Format K1

Maharashtra State Board of Technical Education, Mumbai

TEACHING PLAN (TP)

Academic Year: **2025-26 (ODD)**

Institute Code and Name: 61303- PPCOE, Karjat　　**Semester**: Second
Programme and Code: Civil Engineering (CE)　　**Course and Code: SUY**
Course Code: 312339　　**Scheme:** K
Name of Faculty: Miss.Potfode A.D.　　**Class: CE2K**

COURSE LEVEL LEARNING OUTCOMES (COS)

CO1 - Suggest relevant type of survey required for the given situation.
CO2 - Undertake cross staff and compass survey for the given field
CO3 - Undertake survey using Theodolite for preparing a plan of the given terrain.
CO4 - Determine Reduced Level to prepare Contour maps for the given type of terrain
CO5 - Prepare the plan using Plane Table Surveying to locate relevant details.

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 & 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	
312339	**Surveying**	**SUY**	**SEC**	**3**	**-**	**4**	**1**	**8**	**4**	**3**	**30**	**70**	**100**	**40**	**25**	**10**	**50#**	**20**	**25**	10	**200**

Total IKS Hrs for Sem.: 6 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	-	-	-	-	-	2			
CO2	3	3	1	2	1	1	3			
CO3	3	3	2	3	1	2	3			
CO4	3	3	2	3	1	2	3			
CO5	3	2	2	3	1	2	3			

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: Civil Engineering **Course Code:** 312339
Course: Surveying (SUY) **Semester:** Second (CE-2K)
Name of faculty: Miss. Potfode A. D.

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Unit No. (Allocated Hrs.)	*CO*	*TLO*	*Unit Name and Learning Content Title / Details*	*No. of Lecture*	*Plan (From-To)*	*Actual Execution (From-To)*	*Teaching method/ Media*	*Remark*
I (4 Hrs)	CO 1		**Unit - I Overview and Classification of Surveying**					
		TLO 1.1	1.1 Surveying: Introduction, Purpose, use and Principles.	01	17/12/2025			
		TLO 1.2	1.2 Types of surveying- Primary and Secondary classification, Plane, Geodetic, Cadastral, Hydrographic, Photogrammetry Aerial, Layout survey, Control survey, Topographical survey, Route survey, Reconnaissance survey.	02	18/12/2025 23/12/2025			
		TLO 1.3	Conventional sign and symbols	01	24/12/2025			
II (10 Hrs)	CO 2		**Unit - II Cross Staff and Compass Surveying**					
		TLO 2.1	2.1 Linear Measurement Instruments: Metric Chain, Tapes, Arrow, Ranging rod, Open cross staff (IKS)	01	24/12/2025			
		TLO 2.2	2.2 Chain survey Station, Base line, Check line, Tie line, Offset, Tie station, Types of offsets: Perpendicular and Oblique	01	30/12/2025			
		TLO 2.3	2.3 Ranging: Direct and Indirect Ranging.	1/2	31/12/2025			
		TLO 2.4	2.4 Area Calculations of field by cross staff (Numerical problems)	1/2	31/12/2025			
		TLO 2.5	2.5 Compass Traversing: open, closed.	01	31/12/2025			
		TLO 2.6	2.6 Technical Terms: Geographic/True Magnetic and Arbitrary Meridians and Bearings, Meridian and Bearing,	01	01/01/2026			
		TLO 2.7	2.7 Whole Circle Bearing System and Reduced Bearing System . Numerical on conversion of given bearing to another bearing (from one form to another), Fore Bearing and Back Bearing,	02	07/01/2026 07/01/2026			

