

Year & Sem	Course Code: CE4608	Course Name: Advanced Surveying	No. of Credits: 4	L	T&PS	P
				2	2	0

Unit-I:MODERN SURVEYING EQUIPMENT : Modern surveying electronic equipments: digital levels, digital theodolites, EDMs, Total stations; Principles, working and applications; Lasers in surveying.

Unit-II:PHOTOGRAMMETRY : Photogrammetric terms; Applications; Type of photographs; Perspective geometry of near vertical and tilted photographs, heights and tilt distortions; Flight planning; Stereoscopy, base lining, floating marks, parallax equation and stereo measurements for height determination; Developments in photogrammetry: analogue, analytical and digital methods; photogrammetric instruments

Unit-III:REMOTE SENSING :Introduction- Remote sensing system- data acquisition and processing; Applications; Multi concept in remote sensing. Physical basis of remote sensing- Electro-magnetic radiation (EMR)- nature, nomenclature and radiation laws; Interaction in atmosphere- nature, its effects in various wavelength regions, atmospheric windows; Interaction at ground surface- soils and rocks, vegetation, water, etc.; Geometric basis of interaction. Platform and sensors- Terrestrial, aerial and space platforms; Orbital characteristics of space platforms, sun- and geo-synchronous; Sensor systems- radiometers, optomechanical and push broom sensor; Resolution- spectral, spatial, radiometric and temporal; Data products from various air and spaceborne sensors- aerial photographs, LiDAR, Landsat, SPOT, IRS, ERS, IKONOS, etc. Image interpretation- Elements of interpretation; Manual and digital interpretation; Field verification.

Unit-IV: GEOGRAPHICAL INFORMATION SYSTEMS : Components of GIS- data acquisition, spatial and attribute data, pre-processing, storage and management; Data structures- raster and vector data; GIS analysis functions; Errors and corrections; Data presentation and generation of thematic maps; Applications.

References/Text Books:

- 1.
- 2.
- 3.
- 4.

Lecture Plan: Unit-I Syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Video Lectures (Web Links):

1. nptel.ac.in/courses/105107121/
- 2.
- 3.

Study Materials (Web Links):

1. nptel.ac.in/courses/105104100/