	-	-	-	-	1	1	3	2	3
CO4	1	1	1	-	1	1	-	-	-	-	1	1	2	2	3
CO5	1	1	1	1	1	1	1	-	-	-	-	1	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Instrumentation		
Course Code	EEL0430		
Course Outcomes & Bloom's Level	**CO1-** Classify the standard devices and galvanometers for the measurement of voltage and current.**(BL1-Remember)** **CO2-** Construct the watt-meter and energy meter to measure power and energy.**(BL2-Understand)** **CO3-** Construct instrumentation transformer to measure high values of current and voltage.**(BL3-Apply)** **CO4-** Analyze the bridges for the measurement of low, medium and high resistance.**(BL4-Analyze)** **CO5-** Analyze the bridges for the measurement of inductance and capacitance measurement;**(BL5-Evaluate)** **CO6-** Construct the potentiometers to measure AC and DC values of unknown voltage**(BL6-Create)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG8(Decent work and economic growth)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	1	-	1	-	1	1	1	2	2
CO2	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO3	1	-	1	1	-	1	1	-	-	1	1	-	3	3	2
CO4	1	1	1	1	1	1	1	-	-	-	1	1	2	2	3
CO5	1	1	1	1	1	1	1	-	-	-	1	1	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electric and Hybrid Vehicles		
Course Code	EEL0435		
Course Outcomes & Bloom's Level	**CO1-** Choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources**(BL1-Remember)** **CO2-** Design and develop basic schemes of electric vehicles and hybrid electric vehicles**(BL2-Understand)** **CO3-** Choose proper energy storage systems for vehicle application**(BL3-Apply)** **CO4-** Identify various communication protocols and technologies used in vehicle networks**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	1	-	2	-	1	-	1	1	1	-	1	-	-
CO2	-	-	1	1	-	1	-	-	2	-	-	-	-	-	1
CO3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	1	-	-	-	1	-	-	-	1	-	1	-
CO5	-	-	-	-	-	1	-	-	-	1	-	1	-	-	-
CO6	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power Generation Transmission and Distribution		
Course Code	EEL0441		
Course Outcomes & Bloom's Level	**CO1-** understand the scenario and structure of power system**(BL1-Remember)** **CO2-** set up the substation and its maintenance, power station maintenance **(BL2-Understand)** **CO3-** the load flow, volume calculation of conductor and the components required in power system**(BL3-Apply)** **CO4-** can evaluate the power generation value, transmission and distribution system capacity**(BL4-Analyze)** **CO5-** create a business continuity plan**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG8(Decent work and economic growth)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	1	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	1	-	-	-	-	1	1	2	3	3
CO3	1	-	1	1	-	1	-	-	-	-	1	1	2	3	2
CO4	1	1	1	1	1	1	-	-	-	-	-	1	2	3	3
CO5	1	1	-	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Computer Programming (PYTHON)		
Course Code	CSP0405		
Course Outcomes & Bloom's Level	**CO1-** Remember the syntax and semantics of Python Programming Language**(BL1-Remember)** **CO2-** Understand the Basic concept of Python Programming **(BL2-Understand)** **CO3-** Apply the concept of Python in ML **(BL3-Apply)** **CO4-** Analysis the use of built-in functions to navigate the file system**(BL4-Analyze)** **CO5-** Implement and evaluate the Python code in project **(BL5-Evaluate)** **CO6-** Appraise the need for working on web scraping **(BL6-Create)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	1	2	1	2	2	2	-	-	-	2	-	-	1	-	3
CO3	2	2	1	-	1	-	-	-	-	-	-	-	3	2	3
CO4	2	2	-	3	1	-	-	-	-	-	-	-	3	3	3
CO5	2	2	-	2	1	-	-	-	-	-	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Machines-I	
Course Code	EEL0405	
Course Outcomes & Bloom's Level		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Instrumentation	
Course Code	EEL0430	
Course Outcomes & Bloom's Level		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Machine-II	
Course Code	EEL 0507	
Course Outcomes & Bloom's Level	**CO1-** To remember various aspects of Electrical Machines.**(BL1-Remember)** **CO2-** To understand Static and rotating machines.**(BL2-Understand)** **CO3-** To implement Flow charts and practice set to understand the subject.**(BL3-Apply)** **CO4-** To analyze the different numeric problems for well understand subjects problems.**(BL4-Analyze)** **CO5-** To evaluate and summarize the data using statistical & visualization tools.**(BL5-Evaluate)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO2	1	1	-	1	1	1	-	-	-	-	1	1	3	2	2
CO3	1	-	1	-	1	-	-	-	-	-	1	1	3	2	3
CO4	1	1	1	1	1	1	-	-	-	-	1	-	3	3	3
CO5	1	1	1	1	1	1	-	-	-	-	-	1	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power System Stability		
Course Code	EEL 0542		