Unit No. (Allocated Hrs.)	*CO*	*TLO*	*Unit Name and Learning Content Title / Details*	*No. of Lecture*	*Plan (From-To)*	*Actual Execution (From-To)*	*Teaching method/ Media*	*Remark*
		TLO 2.8	2.8 Calculation of internal and external angles from bearings at a station.	01	08/01/2026			
		TLO 2.9	2.9 Components of Prismatic Compass and their Functions (No sketch) Temporary adjustments and observing bearings	01	14/01/2026			
		TLO 2.10	2.10 Local attraction, Methods of correction of observed bearings- Correction at station and correction to included angles	01	14/01/2026			
		TLO 2.11	2.11 Methods of plotting a traverse and closing error, Graphical adjustment of closing error.	01	15/01/2026			
III (13 Hrs)	CO 3		**Unit - III Theodolite Surveying**					
		TLO 3.1	3.1 Types and uses of Theodolite; Component parts of transit Theodolite and their functions, Reading the Vernier of transit Theodolite	02	21/01/2026 21/01/2026			
		TLO 3.2	3.2 Technical terms- Swinging, Transiting, Face left, Face right	01	22/01/2026			
		TLO 3.3	3.3 Fundamental axes of transit Theodolite and their relationship	01	28/01/2026			
		TLO 3.4	3.4 Temporary adjustment of transit Theodolite	01	28/01/2026			
		TLO 3.5	3.5 Measurement of horizontal angle- Direct and Repetition method, Errors eliminated by method of repetition	02	29/01/2026 04/02/2026			
		TLO 3.6	3.6 Measurement of vertical Angle	01	05/02/2026			
		TLO 3.7	3.7 Theodolite traversing by included angle method and deflection angle method	02	11/02/2026 11/02/2026			
		TLO 3.8	3.8 Checks for open and closed traverse, Calculations of bearing from angles	01	12/02/2026			
		TLO 3.9	3.9 Traverse computation-Latitude, Departure, Consecutive coordinates, independent coordinates, Balancing the traverse by Bowditch's rule and Transit rule, Gale's Traverse table computation	02	18/02/2026 18/02/2026			
	CO 4		**Unit - IV Levelling and Contouring**					

Unit No. (Allocated Hrs.)	*CO*	*TLO*	*Unit Name and Learning Content Title / Details*	*No. of Lecture*	*Plan (From-To)*	*Actual Execution (From-To)*	*Teaching method/ Media*	*Remark*
IV (14 Hrs)		TLO 4.1	4.1 Terminologies: Level surfaces, level line, Horizontal and vertical surfaces, Datum, Bench Marks- GTS, Permanent, Arbitrary and Temporary, Reduced Level, Line of collimation, Back sight, Fore sight, intermediate sight, Change point, Height of instruments	02	25/02/2026 26/02/2026			
		TLO 4.2	4.2 Types of levels: Dumpy, Auto level, Digital level, Fundamental axis of Dumpy Level . Temporary adjustments of Level.	02	26/02/2026 04/03/2026			
		TLO 4.3	4.3 Types of Levelling Staffs: Self-reading staff and Target staff.	01	05/03/2026			
		TLO 4.4	4.4 Reduced level by Height of Instrument method and Rise and Fall Method	01	05/03/2026			
		TLO 4.5	4.5 Find the R.L. by Height of Instrument method with necessary checks (only Numerical question should be ask and no theory question).	02	11/03/2026 12/03/2026			
		TLO 4.6	4.6 Find the R.L by Rise and Fall method with necessary checks. (only Numerical question should be ask and no theory question).	02	12/03/2026 18/03/2026			
		TLO 4.7	4.7 Types of Leveling : Simple, Differential, Fly, Profile and Reciprocal Levelling	01	25/03/2026			
		TLO 4.8	4.8 Contour, contour interval, horizontal equivalent.	01	25/03/2026			
		TLO 4.9	4.9 Contour maps: Characteristics and uses of Contour maps	01	01/04/2026			
		TLO 4.10	Methods of Locating Contour: Direct and Indirect	01	02/04/2026			
V (4 Hrs)	CO 5		**Unit - V Plane Table Surveying**					
		TLO 5.1	5.1 Principle of plane table survey.	1/2	08/04/2026			
		TLO 5.2	5.2 Accessories of plane table and their use, Telescopic alidade.	01	09/04/2026			
		TLO 5.3	5.3 Setting of plane table; Orientation of plane table - Back sighting and Magnetic meridian method	01	09/04/2026			
		TLO 5.4	5.4 Methods of plane table surveys- Radiation, Intersection and Traversing.	01	15/04/2026			

Unit No. (Allocated Hrs.)	*CO*	*TLO*	*Unit Name and Learning Content Title / Details*	*No. of Lecture*	*Plan (From-To)*	*Actual Execution (From-To)*	*Teaching method/ Media*	*Remark*
		TLO 5.5	Merits and demerits of plane table survey.	1/2	15/04/2026			

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

Prof. A.D. Potfode

(Name & Signature of Staff)

Prof. A.D. Potfode

(Name & Signature of HOD)