

# GEOG. 303 GPS AND LEVELLING

Credit/Hours: 3(2+1)

## I. Introduction to GPS Technology

- i. Types, Performance and Errors
- ii. Use & Applications

## II. Leveling

- i. General description kinds of levels
- ii. Adjustments in levels
- iii. Procedure of levelling
- iv. Methods of calculating reduced levels.
- v. Profiles and longitudinal levelling
- vi. Cross sectional levelling
- vii. Accuracy required in leveling operation.
- viii. Advantages and sources of error in leveling procedure.
- ix. Contours by clinometers
- x. Tangent scale clinometers use with Plane Table laying out of contours

### Books recommended:

- Maginr D. J (1991): Geographic Information System. Longman London
- Brinker R.E. & W.C. Taylor (1962): Elementary Surveying, The International Textbook Company.
- Usili G.W. (1960): Practical Surveying. The Technical Press Ltd.
- Clendinning, J. (1960): Principles of Surveying. Blackie and Sons, Limited Glasgow,
- Rubey, H. et .al (1958): Engineering Surveys. The Macmillan Company.
- Breed, C.B. & G.L. Hosmer (1953): Surveying. John Wiley & Sons.
- Thomas W.N. (1942): Surveying, John Wiley and Sons.
- Kanetkar, T.P. & S.V. Kulkarni (nd): Surveying and Leveling part-I. Union Book Stall Karachi.

Assessment			
Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.