Course Outcomes & Bloom's Level	**CO1-** Able to get the basic know symmetrical components**(BL1-Remember)** **CO2-** Able to understand different type of symmetrical and asymmetrical faults happened in power system**(BL2-Understand)** **CO3-** Able to understand stability of power system**(BL3-Apply)** **CO4-** Able to understand swing equations and equal area criterions**(BL4-Analyze)** **CO5-** Able to understand basics on power system protection system**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG8(Decent work and economic growth) SDG10(Reduced inequalities) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	-	-	-	1	-	1	1	2	1	2
CO2	1	-	1	1	1	-	1	-	-	-	-	-	3	3	2
CO3	1	1	1	1	-	1	1	-	-	-	1	1	2	2	3
CO4	1	1	1	1	-	1	-	1	-	-	1	-	2	3	3
CO5	1	1	1	1	1	-	-	-	-	-	1	1	3	2	2
CO6	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Microprocessors & Interfacing	
Course Code	EEL0509	
Course Outcomes & Bloom's Level	**CO1-** to understand the 8085 PROCESSOR and its architecture**(BL2-Understand)** **CO2-** to understand the 8086 MICROPROCESSOR and its ARCHITECTURE **(BL2-Understand)** **CO3-** to understand the INSTRUCTION SET OF 8086**(BL2-Understand)** **CO4-** to understand INTERFACING DEVICEs**(BL2-Understand)** **CO5-** to understand different INTERFACING AND APPLICATION OF 8085 MICROPROCESSOR **(BL3-Apply)**	
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electromagnetic Field Theory	
Course Code	EEL0510	
Course Outcomes & Bloom's Level	**CO1-** Understand the basics of Understand electric and magnetic fields and apply the principles of Coulomb's Law and Gauss's law to electric fields in various coordinate systems**(BL1-Remember)** **CO2-** Identify the electrostatic boundary-value problems by application of Poisson's and Laplace's equations**(BL2-Understand)** **CO3-** Understand the depth of static and time-varying electromagnetic field as governed by Maxwell's equations.**(BL3-Apply)** **CO4-** Formulate and analysis problems involving lossy media with planar boundaries using uniform plane waves.**(BL4-Analyze)** **CO5-** Apply concepts of this subject in Antenna Engineering and its applications**(BL3-Apply)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	1	-	-	-	1	1	1	2	1
CO2	1	1	1	1	1	-	-	-	-	-	-	1	2	3	1
CO3	1	1	1	1	-	1	-	-	-	-	1	-	2	2	1
CO4	1	1	1	1	-	1	-	-	-	-	1	1	2	2	2
CO5	1	1	1	1	1	1	-	-	-	-	1	-	2	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electric Vehicles Control		
Course Code	EEL0536		
Course Outcomes & Bloom's Level	**CO1-** To study about the motor & device characteristics & parameters.**(BL1-Remember)** **CO2-** To know the various electric drive concepts**(BL2-Understand)** **CO3-** To have a knowledge of DC drive mechanism.**(BL3-Apply)** **CO4-** To have a knowledge of AC drive mechanism.**(BL4-Analyze)** **CO5-** To understand about drives for special electrical machines**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	1	-	1	-	1	-	-	1	-	-	-	-
CO2	-	2	-	-	1	-	1	-	1	-	-	1	-	1	-
CO3	-	1	2	-	-	-	-	-	-	1	-	-	2	-	-
CO4	-	-	-	2	-	2	-	2	-	-	-	2	-	-	-
CO5	2	-	1	-	2	-	1	-	2	-	1	-	-	-	1
CO6	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Machine-II	
Course Code	EEL 0507	
Course Outcomes & Bloom's Level		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Engineering Simulation Lab I	
Course Code	EEP 0502	
Course Outcomes & Bloom's Level		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1-	-	1	1	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO3	1	1	1	1	1	1	-	-	-	-	1	1	3	3	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	2	2	3
CO5	1	1	-	1	1	1	-	-	-	-	1	1	2	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Industrial Training-II		
Course Code	EET0503		
Course Outcomes & Bloom's Level	**CO1-** The industrial training program aims to equip students and potential employees with practical skills necessary for effectively functioning in an office setting. The main objective of industrial training is to acquire new skills. Students engage in a streamlined learning experience as they go through meticulously crafted modules. The program is designed to provide you with practical experience in the sector, which will enhance your self-assurance and enhance your ability to communicate effectively. Students are given the chance to engage in thorough research and gain expertise in the technology of their preference. Students get practical knowledge of technology's real-world applications through hands-on instruction on live projects. Students acquire knowledge about the latest methodologies and market dynamics through training, which also enables them to stay up-to-date and succeed in interviews. Students get the opportunity to develop robust social profiles and network with prominent figures in the business. It is very beneficial for those who are seeking available opportunities.**(BL4-Analyze)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG7(Affordable and clean energy)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	-	-	-	-	-	1	1	3	2	2
CO2	1	1	1	-	1	1	-	-	-	-	1	1	3	3	2
CO3	1	1	1	1	1	1	-	-	-	-	-	1	2	3	2
CO4	1	1	-	1	1	1	-	-	-	-	1	1	2	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Linear Control Systems		
