Maharashtra State Board of Technical Education, Mumbai **K-2**

LABORATORY ASSIGNMENT /SHEET /JOB /PROJECT ACTIVITY PLANNING (LP)

Academic Year: 2025-26 (EVEN) **Date:** 15/12/2025
Institute Name: K. K. Wagh Polytechnic, Nashik **MSBTE Code:** 0078
Program and Code: Electrical Engineering (EE) **Course Code &. Abbr.:** 314008
Course Name: Computer Aided Drawing & Simulation (CDS) **Name of Faculty:** NMG/SBP
Class: TYEE-Tesla **Semester:** Fourth **Scheme:** K **Course Index:** **Learning Hrs.** 64

• Teaching-Learning & Assessment Scheme:

Course Code	Course Title	Abbr	Course Category	Learning Scheme					Credits	Paper Duration	Assessment Scheme										Total Marks
				Actual Contact Hrs/Week			SLH	NLH			Theory				Based on LL & TL Practical				Based on SL		
											FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
				CL	TL	LL					Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
314008	Computer Aided Drawing & Simulation	CDS	SEC	-	-	4	-	4	2	-	-	-	-	-	25	10	25 @	10	-	-	50

Abbreviations: CL- Class Room 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

- **COURSE LEVEL LEARNING OUTCOMES (COS)**
  - CO1 - Comprehend Electrical Drawings.
  - CO2 - Locate various components of CAD software.
  - CO3 - Use relevant CAD Tools and Commands for Electrical Drawings.
  - CO4 - Draw different Electrical Drawings using CAD software.
  - CO5 - Simulate Basic Electrical and Electronic circuits.

• COs, Practical Laboratory Learning Outcome (LLOs) and Mapping:

Pr. No	COs	LLO	Name of Experiments/Assignment/ Sheet/ Job/ Project Activity	Planned Date A/B/C		Actual date of Performance	Remark
				From	To		
1	CO1	LLO 1.1	*Symbols of Electrical and Electronic Components as per SP 30: 2011(NEC 2011) part 1, section 3 or new equivalent IS on sketch book.	A-15/12/25 B-16/12/25 C-17/12/25	A-15/12/25 B-16/12/25 C-17/12/25		
2	CO1	LLO 2.1	*Power and Control wiring diagram of DOL Starter on sketch book.	A-18/12/25 B-19/12/25 C-20/12/25	A-18/12/25 B-19/12/25 C-20/12/25		
3	CO1	LLO 3.1	*Power and Control wiring diagram of Star Delta Starter on sketch book.	A-22/12/25 B-23/12/25 C-24/12/25	A-22/12/25 B-23/12/25 C-24/12/25		
4	CO2	LLO 4.1	*Different components of CAD classic screen.	A-29/12/25 B-26/12/25 C-27/12/25	A-29/12/25 B-26/12/25 C-27/12/25		
5	CO2	LLO 5.1	*CAD file operations and Limits & Units of Drawing.	A-01/05/26 B-30/12/25 C-31/12/25	A-01/05/26 B-30/12/25 C-31/12/25		
6	CO2 CO3	LLO 7.1	*Basic geometrical shapes using Draw Toolbar commands (Line, Polyline, Circle, Arc, Rectangle, Ellipse, Polygon, Hatch).	A-05/01/26 B-02/01/26 C-03/01/26	A-05/01/26 B-02/01/26 C-03/01/26		
7	CO2	LLO	Modifying or editing basic	A-08/01/26	A-08/01/26		

