



|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust (R)

SJB Institute of Technology

BGS Health and Education City, Dr. Vishnuvardhana Road, Kengeri, Bengaluru-560060
Approved by AICTE, New Delhi.

Autonomous Institute affiliated to Visvesvaraya Technological University, Belagavi

Accredited by NAAC with 'A+' grade, Certified by ISO 9001 – 2015

Recognized by UGC, New Delhi with 2(f) & 12 (B)

Department of Electrical and Electronics Engineering

(Accredited by NBA)



Course Outcomes and CO-PO-PSO articulation Matrix

Batch: 2022-26

Semester-I/II

Subject: Elements of Electrical Engineering												Subject Code: 22EEE13				
Course Outcomes																
CO1	Understand the concepts of DC circuits and Electromagnetism															
CO2	Understand the concepts of Single phase and Three Phase AC circuits															
CO3	Understand the concepts of measurements and measuring instruments															
CO4	Explain the concepts of domestic wiring, electricity billing, circuit protective devices and personal safety measures															
CO-PO-PSO Mapping																
COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
CO1	3	2										1	3			
CO2	3	2										1	3			
CO3	3	2						1				1	3			
CO4	3	1				1		1				2	3			
Averag	3	2				1		1				1	3			

Subject: Introduction to Electrical Engineering												Subject Code: 22ESC142				
Course Outcomes																
CO1	Understand conventional and non-conventional energy resources, general structure of electrical power systems and power generation.															
CO2	Analyze basic DC and AC electric circuits.															
CO3	Explain the construction, working principles and performance of transformers and electrical machines.															
CO4	Understand the wiring methods, electricity billing, working principles of circuit protective devices and personal safety measures.															
CO-PO-PSO Mapping																
COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
CO1	3						2	1				2				
CO2	3	2										1				
CO3	3	2						1				1				
CO4	3	1				2		1				2				
Average	3	1.67				2	2	1				1.5				

Subject: Introduction to C programming											Subject Code: 22ESC145				
Course Outcomes															
CO1	Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts														
CO2	Apply programming constructs of C language to solve the real world problem														
CO3	Explore user defined data structures like arrays in implementing solutions to problems like searching and sorting and to explore unions and pointers in implementing solutions														
CO4	Design and develop solutions to problems using modular programming constructs using functions														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	2	2		2						1			2
CO2	3	3	2	2		2						1			2
CO3	3	3	2	2		2						1			2
CO4	3	3	2	2		2						1			2
Average	3	3	2	2		2						1			2

Subject: Introduction to C++ Programming											Subject Code: BPLCK205D				
Course Outcomes															
CO1	To Understand the , reuse the code with extensible class types , user defined operators and function overloading to provide the solution to a problem using OOP concepts														
CO2	To achieve code reusability and extensibility by means of Inheritance and Polymorphism														
CO3	To implement the features of C++ including templates , exceptions and file handling for providing programmed solutions to complex problems														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	2	2		2						1			2
CO2	3	3	2	2		2						1			2
CO3	3	3	2	2		2						1			2
CO4	3	3	2	2		2						1			2
Average	3	3	2	2		2						1			2

Subject: Renewable Energy Sources											Subject Code:				
Course Outcomes															
CO1	Describe the environmental aspects of RES in comparison with various conventional energy														
CO2	Describe the use of solar energy and various components used in energy production														
CO3	Understand the conversion principles of wind and tide energy, biomass energy and green energy.														
CO4	Acquire the basic knowledge of ocean thermal energy conversion and hydrogen energy														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2				2	2						3	2	
CO2	2	2				2	2						3	2	
CO3	2	1				1	1						3	2	

CO4	2	1				1	1						3	2	
Average	2	1.5				1.5	1.5						3	2	

Semester-III

Subject: Mathematics-III for EE Engineering												Subject Code: BMATE 301			
Course Outcomes															
CO1	Understand that physical systems can be described by differential equations and solve such equations														
CO2	Make use of correlation and regression analysis to fit a suitable mathematical model for statistical data														
CO3	Demonstrate the Fourier series to study the behavior of periodic functions and their applications in system communications, digital signal processing, and field theory.														
CO4	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations														
CO5	Apply discrete and continuous probability distributions in analyzing the probability models arising in the engineering field. Demonstrate the validity of testing the hypothesis														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	1									1			
CO2	3	2	1									1			
CO3	3	2	1									1			1
CO4	3	2	1									1			1
CO5	3	2	1									1			
Avg.	3	2	1									1			1