Course Code	EEL 0612		
Course Outcomes & Bloom's Level	**CO1-** Understand the transfer function model for Physical systems**(BL1-Remember)** **CO2-** Illustrate adequate knowledge in the time response of systems and steady state error analysis..**(BL2-Understand)** **CO3-** Examine the frequency-domain response of closed loop system.**(BL3-Apply)** **CO4-** Build a compensator system satisfying requirements. **(BL4-Analyze)** **CO5-** Analyze the stability of linear systems**(BL5-Evaluate)** **CO6-** Develop state models for linear time invariant system.**(BL6-Create)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	1	-	1	1	-	-	-	1	-	-	1	-	-
CO2	-	-	1	-	1	-	-	1	-	-	-	-	-	-	1
CO3	1	-	-	1	-	1	-	-	-	-	-	-	-	1	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	1	1	1	-	1	1	-	-	-	-	-	-	-	-	-
CO6	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power System Protection	
Course Code	EEL 0643	
Course Outcomes & Bloom's Level	**CO1-** To remember various terms and components of power system protection system**(BL1-Remember)** **CO2-** To understand the different components of power system protection and protection procedure of different high cost equipments in the system**(BL2-Understand)** **CO3-** set up the protection system transformer, generator, transmission line and other devices**(BL3-Apply)** **CO4-** To analyze the required components for a particular protection requirement**(BL4-Analyze)** **CO5-** To evaluate the fault and tripping of circuit in the fault case**(BL5-Evaluate)** **CO6-** To create a business continuity plan**(BL6-Create)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	1	1	1	1	-	-	-	-	1	1	2	2	3
CO2	1	1	1	1	1	1	-	-	-	-	1	1	2	3	3
CO3	1	1	1	-	1	1	-	-	-	-	1	1	3	2	2
CO4	1	1	1	1	1	-	1	-	-	-	1	-	2	3	2
CO5	1	1	1	1	1	1	-	-	-	-	1	1	3	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power Electronics		
Course Code	EEL0614		
Course Outcomes & Bloom's Level	**CO1-** Relate basic semiconductor physics to properties of power devices, and combine circuit mathematics and characteristics of linear and non-linear devices**(BL1-Remember)** **CO2-** Design and Analyze power converter circuits and learn to select suitable power electronic devices by assessing the requirements of application fields.**(BL2-Understand)** **CO3-** Formulate and analyze a power electronic design at the system level and assess the performance.**(BL4-Analyze)** **CO4-** Acquire knowledge about different AC voltage controllers and their control.**(BL5-Evaluate)** **CO5-** Study the basics of Cyclo converters. **(BL4-Analyze)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG8(Decent work and economic growth)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	-	3	-	-	2	-	-	1	2	1
CO2	1	1	2	2	1	1	-	-	1	-	-	-	2	1	2
CO3	2	2	3	1	1	-	2	-	-	-	-	-	2	1	3
CO4	1	2	1	2	1	-	-	3	-	-	1	-	1	1	1
CO5	2	1	1	2	2	-	-	-	-	-	-	2	1	2	1
CO6	1	1	2	1	2	-	-	-	-	-	-	-	2	3	1

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Vehicle Dynamics	
Course Code	EEL0637	
Course Outcomes & Bloom's Level	**CO1-** Understand the behavior of vehicle systems and subsystems, tires, drive train, gear boxes **(BL2-Understand)** **CO2-** Use analysis and techniques learned in solid modeling and basic dynamics to develop computer models of linkages and complete working assemblies in two and three dimensions.**(BL3-Apply)** **CO3-** Understand vehicle dynamics for use in design and performance of ground vehicles**(BL2-Understand)** **CO4-** Transform solid models into dynamic models of vehicles for analysis of kinematics, (velocities and accelerations), kinetics (forces and moments).**(BL3-Apply)** **CO5-** Vehicle parts and assemblies under impulsive impact forces and collisions. Simulations using dynamic Finite Element Analysis under dynamic loads**(BL2-Understand)**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Mini Project		
Course Code	EED 0603		
Course Outcomes & Bloom's Level	**CO1-** Examine and cultivate a cognitive approach for delivering a presentation.**(BL2-Understand)** **CO2-** Enhance his linguistic and communicative abilities. **(BL3-Apply)** **CO3-** romote collaboration by cultivating an understanding of alternative perspectives. **(BL4-Analyze)** **CO4-** Stay updated on the most recent advancements in electrical engineering.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Linear Control Systems	
Course Code	EEL 0612	
Course Outcomes & Bloom's Level		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power System Protection		
Course Code	EEL 0643		
Course Outcomes & Bloom's Level	**CO1-** understand the scenario and structure of power system**(BL1-Remember)** **CO2-** set up the substation and its maintenance, power station maintenance **(BL2-Understand)** **CO3-** Predict the behavior of any electrical circuits, Formulate and solve complex Three phase AC circuits.**(BL5-Evaluate)** **CO4-** can evaluate the power generation value, transmission and distribution system capacity**(BL5-Evaluate)** **CO5-** Able to understand basics on power system protection system**(BL2-Understand)**		