	CO3	8.1	geometrical shapes using modify commands (Move, Rotate, Trim, Erase, Copy, Cut, Mirror, Fillet, Chamfer, Offset, Explode, Stretch, Scale).	B-06/01/26 C-07/01/26	B-06/01/26 C-07/01/26		
8	CO2 CO3	LLO 9.1	*Annotation Toolbar commands (Multiline Text, Single Line Test, Linear dimension, Aligned dimension, Angular Dimension, Arc Length Dimension, Radius Dimension, Diameter Dimension).	A-12/01/26 B-09/01/26 C-10/01/26	A-12/01/26 B-09/01/26 C-10/01/26		
9	CO2 CO3	LLO 10.1	*Important CAD Modes for drawing: Grid, Ortho, Snap, Polar Tracking, Object Snap Tracking.	A-15/01/26 B-13/01/26 C-14/01/26	A-15/01/26 B-13/01/26 C-14/01/26		
10	CO1 CO2 CO3	LLO 11.1	*Symbols of Electrical and Electronic Components as per SP 30: 2011(NEC 2011) part 1, section 3 or new equivalent IS using CAD.	A-19/01/26 B-16/01/26 C-17/01/26	A-19/01/26 B-16/01/26 C-17/01/26		
11	CO2 CO3	LLO 12.1	*Power and Control wiring diagram of DOL Starter using CAD.	A-22/01/26 B-20/01/26 C-21/01/26	A-22/01/26 B-20/01/26 C-21/01/26		
12	CO2 CO3	LLO 13.1	*Power and Control wiring diagram of Star Delta Starter using CAD.	A-29/01/26 B-23/01/26 C-24/01/26	A-29/01/26 B-23/01/26 C-24/01/26		
13	CO2 CO3	LLO 14.1	*General Arrangement Diagram for Electrical Panel (Assume suitable dimensions) using CAD.	A-02/02/26 B-27/01/26 C-28/01/26	A-02/02/26 B-27/01/26 C-28/01/26		
14	CO2 CO3 CO4	LLO 15.1	*Single Line Diagram (SLD) of the 11kV/433V distribution substation using CAD.	A-05/02/26 B-30/01/26 C-31/01/26	A-05/02/26 B-30/01/26 C-31/01/26		
15	CO2 CO3	LLO 16.1	*Single Line Diagram (SLD) of any Industrial Electrical Installation using CAD Part I.	A-09/02/26 B-03/02/26 C-04/02/26	A-09/02/26 B-03/02/26 C-04/02/26		
16	CO4	LLO 17.1	*Single Line Diagram (SLD) of any Industrial Electrical Installation using CAD Part II.	A-12/02/26 B-06/02/26 C-07/02/26	A-12/02/26 B-06/02/26 C-07/02/26		
17	CO2 CO3	LLO 18.1	*Use of simulation software.	A-16/02/26 B-10/02/26 C-11/02/26	A-16/02/26 B-10/02/26 C-11/02/26		
18	CO4	LLO 19.1	*Simulation for verification of Ohm's law and series & parallel resistances in circuit.	A-23/02/26 B-13/02/26 C-14/02/26	A-23/02/26 B-13/02/26 C-14/02/26		
19	CO5	LLO 20.1	*Simulation of Kirchoff's Current Law and Kirchoff's Voltage Law.	A-26/02/26 B-17/02/26 C-18/02/26	A-26/02/26 B-17/02/26 C-18/02/26		
20	CO5	LLO 21.1	*Simulation of R-L series circuit.	A-02/03/26 B-20/02/26 C-21/02/26	A-02/03/26 B-20/02/26 C-21/02/26		
21	CO5	LLO 24.1	*Simulation of single-phase half-wave rectifier circuit.	A-05/03/26 B-24/02/26 C-25/02/26	A-05/03/26 B-24/02/26 C-25/02/26		
22	CO5	LLO	*Simulation of Basic Logic Gates.	A-09/03/26	A-09/03/26		

		26.1		B-27/02/26 C-28/02/26	B-27/02/26 C-28/02/26		
23	CO5	LLO 27.1	*Simulation of Triac Lamp Dimmer circuit.	A-12/03/26 B-06/03/26 C-04/03/26	A-12/03/26 B-06/03/26 C-04/03/26		
24	CO5	LLO 28.1	Simulation of Half and Full Adder Logic circuit.	A-16/03/26 B-10/03/26 C-07/03/26	A-16/03/26 B-10/03/26 C-07/03/26		

ASSESSMENT METHODOLOGIES/TOOLS

A. Formative assessment (Assessment for Learning) (FB-TH)

- Teacher should prepare rubrics for Formative assessment
- Each Practical will be assessed for 25 Marks and average of all marks obtained will be considered

B. Summative Assessment (Assessment of Learning) (SB-TH)

- End Semester assessment of 25 marks for laboratory learning.
- Teacher should prepare rubrics for Summative Assessment.

SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING /SKILLS DEVELOPMENT (SELF LEARNING)

Mr. N. M. Ghogare
(Name & Signature of Staff)

Mr. S. B. Pawar
(Name & Signature of HOD)