



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.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF CIVIL ENGINEERING

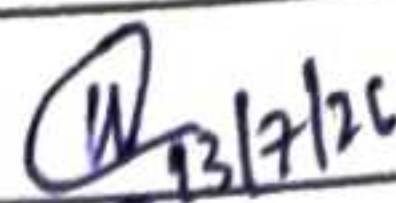
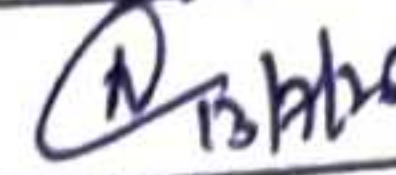
TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods/Week	Academic Year	Date of commencement of Semester
23CE3T01	SURVEYING	III	Civil Engineering	5	2026-2027	13/07/ 2026
COURSE OUTCOMES:						
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	Introduction and Basic Concepts: 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	Linear distances- 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	Prismatic Compass- 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)						
Total					14	
II	CO3: Apply surveying principles to determine levels, areas and volumes, and prepare contour maps.[K3].	2.1	Unit II: Leveling- Types of levels, methods of leveling	T1,T2	1	Chalk, Board, Ppt
		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	Contouring- Characteristics and uses of Contours	T1,T2	1	
		2.6	methods of contour surveying	T1,T2	1	
		2.7	Areas - 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	Volumes - 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)						
Total					12	
III	CO1: Discuss the principle and methods of surveying and measuring of horizontal and vertical- distances and angles.[K2]. CO2: Identify the source of errors	3.1	Unit III: Theodolite Surveying: Types of Theodolites, temporary adjustments	T1,T2, T3	1	Chalk, Board, Ppt
		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	Traversing: 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)						
Total					10	
IV	CO4: Describe different types of curves and usage of modern surveying equipments [K2].	4.1	Unit IV : Curves: Types of curves and their necessity	T1,T2	1	Chalk, Board, Ppt
		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	Modern Surveying Methods: 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)						
Total					12	
V	CO5: Explain the basics of Photogrammetric Surveying in	5.1	Unit V : Photogrammetry Surveying: Introduction, basic concepts	T1,T2	1	Chalk, Board, Ppt
		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 th Edition, Laxmi Publications (P) Ltd., New Delhi.,2017				
3	Venkataramaiah, A tesxt book of surveying, 5 th Edition, TEXT BOOKS house, 2017				
Reference Books:					
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION				
1	Arora, A basic surveying, 7 th Edition, S. Chand & Co, 2017				
2	Am Chandra, Higher surveying, 5 th Edition, Khanna Publishers, 2018				
3	SK Roy , Fundamentals of surveying, 4 th Edition				
Web Details					
1	http://www.icoachmath.com/physics/definition-of-contouring.html				
2	https://www.energy.geodeticsurveying/types				

	Name	Signature with Date
i. Faculty	Mr. D. SATISH	 13/7/20
ii. Course Coordinator	Mr. D. SATISH	 13/7/20
iii. Module Coordinator	Mr. D. SATISH	 13/7/20
iv. Programme Coordinator	Dr. G.V.L.N MURTHY	


Principal

Cognitive levels as per Revised Blooms Taxonomy:

Cognitive Domain	Level	Key words
Remember	K1	Defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.
Understand	K2	Comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.
Apply	K3	Applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.
Analyse	K4	Analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates.
Evaluate	K5	Appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports
Create	K6	Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, write