Course Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG8(Decent work and economic growth) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	-	1	-	1	-	-	-	-	1	1	1	1	3
CO2	1	1	1	-	1	1	-	1	-	-	1	1	2	2	1
CO3	1	-	1	1	1	-	1	-	-	-	1	-	1	1	1
CO4	1	1	1	1	1	1	1	-	-	-	1	1	2	1	3
CO5	1	1	1	-	1	1	1	-	-	-	1	-	2	2	3
CO6	1	1	1	1	1	-	1	-	-	-	-	1	3	2	1

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power Electronics		
Course Code	EEL0614		
Course Outcomes & Bloom's Level	**CO1-** Describe the operation of power electronic devices and its applications.**(BL2-Understand)** **CO2-** Analyze the I-V characteristics of SCR, DIAC and TRIAC. **(BL4-Analyze)** **CO3-** Analyze the characteristics of MOSFET, IGBT and UJT.**(BL4-Analyze)** **CO4-** Illustrate the functioning of rectifiers and firing circuits.**(BL5-Evaluate)** **CO5-** Distinguish the speed control of DC motor using converters.**(BL5-Evaluate)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electrical Engineering Simulation Lab -II	
Course Code	EEP 0603	
Course Outcomes & Bloom's Level		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Computer Aided Protection	
Course Code	EEM0611	
Course Outcomes & Bloom's Level	**CO1-** To remember microprocessor based protection system**(BL4-Analyze)** **CO2-** To set up the digital protection systems for transformer, generator, transmission line and other devices**()** **CO3-** To analyze and select the particular digital components for a particular protection requirement**()** **CO4-** To evaluate the fault and tripping time of circuit in the fault case**()** **CO5-** To create a business continuity plan**()**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	-	-	-	-	1	1	3	2	2
CO2	1	1	-	1	1	1	-	-	-	1	1	-	3	3	2
CO3	1	1	1	-	1	1	-	-	-	-	1	1	3	2	3
CO4	1	1	1	-	1	1	-	-	-	-	1	1	3	3	2
CO5	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Signal & Systems	
Course Code	EEM0610	
Course Outcomes & Bloom's Level	**CO1-** to understand Time and frequency domain analysis of systems**(BL4-Analyze)** **CO2-** to learn Laplace-Transform (LT) and Z-transform (ZT)**()** **CO3-** to learn Fourier Transforms (FT)**()** **CO4-** to understand different linear and nonlinear system**()** **CO5-** to understand different signals**()**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	-	2	2	2
CO2	1	-	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	-	1	2	3	2
CO4	1	1	-	1	1	1	-	-	-	-	1	1	2	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	1	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Special Electrical machine & Design		
Course Code	EEM0612		
Course Outcomes & Bloom's Level	**CO1-** Classify & select proper material for the design of an electrical machine **(BL4-Analyze)** **CO2-** Design overall transformer**()** **CO3-** Estimate the performance characteristics of Transformer with the constraints specified.**()** **CO4-** Design Stator core & stator winding of an Induction motor. **()** **CO5-** Design rotor core & rotor winding of an induction motor & calculate load current & other performance characteristics **()** **CO6-** Design overall dimensions of synchronous machine & cooling of synchronous generator**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	-	-	-	1	-	-	-	-	-	-
CO2	1	1	-	-	-	2	-	-	-	1	-	-	-	-	-
CO3	1	-	2	1	1	-	3	-	-	-	1	-	-	-	1
CO4	1	1	1	-	-	-	-	4	1	-	-	-	-	4	-
CO5	-	-	-	3	-	-	-	-	-	-	-	1	-	-	-
CO6	-	-	-	-	1	-	-	-	-	-	-	-	5	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electric drives		
Course Code	EEL0718		
Course Outcomes & Bloom's Level	**CO1-** To define electric drive, its parts, advantages and explain choice of electric drive. **(BL4-Analyze)** **CO2-** To explain dynamics and modes of operation of electric drives. **()** **CO3-** To explain selection of motor power ratings and control of dc motor using rectifiers.**()** **CO4-** To analyze the performance of induction motor drives under different conditions . **()** **CO5-** To explain the control of induction motor, synchronous motor and stepper motor drives.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG8(Decent work and economic growth)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	-	3	-	-	2	-	-	1	2	1
CO2	1	1	2	2	1	1	-	-	1	-	-	-	2	1	2
CO3	2	2	3	1	1	-	2	-	-	-	-	-	2	1	3
CO4	1	2	1	1	1	-	-	3	-	-	1	-	1	1	1
CO5	2	1	1	2	2	-	-	-	-	-	-	2	1	2	1
CO6	1	1	2	1	1	-	-	-	-	-	-	-	2	3	1

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	High Voltage Engineering	
Course Code	EEL0738	
Course Outcomes & Bloom's Level	**CO1-** To remember various aspects of high voltage engineering.**(BL4-Analyze)** **CO2-** To understand Generation, Measurement and testing of high voltage.**()** **CO3-** To implement Flow charts and practice set to understand the subject.**()** **CO4-** To analyze the different numeric problems for well understand subjects problems. **()** **CO5-** To evaluate and summarize the data using statistical & visualization tools.**()** **CO6-** To prepare the models based on of real world problems of high voltage. **()**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