Subject: Electrical Circuit Analysis												Subject Code: BEE302			
Course Outcomes															
CO1	Understand the basic concepts, basic laws and methods of analysis of DC and AC networks														
CO2	Solve complex electric circuits using network theorems														
CO3	Analyze the resonant series and parallel circuits and discuss transient analysis of RL and RC circuit Switching action with Initial conditions														
CO4	Synthesize typical waveforms using Laplace transformation														
CO5	Solve unbalanced three phase systems and also evaluate the performance of two port networks.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3							2	2					3
CO2	3	3							2	2					3
CO3	3	3							2	2					3
CO4	3	2							2	2					2
CO5	3	2							2	2					2
Average	3	2.6							2	2					2.6

Subject: Analog Electronic Circuits												Subject Code: BEE303			
Course Outcomes															
CO1	Utilize the characteristics of transistor for different applications.														

CO2	Establish and test biasing circuits for transistor.														
CO3	Design, analyse and test transistor circuitry as amplifiers and oscillators														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	3	2		1							1			3
CO2	2	3	2		1							1			3
CO3	2	3	2	1	1							1			3
Avg.	2	3	2	1	1							1			3

Subject: Transformers & Generators										Subject Code: BEE304					
Course Outcomes															
CO1	Understand and explain the construction and operation of single-phase transformers.														
CO2	Evaluate the performance of three phase transformers by various tests, phase conversion and parallel operation.														
CO3	Analyze the construction & working of Synchronous Generator by various tests.														
CO4	Explain the construction & working of solar and wind power generators.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	1			1	1						3	3	
CO2	3	2	2			1	1	2					3	3	
CO3	3	3	2			1	1	2					3	3	
CO4	3	3	1			1	1						3	3	
Average	3	2.5	1.5			1	1	2					3	3	

Subject: Transformers and Generators lab										Subject Code: BEEL305					
Course Outcomes															
CO1	Conduct different tests on transformers to evaluate the performance characteristics of the 1-phase and 3-phase transformers.														
CO2	Connect and operate transformers of different KVA rating in parallel. Also investigate the voltage and current ratios of a multi-tapped transformer.														
CO3	Compute the voltage regulation of synchronous generator using the test data obtained in the laboratory and also evaluate the performance of synchronous generators from the test data.														
CO4	Simulate the voltage regulation of a transformer and power angle curve of generator using MATLAB/simscape.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	2	2		1	1		1	1			3	3	
CO2	3	2	2	2		1	1	2	1	1			3	3	
CO3	3	2	2	2		1	1	2	1	1			3	3	
CO4	3	2	2	2	3				1	1			3	3	
Average	3	2	2	2	3	1	1	2	1	1			3	3	

Subject: Electrical Measurements and Instrumentation												Subject Code: BEE306B		
Course Outcomes														
CO1	Explain the significance and methods of Measurements, elements of generalized measurement system and errors in measurements.													
CO2	Measure resistance, inductance and capacitance by different methods.													
CO3	Describe the construction, working and characteristics of various instrument transformers.													
CO4	Illustrate the working of different electronic instruments and display devices.													

CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2												2		
CO2	2	2											2		
CO3	2	1											2		
CO4	2					1		1					2		
Average	2												2		

Subject: Social Connect and Responsibility												Subject Code: 21SCR		
Course Outcomes														
CO1	Understand social concerns and address it sensibly.													
CO2	Practice sustainability and creativity													
CO3	Showcase planning and organizational skills													

CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1						3	3	3	3	2	1	3			
CO2						3	3	3	3	2	1	3			
CO3						3	3	3	3	2	1	3			
Average						3	3	3	3	2	1	3			

Subject: SCI LAB/MATLAB for Transformers and Generators												Subject Code: BEEL358A			
Course Outcomes															
CO1	Develop a program using Scilab software package in an intelligent manner to conduct different tests on transformers and generators to evaluate the performance characteristics.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2		2	3				1	1			3	3	
Avg.	3	2		2	3				1	1			3	3	

Co-ordinator
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