

Course XV (Practical) 6718
Advanced Surveying, Remote Sensing and GIS

Course Contents:

Unit - I Prismatic Compass Surveying (Mathematical Techniques for Closed Traversing), Interpolation of Contours by Indian Clinometer, Sextant measurement (Vertical and Horizontal), Telescopic Alidade, Dumpy Level (Simple & Differential Levelling, Rise and Fall Methods, Theodolite.

Unit - II Air Photos and Photogrammetry : Elements of Photographic System; types, scales, Calculation and Measurement of height of aircraft and ground coverage, resolution, radiometric characteristics, film, filters, aerial cameras, film exposures, vertical photographs, relief displacement, image parallax, Numbering of Photographs Air Photo interpretation : shape, size pattern, tone, texture, shadows etc. Photo Mosaics and their comparison with topographical maps.

Unit - III Definition, types and scope of Remote sensing, Development of Remote sensing, stages in remote sensing data acquisition, electromagnetic radiation and electromagnetic spectrum, black body radiation and radiation laws, Interaction of EMR with Earth's surface features, Role of atmosphere in remote sensing. Types and salient characteristics of orbital platforms, types and geometry sensors, sensors resolutions and application, remote sensing data products, Indenting of remote sensing data in India.

Unit - IV Definition and development of GIS, computer environment for GIS, Spatial Data : Elements of spatial data; quality and error variations-raster and vector data structures, Database Management Systems: and spatial modeling-output format and generation., GIS Application: GIS as a Decision Support System-expert. GIS in Land Information System, Urban Management, Environmental Management and Emergency Response System. Use of GPS in data generation and mapping.

Note : A Geographical Survey Camp of not less than 10 days duration in different area other than of college premises of India will be arranged to acquaint students with the advanced surveying techniques and the spot study of aerial photographs & satellite imageries. Students are required to submit survey camp report containing not more than 10 pages and supported by 5 maps prepared during survey camp. There will be one teacher and one supporting staff on every 10 students group of guiding the students. T.A. & D.A. will be paid by the college concerned to the teaching and supporting staff members accompanying the students during survey camp.

For purpose of examination two surveying exercises from Unit-I will be given to each group of not more than 2 students. These exercises will be of 3 hours duration.

There will be a written test of 3 hours duration for rest of units-II, III & IV. Students will have to attempt 3 questions out of 6 questions (2 from each Unit).

The distribution of marks shall be follows :-

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|-----|-------------------------|----------|
| (1) | Two surveying exercises | 30 Marks |
| (2) | Written Test | 30 Marks |

1.3.2

GEOGRAPHY B.A. III

Paper-X : Practicals P 312.

(A) Field Work

- Unit-I** Plane table Surveying ; Radiation, Intersection & Resection methods, two point problem and three point problem.
- Unit-II** Surveying by Prismatic Compass - open traverse and close traverse, Elimination of error by Bowdich Method.
- Unit-III** Use of Sextant ; measurement of height-accessible and inaccessible method.

OR

Indian clinometer; Measurement of height-accessible and inaccessible method.

(B) Field Study Report :

Select a village or a town or a ward of a city and prepare a report based on primary and secondary data with the help of maps and diagrams.

(C) Viva-Voce & Sessional Records

Division of Marks:

- | | |
|---|--------------|
| (A) Field work (One exercise from each unit. Duration four hours) | 10+10+5 (25) |
| (B) Field Study report | 15 |
| (C) Viva-Voce & Sessional Records | 10 |

Books Recommended:

- Singh, R.L., Elements of Practical Geography, Kalyani Pub. New Delhi.
- Khan, Z.A., Text book of practical Geography, Concept, New Delhi-1998.
- Sharma J.P.-Prayogik Bhugol.

The Geography Department may select a village or a town or a part of a city and organize field study camp of all the students under the supervision of teaching and supporting staff. Alternatively, separate localities may be allotted to single/ small batches of students separately and supervision may be made as and when required. TA & DA will be paid by the college concerned to the teaching and supporting staff members if they accompany the students during the field work.