CO2	-	3	-	-	1	-	-	-	1	-	-	-	-	-	-
CO3	-	-	2	-	-	-	3	-	-	1	-	-	2	-	-
CO4	-	-	-	1	-	-	-	4	-	-	2	-	-	1	-
CO5	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Major project-I		
Course Code	EED0704		
Course Outcomes & Bloom's Level	**CO1-** Utilize contemporary tool sets to simulate and verify utilizing experimental methods whenever possible.**(BL4-Analyze)** **CO2-** . Verify and examine the outcomes by utilizing various case studies.**()** **CO3-** Make logical deductions and draw significant conclusions that are suitable for publication.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	**SDG (Goals)**	SDG1(No poverty) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Electric drives		
Course Code	EEL0718		
Course Outcomes & Bloom's Level	**CO1-** To explain dynamics and modes of operation of electric drives. To explain selection of motor power ratings and control of dc motor using rectifiers To analyze the performance of induction motor drives under different conditions To explain the control of induction motor, synchronous motor and stepper motor drives**(BL4-Analyze)**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Industrial training-III		
Course Code	EET0704		
Course Outcomes & Bloom's Level	**CO1-** Participate in the projects in industries during his or her industrial training.**(BL4-Analyze)** **CO2-** Interact with industrial personnel and follow engineering practices and discipline prescribed in industry.**()** **CO3-** Describe use of advanced tools and techniques encountered during industrial training and visit.**()** **CO4-** Develop awareness about general workplace behavior and build interpersonal and team skills.**()** **CO5-** Prepare professional work reports and presentations.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Machine Learning		
Course Code	EEO0701		
Course Outcomes & Bloom's Level	**CO1-** To remember various concept of machine learning.**(BL4-Analyze)** **CO2-** To understand the basic concepts of machine learning, various machine learning models, Performance Evaluation techniques and how to improve the performance of the Machine Learning models.**()** **CO3-** To implement various Machine Learning Models.**()** **CO4-** To train & test machine Learning Models. **()** **CO5-** To evaluate the performance of Machine Learning Models.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	2	-	-	-	-	-	-	-	-	-	1
CO2	3	2	1	-	3	-	-	-	-	-	-	2	-	1	2
CO3	1	-	1	-	1	-	-	-	-	-	-	-	-	2	2
CO4	2	2	-	-	1	-	-	-	-	-	-	-	-	-	-
CO5	-	-	2	-	-	-	-	-	-	1	-	-	-	1	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Fundamentals of IoT and Sensors		
Course Code	EEO0702		
Course Outcomes & Bloom's Level	**CO1-** To remember the basic definitions, key terminologies of Sensors, Smart Sensors, & IoT. **(BL4-Analyze)** **CO2-** To understand the working principles, concepts, & circuit designs of various sensors.**()** **CO3-** To apply that how to make Sensors by using different electronic components, apply an integrated knowledge on the Sensors, work with and interpret the data obtained from various sensor applications**()** **CO4-** To analyse various parameters of sensors using simulation or performing experiments on kits.**()** **CO5-** Evaluate performance of sensors & actuators for various applications.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	-	3	3	-	-	3	2	2
CO2	3	1	2	1	1	2	2	1	2	3	1	-	3	3	3
CO3	-	1	3	2	1	2	2	2	-	1	-	3	3	3	2
CO4	1	2	2	3	2	-	-	2	-	-	2	1	3	2	2
CO5	-	-	-	-	1	2	-	-	-	-	2	-	3	-	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Soft computing Techniques		
Course Code	EEO0703		
Course Outcomes & Bloom's Level	**CO1-** Learn about soft computing techniques and their applications**(BL4-Analyze)** **CO2-** Analyze various neural network architectures**()** **CO3-** Define the fuzzy systems **()** **CO4-** Analyze the genetic algorithms and their applications. **()** **CO5-** Evaluate and integrate various soft computing techniques in order to solve problems effectively and efficiently.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	-	1	-	2	-	-	-	3	3	-
CO2	3	1	-	2	-	-	-	-	-	1	-	-	3	3	3
CO3	1	3	3	2	1	-	-	1	1	-	-	-	2	-	2
CO4	2	-	-	2	-	-	1	1	-	-	-	-	2	3	2
CO5	2	1	2	-	3	-	-	-	2	-	-	-	3	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Energy Management & Audit		
Course Code	EEM0716		
