



Yashoda Shikshan Prasarak Mandal's
YASHODA TECHNICAL CAMPUS, SATARA
FACULTY OF ENGINEERING

NH-4, Wadhe Phata, Satara., Tele Fax- 02162-271238/39/40
Website- <https://engg.yes.edu.in/> Email- principalengg_ytc@yes.edu.in
Approved by AICTE- New Delhi, Govt. of Maharashtra (DTE, Mumbai)
Affiliated to DBATU Lonere,

Department of Civil Engineering
Teaching Learning and Assessment Plan

Name of Faculty: Mr. V. B. Kashyap

Semester: IV Class: S.Y. B.Tech. [Civil]

DIV- A, B

Academic Year: 2025-26

Subject: Advanced Surveying (25AFARPOE405A)

Planned Duration: 09-03-2026 to 13-05-2026

Course outcome: After completing the course students will able to

- 25AFARPOE405A_1** **Explain** the working principles and methods of tacheometric surveying and perform related calculations.
- 25AFARPOE405A_2** **Utilize** astronomical observations to determine azimuth, latitude, and longitude.
- 25AFARPOE405A_3** **Interpret** aerial photographs, compute scales, errors, and plan aerial surveys.
- 25AFARPOE405A_4** **Describe** the concepts of remote sensing and GIS, and demonstrate the use of thematic layers and spatial data.
- 25AFARPOE405A_5** **Identify** and operate modern surveying instruments such as Total Station, EDM, and specialized compasses.

Reference Books:

- A. Duggal, S. K., Surveying Vol. I & II, Tata Mcgraw Hill, New Delhi
- B. Anderson, James M and Mikhail, Edward M. "Surveying theory and practice", Mc Graw Hill Education, Noida.
- C. Remote Sensing and GIS by B Bhatia, Oxford University Press, New Delhi
- D. Agor, R. Advanced Surveying, Khanna Publishers, New Delhi
- E. Anji Reddy, M., Remote Sensing and Geographical Information Systems, B.S.Publications

Mod ule	Lect ure No.	Lesson Plan	Duratio n	Planned Date	Conduction Date	TM	TA	AT	Referen ce Book	Mapping with Outcomes	
		Content Delivery								CO	PO
01	01	Module1: Tacheometric Surveying: Introduction, purpose	1 Hour	06/01/2026		LT	PPT, CB	CA MSE	A,B	25AFARPO E405A_1	1,2,3, 6,8,12

Vision:

To become centre of excellence by producing Civil engineers having research and development activity, sound technical knowledge, professional skills and social awareness to serve society.

Mission:

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		Content Delivery								CO	PO
	02	principle & use of tacheometry	1 Hour	06/01/2026				ESE	A,B		PSO1,2 ,3
	03	Instrument used & stadia hairs & Fixed hair methods of tachometry	1 Hour	08/01/2026					A,B		
	04	Tachometry constant & Problems Analytic lens theory, subtense bar,	1 Hour	13/01/2026							
	05	Field work in tachometry. Reduction of readings,	1 Hour	13/01/2026					A,B,C		
	06	Errors and precisions. Difference between Theodolite & Tachometer	1 Hour	15/01/2026					A,B		
	07	Assignment / Tutorial No.1 - Module 1	1 Hour	20/01/2026							
02	08	Module2: Field Astronomy: Introduction & Instruments & purpose	1 Hour	20/01/2026		LT	CB, PPT	CA MSE ESE	A,B	25AFARPO E405A_2	1,2,3,6, 8,10,12 PSO1,2 ,3
	09	Astronomical terms, Time & conversion of time	1 Hour	22/01/2026					A,B		
	10	Abbreviations	1 Hour	10/03/2026					A,B		

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		Content Delivery								CO	PO
	11	Determination of azimuth	1 Hour	10/03/2026							
	12	Latitude and longitude & Examples of azimuth	1 Hour	12/03/2026					A,B		
	13	Latitude and longitude	1 Hour	17/03/2026					A,B,D		
	14	Assignment / Tutorial No.2 - Module 2	1 Hour	17/03/2026							
03	15	Module3: Photogrammetric Surveying: Introduction, principle, uses Aerial camera	1 Hour	24/03/2026		LT	CB, PPT	CA MSE ESE	A,B,C	25AFARPO E405A_3	1,2,4,6, 8,12 PSO1,2 ,3
	16	Aerial photographs Definitions, scale of vertical and tilted photograph Ground coordinates	1 Hour	24/03/2026							
	17	ground control, examples on scale	1 Hour	02/04/2026					A,B,C		
	18	Displacements and errors, Examples on Displacement and errors, Procedure of aerial survey	1 Hour	07/04/2026					A,B,C		
	19	Examples on flight planning	1 Hour	07/04/2026					A,B,C		

