Format K1

Maharashtra State Board of Technical Education, Mumbai

TEACHING PLAN (TP)

Academic Year: 2025-26 (EVEN)
Institute Code and Name: 61303- PPCOE,
Semester: First
Programme and Code: Electrical Engineering (EE)
Course and Code: Fundamental Of Electrical Engineering (FEE)
Course Code: 312310
Name of Faculty:Ms. Jadhav N.S.
Scheme: K
CLASS: FYEE

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COURSE LEVEL LEARNING OUTCOMES (COS)

- CO1 - Determine various parameters used in electric circuits.
- CO2 - Use basic laws of electrical engineering in D.C. Circuits.
- CO3 - Use capacitor and battery in electrical circuits.
- CO4 - Use principles of magnetism in Magnetic Circuits.
- CO5 - Apply Laws of electromagnetism in electrical circuits and systems.

TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category	Learning Scheme							Assessment Scheme										Total Marks
				Actual Contact Hrs/Week			SLH	NLH	Credits	Paper Duration	Theory				Based on LL & TSL Practical				Based on SL		
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
312310	**FUNDAMENTAL OF ELECTRICAL ENGINEERING**	**FEE**	**DSC**	**4**	**-**	**4**	**2**	**10**	**5**	**3**	**30**	**70**	**100**	**40**	**25**	**10**	**25#**	**10**	**25**	**10**	**175**

Total IKS Hrs for Sem.: 0 Hrs
Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination

SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	**PO-2** Problem Analysis	**PO-3** Design/ Development of Solutions	**PO-4** Engineering Tools	**PO-5** Engineering Practices for Society, Sustainability and Environment	**PO-6** Project Management	**PO-7** Life Long Learning	**PSO- 1**	**PSO- 2**	**PSO- 3**
CO1	3	1	-	1	-	-	2			
CO2	3	1	1	1	1	-	2			
CO3	3	1	1	2	2	-	2			
CO4	3	1	1	2	2	-	2			
CO5	3	1	1	2	2	-	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: - *PSOs are to be formulated at institute level

Maharashtra State Board of Technical Education K-1

Teaching Plan (TP)

Academic Year: 2025-26 **Institute Code:** 61303
Program: Electrical Engineering **Course Code:** 312310
Course: Fundamental Of Electrical (FEE) **Semester:** Second(EE-2K)
Name of faculty: Ms.Jadhav N.S.

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Unit No. (Allocated Hrs.)	*CO Mention only Number*	*TLO Mention only Number*	*Unit Name and Learning Content Title / Details*	*No. of Lecture*	*Plan (From-To)*	*Actual Execution (From-To)*	*Teaching method/ Media*	*Remark*
I (12 Hrs)			**Unit - I Basic Electrical Parameters (Marks)**					
	CO1	TLO 1.1 TLO 1.2 TLO 1.3 TLO 1.4	1.1 Direct Current (DC),Alternating Current (AC), Voltage Source and Current Source: Ideal and Practical	02				
			1.2 Electric Current, Electric Potential, Potential Difference(PD), Electro-Motive Force(EMF)	03				
			1.3 Electrical Work, Power and Energy	03				
			1.4 Resistance, Resistivity, Conductivity, Effect of Temperature on Resistance.	02				
			1.5 Types of Resistor and their application	**02**				
			1.6 Heating Effect, Magnetic Effect, Chemical Effect of Electric current					
II (16 Hrs)	CO2	TLO 2.1 TLO 2.2 TLO 2.3 TLO 2.4	**Unit - II D.C. Circuits(Marks)**					
			2.1 Ohm's Law, Internal resistance of source, internal voltage drop, Terminal Voltage	03				
			2.2 Resistance in Series, Resistance in Parallel. (theory and numerical)	02				
			2.3 Active, Passive, Linear, Non-linear Circuit, Unilateral Circuit and Bi-lateral Circuit, Passive and Active Network, Node, Branch, Loop, Mesh.	03				
			2.4 Comparison of Kirchhoff's Current Law, Kirchhoff's Voltage Law (Simple numericals).	02				

III (6 Hrs)	CO3	TLO 3.1 TLO 3.2 TLO 3.3 TLO 3.4 TLO 3.5	**Unit - III Capacitors and Battery**						
			3.1 Capacitor, it's construction, Parallel Plate Capacitor	02					
			3.2 Various connections of capacitor. .	01					
			3.3 Energy Stored in Capacitor**.**	01					
			3.4 Charging and Discharging of Capacitor.	01					
			3.5 Breakdown voltage and Di-electric strength.	01					
			3.6 Applications of Capacitor						
			3.7 Types of battery, Construction, series and parallel connection of Battery						
			3.8 Charging and Discharging of Capacitor and battery						
			Unit - IV Magnetic Circuits						
IV (16 Hrs)	CO4	TLO 4.1 TLO 4.2 TLO 4.3 TLO 4.4 TLO 4.5 TLO 4.6	4.1 Magnetic lines of force, Flux, Flux density, Magnetic flux intensity	03					
			4.2 Magneto-Motive-Forces (MMF), Ampere Turns (AT), Reluctance, Permeance, Reluctivity.	03					
			4.3 Electric and Magnetic circuit: Series Magnetic and Parallel Magnetic Circuit	02					
			4.4 Magnetization Curve (B-H Curve)	02					
			4.5 Magnetic Hysteresis, Hysteresis Loop, Applications	02					
			Unit-V Electromagnetic Induction						
V (10Hrs)	CO5	TLO 5.1 TLO 5.2 TLO 5.3 TLO 5.4	5.1 Development of Induced e.m.f. and Current, Faraday's Laws of Electromagnetic Induction	02					
			5.2 Static and dynamic emf, Lenz's Law, Fleming's Right hand rule.	02					
			5.3 Self Inductance, Coefficient of Self- inductance (L), Mutual inductance, Coefficient of Mutual inductance (M), self induced e.m.f. and mutually induced e.m.f, Coefficient of Coupling.	02					

			5.4 Inductance in series	02				
			5.5 Types of inductor, their application and Energy Stored in Magnetic Field					

X. ASSESSMENT METHODOLOGIES/TOOLS

- **Formative assessment (Assessment for Learning)**
  - Tests
  - Rubrics for COs Assignment
  - Midterm Exam
  - Self-learning
  - Term Work
  - Seminar/Presentation
- **Summative Assessment (Assessment of Learning)**
  - End Term Exam Theory
  - Micro-project
  - Tutorial Performance

(Name & Signature of Staff) **(Name & Signature of HOD)**