Course Outcomes & Bloom's Level	**CO1-** Describe the basics of energy management, energy demand management and energy auditing**(BL4-Analyze)** **CO2-** Understand the need and significance of energy audit and management and understand the concept of measuring instruments for energy auditing, defining, and examining the various characteristics of instruments.**()** **CO3-** To understand efficient heat & electricity utilization, saving and recovery in different thermal and electrical system.**()** **CO4-** Analyze energy consumption patterns and trends within an organization or system, evaluating the economic and environmental impacts of different energy management practices.**()** **CO5-** Assess and compare various renewable energy technologies and their potential integration into existing energy systems, making informed recommendations based on feasibility and sustainability criteria.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✓ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education) SDG7(Affordable and clean energy) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	3	3	3	-	-	-	-	-	-	-
CO2	3	3	1	2	-	3	2	3	-	-	-	-	-	-	-
CO3	3	3	1	2	-	3	2	3	-	-	-	-	-	-	-
CO4	3	3	1	2	-	3	2	3	-	-	-	-	-	-	-
CO5	3	3	1	2	-	3	2	3	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power quality and industrial application		
Course Code	EEM0717		
Course Outcomes & Bloom's Level	**CO1-** To remember various aspects of Power quality and industrial applications.**(BL4-Analyze)** **CO2-** To understand Industrial utilization, Power quality and maintenance.**()** **CO3-** To implement Flow charts and practice set to understand the subject.**()** **CO4-** To analyze the different numeric problems for well understand subjects problems**()** **CO5-** To evaluate and summarize the data using statistical & visualization tools.**()** **CO6-** To prepare the models based on of real world problems of power quality. **()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	3
CO2	-	1	-	-	-	-	1	-	-	-	-	-	-	1	-
CO3	-	-	2	1	-	-	-	-	1	-	-	1	-	-	-
CO4	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-
CO5	-	-	-	-	-	-	-	3	-	-	1	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Advanced power system protection		
Course Code	EEM0718		
Course Outcomes & Bloom's Level	**CO1-** Understand the various types of relays, comparators and their realization using static circuits.**(BL4-Analyze)** **CO2-** Understand the realization of over current, distance and differential relays using comparators.**()** **CO3-** Realize the various dynamic characteristics of digital relays for protection of transmission lines, transformers**()** **CO4-** Analyze different Protection schemes of bus bar and transmission lines.**()** **CO5-** Identify the new developments in Digital Protection.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG4(Quality education) SDG7(Affordable and clean energy) SDG9(Industry Innovation and Infrastructure) SDG13(Climate action)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	3	-	-	-	-	-	-	-	-	-	2	3	-
CO2	3	-	2	-	-	-	-	-	-	-	-	-	2	3	-
CO3	3	-	3	-	-	-	-	-	-	-	-	-	3	2	-
CO4	2	-	2	-	-	-	-	-	-	-	-	-	3	3	-
CO5	2	-	3	-	-	-	-	-	-	-	-	-	3	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	SCADA systems and applications	
Course Code	EEM0713	
Course Outcomes & Bloom's Level	**CO1-** Introduction to SCADA and PLC**(BL4-Analyze)** **CO2-** to learn on SCADA system components**()** **CO3-** to learn on SCADA Architecture**()** **CO4-** to learn on SCADA Communication methods**()** **CO5-** to learn on Operations and controls of interconnected power system**()**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	1	1	2	3	2
CO4	1	1	1	1	1	1	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Calibration and testing of electrical equipments	
Course Code	EEM0714	
Course Outcomes & Bloom's Level	**CO1-** Measurement standards and its units**(BL4-Analyze)** **CO2-** Measurement methods and characteristics of measurements**()** **CO3-** Calibration procedures and methods of calibration**()** **CO4-** Installation and commissioning of indoor and outdoor equipment.**()** **CO5-** Testing of new & Old electrical installation as per IS **()** **CO6-** To enable the students to think in terms of innovative ideas to improve the existing technology in the field of measurements in terms of accuracy, cost, durability and user friendliness**()**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-
CO2	-	2	-	-	-	-	-	-	1	-	-	-	-	5	-
CO3	-	-	1	-	-	1	-	1	-	-	-	1	-	-	-
CO4	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-
CO5	-	-	-	-	2	-	-	-	-	-	-	-	2	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power system reliability	
Course Code	EEM0715	
Course Outcomes & Bloom's Level	**CO1-** to learn on industrial utilization methods**(BL4-Analyze)** **CO2-** to learn design of distribution system**()** **CO3-** to learn on power quality and its overview**()** **CO4-** to learn on different maintenance systems**()** **CO5-** to learn on ISO 9000 and TQM**()**	
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	-	1	1	-	-	-	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	3
CO3	1	1	1	1	1	1	-	-	-	-	1	-	2	3	2
