Department of Electrical and Electronics Engineering

COURSE MODULE OF THE COURSE TAUGHT FOR THE AY : 2024-2025

Course Syllabus with CO's

Faculty Member: **Dr. SHAKUNTHALA C**			Academic Year: 2024-2025				
Department: Electrical & Electronics Engineering							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
BEEL358D	**Electrical Hardware Laboratory**	**Elective-Ability Enhancement Course**	Elements of Electrical Engineering	**-**	**-**	**3**	**14 Sessionsx3 = 42 Hours**
Objectives	1. Along with prescribed hours of teaching –learning process, provide opportunity to perform the experiments/programmes at their own time, at their own pace, at any place as per their convenience and repeat any number of times to understand the concept. 2. Provide unhindered access to perform whenever the students wish. 3. Vary different parameters to study the behaviour of the circuit without the risk of damaging equipment/device or injuring themselves.						
Topics Covered as per Syllabus							
1. Verification of KCL and KVL for DC Circuits. 2. Verification of KCL and KVL for AC Circuits. 3. Measurement of Current, Power and Power Factor of Incandescent Lamp, Fluorescent Lamp and LED Lamp. 4. Evaluate the loading effect of Voltmeter of electric circuits. 5. Measurement of Resistance using V-I method. 6. Measurement of Resistance and Inductance of a Choke coil using three voltmeter method. 7. Determination of Phase and Line quantities in three-phase star and delta connected loads. 8. Two-Way and Three-Way Control of Lamp and Formation of Truth Table. 9. Measurement of Earth Resistance using fall of potential method. **10.** Determination of fuse characteristics.							
List of Text Books							
1. Basic Electrical Engineering_ Kulshresta							
Graduate Attributes: Engineering Knowledge, Problem Analysis, Design/Development of Solutions Modern Tool Usage, Engineer and Society, Environment & Sustainability,Individual and Team Work, Communication,Project Management, Life Long Learning							
Course Outcomes	At the end of the course the student will be able to: 1. **Apply** the Kirchhoff's Voltage Law and Kirchhoff's Current Law for electrical circuits 2. **Compare** the current and power factor of different lamp loads and control of lamps 3. **Identify** the parameters of a coil using a 3-voltmeter method 4. **Compare** the power, phase, and line quantities in a star and delta connection 5. **Test for** the earth resistance and resistance of a sample by V-I Method 6. **Analyse** the current-time characteristics of a given fuse						
Assessment Details (both CIE and SEE) • The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each course. The student has to secure not less than 35% (18 Marks out of 50) in the semester-end examination(SEE). • **Continuous Internal Evaluation (CIE):** • CIE marks for the practical course is 50 Marks. The split-up of CIE marks for record/ journal and test are in the ratio 60:40.							

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- Each experiment to be evaluated for conduction with observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and is made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.
- Total marks scored by the students are scaled downed to 30 marks (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up on time.
- Department shall conduct 02 tests for 100 marks, the first test shall be conducted after the 8th week of the semester and the second test shall be conducted after the 14th week of the semester.
- In each test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability. Rubrics suggested in Annexure-II of Regulation book
- The average of 02 tests is scaled down to 20 marks (40% of the maximum marks).
- The Sum of scaled-down marks scored in the report write-up/journal and average marks of two tests is the total CIE marks scored by the student.

Semester End Evaluation (SEE):

- SEE marks for the practical course is 50 Marks.
- SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by
- the University
- All laboratory experiments are to be included for practical examination.
- Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. OR based on the course requirement evaluation rubrics shall be decided jointly by examiners.
- Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.
- Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.
- General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)
- Change of experiment is allowed only once and 15% Marks allotted to the procedure part to be made zero. The duration of SEE is 03 hours

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Course Code:	BEEL358D	TITLE: Electrical Hardware Laboratory							Faculty Member: **Dr. SHAKUNTHALA C**			
List of Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	3	2	-	-	-	-	-	-	2	3	-	2
CO-2	2	2	-	-	-	-	-	-	2	3	-	2
CO-3	3	2	-	-	-	-	-	-	2	3	-	2
CO-4	2	2	-	-	-	-	-	-	2	3	-	2
CO-5	2	2	-	-	-	-	-	-	2	3	-	2
CO-6	3	2	-	-	-	-	-	-	2	3	-	2

Note: 3 = Strong Contribution 2 = Average Contribution 1= Weak Contribution - = No Contribution

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The Correlation of Course Outcomes (CO's) and Program Specific Outcomes (PSO's)

Course Code:	**BEEL358D**	**TITLE: Electrical Hardware Laboratory**	Faculty Member: **Dr. SHAKUNTHALA C**
List of Course Outcomes	**Program Specific Outcomes**		
	PSO1		**PSO2**
CO-1	2		-
CO-2	2		-
CO-3	2		-
CO-4	2		-
CO-5	2		-
CO-6	2		-

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution