GUJARAT TECHNOLOGICAL UNIVERSITY

SURVEYING AND PHOTOGRAMMETRY
SUBJECT CODE:1025502
B.PLAN 2ND SEMESTER

Prerequisite: NA

Rationale: To study Preparation of Base Map from data obtained through Field Survey.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	Field work(T)	P	C	Theory Marks		Practical Marks		
				ESE(E)	PA (M)	PA (V)	PA(I)	
2	1	0	3	50	50	30	20	150

L- Lectures; T- Tutorial/Teacher Guided Student Activity/Field work; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment.

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	**Fundamentals of Surveying :** Definitions, classifications, use, objectives and basic principles of surveying; Classifications of measurements and units, concepts of scales, maps and plan and use of conventional symbols; Stages in surveying works -field works, office works, care and adjustment of the instruments; Errors in surveying -sources and kinds.	9	18.75%
2	**Chain Surveying and Compass Surveying :** Definition,application,advantagesanddisadvantages,principles;Instrumentsused,step sinchainsurvey; Definition of framework of survey, survey lines, survey stations, base line, tie line, check line; Ranging and chaining a survey line, off-sets -use and types; Errors and obstacles in chaining; Plotting chain survey to prepare a plan with practical examples. Definition of compass surveying, traversing, types of traversing, applications, advantages and disadvantages, principles and instruments used in compass surveying; Concept of bearings, meridian and angles, designation of bearing, fore bearing and back bearing, local attraction; Plotting of compass survey data to prepare a plan of a small area.	9	18.75%

3	**Plain Table Surveying and Computations of Areas :** Definition, application, advantages and disadvantages of plane table survey; Instruments used, working operation, methods of plane table survey; Preparation of map of a small area with plane table survey. General methods of determining area; Instrument used and their principles for computing area; Determination of area from the plotted map with different methods and comparing them; Use of Digital Plan meter.	9	18.75%
4	**Levelling and Contouring :** Definition, principle, methods and application of levelling; Instruments used and the principles of their work; Concepts of level surface, level line, horizontal plane, horizontal line, vertical line, datum, bench marks; Theory of direct levelling, differential levelling and reduction of levels, classification of levelling and errors in levelling. Definition and application of contouring; Characteristics and interpretation of contour lines; Methods of locating contours.	9	18.75%
5	**Photogrammetry :** Photogrammetry as an Alternative Tool for Surveying; Introduction to Aerial Remote Sensing and Aerial Photographs, Classification; Principles of Stereoscopic Vision; Basic instruments -Stereo pair, Pocket and Mirror Stereoscopes, Parallax Bars; Principles of Photogrammetry, Measurement of Heights and Depths; Introduction to Digital Photogrammetry; Introduction to GPS; Introduction to Total Stations; Applications in urban and regional planning; Laboratory Exercises.	12	25%

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
10	**40**	**30**	**10**	**10**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Surveying (Volume I and II) by B.C Purnia and A.K.Jain, Laxmi Publication, Delhi & Edition-2005.
2. Advanced Surveying: Total Station, GIS and Remote Sensing by SatheeshGopi , Pearson& Edition-2007.
3. Digital Photogrammetry by Wilfried Linder,Sringer& Edition-2008.

Course Outcome:

After learning the course the students should be able to:

1. To learn the Methods of Techniques of Physical Survey and Preparation of Base Maps and Planning.
2. To study the Techniques and use of Aerial Photography and GIS for Preparation of Maps and Plans.

List of Exercises / Practical:

Visit to the Office of Civil Engineering Department of CPWD / PWD or IRS or NRSA and submit Report.

List of Assignments/Tests:

1. Test on Unit 1 and Unit 2.
2. Assignment on Plain Table Surveying.

List of Open Source Software/learning website: NA