CO4	1	1	-	1	1	1	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	1	-	-	-	-	1	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Utilization of electrical power		
Course Code	EEL0822		
Course Outcomes & Bloom's Level	**CO1-** To remember various aspects of utilization of power.**(BL4-Analyze)** **CO2-** To understand illumination, heating, welding , electrolysis and traction system.**()** **CO3-** To implement Flow charts and practice set to understand the subject.**()** **CO4-** To analyze the different numeric problems for well understand subjects problems. **()** **CO5-** To evaluate and summarize the data using statistical & visualization tools;**()** **CO6-** To prepare the models based on of real world problems utilization. **()**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG7(Affordable and clean energy) SDG8(Decent work and economic growth)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	1	-	-	-	1	1	2	2	1
CO2	1	1	1	1	1	-	-	-	1	-	1	1	3	2	2
CO3	1	1	1	1	1	-	-	-	-	-	1	-	3	3	3
CO4	1	1	1	1	-	1	-	-	-	-	1	1	2	3	3
CO5	1	1	1	1	1	-	-	1	-	-	1	1	2	2	3
CO6	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Power system operation & Control		
Course Code	EEL0839		
Course Outcomes & Bloom's Level	**CO1-** Understand the concept of Optimal Power System Operation under various operating constraints.**(BL4-Analyze)** **CO2-** To know the importance of frequency control**()** **CO3-** To analyze different methods to control reactive power**()** **CO4-** To understand unit commitment problem and importance of economic load dispatch**()** **CO5-** To understand real time control of power systems **()**		
Course Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG4(Quality education) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	1	1	-	-	3	-	-	-	-	3	3	2
CO2	3	2	2	-	-	-	-	-	-	1	-	-	2	3	-
CO3	1	3	1	2	1	-	1	-	1	-	1	-	2	2	3
CO4	2	1	1	-	-	3	-	1	-	-	1	-	2	1	-
CO5	2	3	3	2	1	-	-	-	-	1	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Major Project		
Course Code	EED0804		
Course Outcomes & Bloom's Level	**CO1-** Utilize contemporary tool sets to simulate and verify utilizing experimental methods whenever possible. **(BL4-Analyze)** **CO2-** Verify and examine the outcomes by utilizing various case studies. **()** **CO3-** Make logical deductions and draw significant conclusions that are suitable for publication.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	-	-	-	-	-	1	1	3	2	2
CO2	1	1	1	1	1	-	-	-	-	-	1	1	2	2	2
CO3	1	1	1	1	-	-	-	-	-	-	1	1	2	2	2
CO4	1	1	1	1	1	-	-	-	-	-	1	1	3	2	3
CO5	1	1	1	1	1	-	-	-	-	-	1	1	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	EHV AC and DC Transmission		
Course Code	EEM0822		
Course Outcomes & Bloom's Level	**CO1-** Understand the concept and performance of EHV transmission line.**(BL4-Analyze)** **CO2-** Acquire the knowledge about the properties of bundled conductors**()** **CO3-** Understand about the various conventional and advanced compensation devices.**()** **CO4-** Understand the concept of HVDC Transmission and about the various scheme of converter station, 12 – pulse converter, converter unit, converter operation, fitters, reactive power source, ground return and ground electrode.**()** **CO5-** Understand the concept of how to control the HVDC link. Comparison between AC and DC transmissions Applications of HVDC transmission. Power modulation and power control of HVDC lines.**()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education) SDG7(Affordable and clean energy) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	1	1	1	-	2	-	-	1	2	-
CO2	2	3	1	2	-	1	-	-	1	-	2	-	3	2	2
CO3	2	3	3	2	1	1	1	1	-	3	-	-	2	1	3
CO4	3	1	2	1	-	-	-	-	3	-	-	-	1	1	1
CO5	3	1	3	3	1	1	1	1	-	2	-	-	2	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	HVDC		
Course Code	EEM0823		
Course Outcomes & Bloom's Level	**CO1-** To understand Generation of High Voltage**(BL4-Analyze)** **CO2-** To learn and understand High Voltage Measurement**()** **CO3-** To know Industrial application of High Voltage Engineering**()** **CO4-** Analyze the operational characteristics and performance of HVDC systems under various conditions, including fault scenarios, and propose solutions to mitigate potential issues.**()** **CO5-** To Evaluate High Voltage Test & Specifications**()**		
Course Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education) SDG12(Responsible consuption and production)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	1	1	-	3	3	-	-	2	-	1	2	2
CO2	3	2	1	2	-	2	1	3	2	2	-	-	1	3	2
CO3	3	1	3	-	1	2	-	1	2	-	2	-	1	2	3
CO4	2	2	1	3	-	2	1	-	-	1	-	-	1	-	3
CO5	1	1	1	3	3	-	-	3	2	-	-	-	1	3	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Smart Grid and Energy Management		
Course Code	EEM0824		
Course Outcomes & Bloom's Level	**CO1-** Understand the fundamental principles, methodologies, and practices in energy management.**(BL4-Analyze)** **CO2-** Conduct comprehensive energy audits to identify energy-saving opportunities and strategies.**()** **CO3-** Evaluate and implement energy efficiency measures in residential, commercial, and industrial buildings.**()** **CO4-** Explore and analyze sustainable energy solutions and their impact on energy management practices.**()** **CO5-** Develop and implement effective energy management systems tailored for different facilities.**()**		
