



# SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by  
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,  
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada  
Seetharampuram, W.G.D.T., Narsapur-534280, (Andhra Pradesh)

## DEPARTMENT OF CIVIL ENGINEERING

### TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods/ Week	Academic Year	Date of commencement of Semester
23CE3T01	SURVEYING	III	Civil Engineering	5	2024-2025	30/07/ 2024
<b>COURSE OUTCOMES:</b> Students are able to						
1	Discuss the principle and methods of surveying and measuring of horizontal and vertical- distances and angles.[K2].					
2	Identify the source of errors and rectification methods [K2].					
3	Apply surveying principles to determine levels, areas and volumes, and prepare contour maps.[K3].					
4	Describe different types of curves and usage of modern surveying equipments [K2].					
5	Explain the basics of Photogrammetric Surveying in field [K2].					
UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	CO1: Discuss the principle and methods of surveying and measuring of horizontal and vertical- distances and angles.[K2]. CO2: Identify the source of errors and rectification methods [K2].	1.1	<b>Introduction and Basic Concepts:</b> Introduction, Objectives, classification of Surveying	T1,T2	1	Chalk, Board, Ppt
		1.2	Principles of surveying	T1,T2	1	
		1.3	Surveying accessories	T1,T2,R1	1	
		1.4	Introduction to Compass surveying	T1,R1,R2	1	
		1.5	Introduction to Levelling	T1,T2,R1	1	
		1.6	Introduction to Plane table surveying	T1,T2	1	
		1.7	<b>Linear distances-</b> Approximate methods, Direct Methods	T1,T2	1	
		1.8	Chains, Tapes, ranging	T1,T2	1	
		1.9	Chain and tape corrections	T1,T2	1	
		1.10	<b>Prismatic Compass-</b> Bearings, included angles	T1,T2, R1,R2	1	
		1.11	Local Attraction, Magnetic Declination, and dip –systems	T1,R1	1	

		1.12	W.C.B and Q.B systems of locating bearings	T1,R1	1	
		1.13	Problems on bearings	T1,T2	1	
		1.14	Application of correction to local attraction	T1,T2	1	
Content beyond Syllabus (if needed)						
<b>Total</b>					<b>14</b>	
<b>II</b>	<b>CO3: Apply surveying principles to determine levels, areas and volumes, and prepare contour maps.[K3].</b>	2.1	<b>Unit II: Leveling-</b> Types of levels, methods of leveling	T1,T2	1	<b>Chalk, Board, Ppt</b>
		2.2	Determination of levels	T1,T2, R1	1	
		2.3	Effect of Curvature of Earth and Refraction.	T1,T2, R1,R2	1	
		2.4	Problems	T1,R1	1	
		2.5	<b>Contouring-</b> Characteristics and uses of Contours	T1,T2	1	
		2.6	methods of contour surveying	T1,T2	1	
		2.7	<b>Areas -</b> Determination of areas consisting of regular boundary	T1,T2	1	
		2.8	Determination of areas consisting of irregular boundary.	T1,T2, R1	1	
		2.9	<b>Volumes -</b> Determination of volume of earth work in cutting for levelsection	T1,T2	1	
		2.10	Determination of volume of earth work in embankments for levelsection	T1,T2	1	
		2.11	Determination of capacity of reservoirs	T1,T2	1	
		2.12	Scope of contouring	T1,T2	1	
Content beyond Syllabus (if needed)						
<b>Total</b>					<b>12</b>	
<b>III</b>	<b>CO1: Discuss the principle and methods of surveying and measuring of horizontal and vertical- distances and angles.[K2]. CO2: Identify the source of errors</b>	3.1	<b>Unit III: Theodolite Surveying:</b> Types of Theodolites, temporary adjustments	T1,T2, T3	1	<b>Chalk, Board, Ppt</b>
		3.2	measurement of horizontal angle by repetition method	T1,T2	1	
		3.3	measurement of horizontal angle by reiteration method	T1,T2	1	
		3.4	measurement of vertical Angle	T1,T2	1	