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		Content Delivery								CO	PO
	20	Photomaps and mosaics. Difference between Mosaic & Map	1 Hour	09/04/2026							
	21	Stereoscopes, Parallax bar,	1 Hour	16/04/2026					A,B,C		
	22	Examples on Parallax bar	1 Hour	21/04/2026					A,B,C		
	23	Tutorial No.3 - Module 3	1 Hour	21/04/2026							
04	24	Module4: Remote Sensing & GIS for Surveying: Basic principles of Remote Sensing & Geographic Information Systems	1 Hour	23/04/2026		LT	CB, PPT	CA ESE		25AFARPO E405A_4	1,2,6,8, 9,10,11. 12. PSO 1,2,3
	25	applications, and limitations	1 Hour	28/04/2026					B,C		
	26	Platforms of GIS work.	1 Hour	28/04/2026					B,C		
	27	Concept and types of thematic layers in GIS.	1 Hour	30/04/2026							
	28	Concept and applications of geospatial data, types of spatial data,	1 Hour	05/05/2026					B,C		

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		Content Delivery								CO	PO
	29	available sources.	1 Hour	05/05/2026					B,C		
	30	Photogrammetric Surveying Principle, Scale	1 Hour	07/05/2026					B,C		
	31	Number of Photographs, Deduction of distance & height	1 Hour	12/05/2026							
	32	Assignment / Tutorial No.4 - Module 4	1 Hour	12/05/2026							
05	33	Module 5: Special Survey Instruments: Introduction, Electromagnetic Distance Measurement	1 Hour	14/05/2026		LT	CB	CA ESE		25AFARPO E405A_5	1,2,,3,4 ,6,8,9,1 0,11,12 PSO1,2 ,3
	34	Electronics Theodolite, Total station	1 Hour	Extra Lectures							
	35	Site square	1 Hour	Extra Lectures							
	36	PentaGraph, Autonet Level	1 Hour	Extra Lectures							
	37	Transit level, Special Compasses	1 Hour	Extra Lectures					B,C		

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Module	Lecture No.	Lesson Plan	Duration	Planned Date	Conduction Date	TM	TA	AT	Reference Book	Mapping with Outcomes	
		Content Delivery								CO	PO
	38	Brunton	1 Hour	Extra Lectures					B,C		
	39	Universal Pocket Transit	1 Hour	Extra Lectures					B,C		
	40	Mountain Compass Transit	1 Hour	Extra Lectures							
	41	Assignment / Tutorial No.5 - Module 5	1 Hour	Extra Lectures							

Note: TM-Teaching Method- Lecture (LT), Laboratory Visit (LV), Industrial Visit (IV) TA-Teaching Aids Chalk Board (CB), Power Point Presentation (PPT), Models (MD) AT-Assessment Tool-Assignments (AS), Examinations (CA, MSE, ESE), Rubrics (RB)

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Mode of Assessment

Mode	Assessment Tool	Syllabus	CO Mapped	Marks Weightage	Remark
CA	Assignment-CA1	All Modules	CO1, CO2, CO,3, CO4, CO5	25 M	The maximum weightage shall be of 20 Marks as per University Structure
	PPT Presentation-CA 2	Module 4 & 5	CO4, CO5	25 M	
	Quiz-CA3	Module 2 & 3	CO2, CO3	25 M	
MSE	Written Exam	50% of Syllabus	CO1, CO2, CO3	20M	The maximum weightage shall be of 20 Marks as per University Structure
ESE	Written Exam	On entire syllabus of Advanced Surveying (25AFARPOE405A)	CO1, CO2, CO3, CO4, CO5	60M	The maximum weightage shall be of 60 Marks as per University Structure

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Course Coordinator

Academic Coordinator

HOD

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