Course Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✓ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	3	1	1	-	1	3	-	1	-	-	1	-	1
CO2	3	1	2	2	-	1	1	-	-	1	-	-	1	1	1
CO3	2	1	3	2	1	1	2	1	1	-	-	-	-	1	1
CO4	2	1	2	1	-	1	3	-	1	1	-	-	1	1	1
CO5	1	1	1	2	1	-	1	1	-	-	-	-	1	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Distributed Generation System		
Course Code	EEM0819		
Course Outcomes & Bloom's Level	**CO1-** Acquire the knowledge of evolution of smart grid, need of smart grid. Awareness about the national and the international policies undertaken in order to adopt smart grid concept worldwide.**(BL4-Analyze)** **CO2-** Comprehend the acquaintance of intelligent electronic devices and their application in monitoring and protection. Understanding advantages and challenges of latest smart storage devices like SMES, pumped hydro storage and compressed air energy storage. Use of PMU and WAMS in modern power system analysis.**()** **CO3-** Understand the concept of real time pricing, automatic meter reading, outage management system. Identification of challenges and opportunities in advanced metering infrastructure and cyber security in smart grid.**()** **CO4-** Identification of power quality issues in grid connected renewable energy sources. Acquiring the knowledge of power quality conditioners and importance of power quality audit.**()** **CO5-** Comprehend the acquaintance of micro grid and applications of micro grid. Understanding of thin solar films, variable speed wind generator, fuel cell and micro turbines in smart grid.**()**		
Course Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	1	1	-	-	-	1	-	-	-	2	3	-
CO2	3	-	2	2	1	-	2	-	1	-	-	-	1	-	2
CO3	1	2	1	2	2	1	-	1	-	-	-	-	3	1	-
CO4	2	2	2	1	-	-	1	-	-	1	-	-	1	2	1
CO5	2	1	1	1	3	-	2	-	2	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	Generalized Theory of Electrical Machines		
Course Code	EEM0820		
Course Outcomes & Bloom's Level	**CO1-** Recall and describe the fundamental principles, operating mechanisms, and classifications of various electrical machines, including transformers, synchronous machines, and induction motors.**(BL4-Analyze)** **CO2-** Explain the theoretical concepts behind the electromagnetic fields, torque production, and energy conversion processes in electrical machines.**()** **CO3-** Apply analytical techniques and mathematical models to solve problems related to the performance, efficiency, and control of electrical machines in practical applications.**()** **CO4-** Analyze the characteristics and performance parameters of different types of electrical machines under various loading and operating conditions, identifying factors affecting their efficiency and stability.**()** **CO5-** Design and optimize electrical machine systems, integrating principles of machine theory, power electronics, and control strategies to meet specified industrial and commercial requirements.**()**		
Course Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**	SDG4(Quality education) SDG9(Industry Innovation and Infrastructure)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	2	-	1	-	-	3	-	1	-	1	2	1	1
CO2	3	3	2	2	1	1	-	-	-	-	1	1	1	2	2
CO3	2	2	-	2	2	-	1	-	1	1	1	-	2	1	2
CO4	1	1	1	1	3	2	-	-	-	-	1	1	1	2	1
CO5	1	1	1	-	-	-	2	-	-	1	-	1	1	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOET-BTech(ElectricalEngineering)

Course mapping with relevance to the local, regional, national, and global developmental needs

Title of the Course	industrial instrumentation		
Course Code	EEM0821		
Course Outcomes & Bloom's Level	**CO1-** Describes the purpose of instrumentation in Industrial processes. **(BL4-Analyze)** **CO2-** Describes the working of RTD, Thermostats, and thermocouple.**()** **CO3-** Describes the Bourdon tube, diaphragms and Bell gauges for pressure measurement and to employ flapper-nozzle assembly for differential pressure measurement.**()** **CO4-** Describes the various flow and level measurement devices used for industrial purposes.**()** **CO5-** Elucidate the construction and working of various industrial devices used to measure pressure, sound and flow**()** **CO6-** Illustrate measurement techniques for acceleration, vibration and density **()**		
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓	**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG11(Sustainable cities and economies)

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	1	1	1	-	-	-	1	-	1	1	2	2	2
CO2	1	1	1	1	1	-	-	-	-	1	1	1	2	3	2
CO3	1	1	1	-	1	-	1	-	-	-	1	-	2	2	3
CO4	1	1	1	1	1	-	-	1	-	-	1	1	2	2	3
CO5	1	1	1	1	1	-	-	-	-	-	1	1	2	3	2
CO6	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-