	and rectification methods [K2].	3.5	Trigonometrical leveling when base is accessible and inaccessible.	T1,R1	1	
		3.6	<b>Traversing:</b> Methods of traversing	T1,R1	1	
		3.7	traverse computations and adjustments	T1,T2	1	
		3.8	Introduction to Omitted measurements	T1,T2	1	
		3.9	Problems on omitted measurements	T1,T2	1	
		3.10	Problems	T1,T2	1	
Content beyond Syllabus (if needed)						
<b>Total</b>					<b>10</b>	
<b>IV</b>	<b>CO4:</b> Describe different types of curves and usage of modern surveying equipments [K2].	4.1	<b>Unit IV : Curves:</b> Types of curves and their necessity	T1,T2	1	<b>Chalk, Board, Ppt</b>
		4.2	elements of simple, compound curves	T1,R1	1	
		4.3	elements of reverse curves	T1	1	
		4.4	Introduction to Tacheometric Surveying.	T1,T2	1	
		4.5	Stadia and tangential methods of Tacheometry.	T1,R1	1	
		4.6	Distance and Elevation formulae for Staff held vertical	T1,T2	1	
		4.7	Distance and Elevation formulae for Staff held in Inclined position.			
		4.8	<b>Modern Surveying Methods:</b> Principle and types of E.D.M. Instruments	T1,R1	1	
		4.9	Total station- advantages and Applications	T1,T2	1	
		4.10	Introduction to Global Positioning System	T1,T2	1	
		4.11	Introduction to Drone survey	T1,T2	1	
		4.12	LiDAR Survey (Light Detection And Ranging).	T1,R2	1	
Content beyond Syllabus (if needed)						
<b>Total</b>					<b>12</b>	
<b>V</b>	<b>CO5:</b> Explain the basics of Photogrammetric Surveying in	5.1	<b>Unit V : Photogrammetry Surveying:</b> Introduction, basic concepts	T1,T2	1	<b>Chalk, Board, Ppt</b>
		5.2	Perspective geometry of	T1,T4	1	

	field [K2].		aerial photograph		
		5.3	Relief and tilt displacements	T1,T2	1
		5.4	Terrestrial photogrammetry	T1;R1	1
		5.5	Flight planning	T1,T2	1
		5.6	Stereoscopy	T1,T2	1
		5.7	ground control extension for photographic mapping	T1,T4	1
		5.8	aerial triangulation method	T1	1
		5.9	radial triangulation method		
		5.10	photographic mapping-mapping using paper prints,	T1,T2,R3	1
		5.11	photographic mapping-mapping using stereo-plotting instruments	T1,T2	1
		5.12	mosaics, map substitutes	T1,T2	1
Content beyond Syllabus (if needed)					
Total					12
CUMULATIVE PROPOSED PERIODS					60
Text Books:					
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION				
1	B C Punmia, ashik Kumar Jain, Arun Kumar Jain,7 th edition, laxmi publications, New Delhi.				
2	Satish Gopi, Advanced surveying, 6 <sup>th</sup> Edition, Laxmi Publications (P) Ltd., New Delhi.,2017				
3	Venkataramaiah, A tesxt book of surveying, 5 <sup>th</sup> Edition, TEXT BOOKS house, 2017				
Reference Books:					
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION				
1	Arora, A basic surveying, 7 <sup>th</sup> Edition, S. Chand & Co, 2017				
2	Am Chandra, Higher surveying, 5 <sup>th</sup> Edition, Khanna Publishers, 2018				
3	SK Roy , Fundamentals of surveying, 4 <sup>th</sup> Edition				
Web Details					
1	<a href="http://www.icoachmath.com/physics/definition-of-contouring.html">http://www.icoachmath.com/physics/definition-of-contouring.html</a>				
2	<a href="https://www.energy.geodeticsurveying/types">https://www.energy.geodeticsurveying/types</a>				


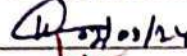




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	Name	Signature with Date
i. Faculty	Mr. D.Satish	 24/08/24
ii. Course Coordinator	Mr. D.Satish	 24/08/24
iii. Module Coordinator	Mr. G.V.L.N MURTHY	
iv. Programme Coordinator	Mr. G.V.L.N MURTHY	



Principal