

**Fundamentals of Photogrammetry:** Perspective geometry, concept of scale, image coordinate System, parallax and stereo vision, image overlap, concept of epipolar planes and lines, geometry of aerial camera and satellite based imaging sensors, interior and exterior orientation of a stereo pair, resection and intersection techniques, relative and absolute orientation, block triangulation,.

**Digital Image Processing Techniques for Stereo Image Analysis:**

Along track and across track stereo imaging systems on Indian and foreign satellites, radiometric normalisation, geometric corrections, interest point operators, image matching techniques, disparity computations and 3-D surface generation from stereo pairs, hardware and software components of digital photogrammetry workstations

**Global Positioning System:** Working principle of GPS; overview of space, control and user segment of GPS; GPS signals and coding; GPS navigation algorithms, principle of differential GPS; static, kinematic and RTK modes of GPS operations, single and multi-frequency receivers, new systems, frequencies and codes in GPS operations.

## **Text / References**

Mikhail, E.M., Bethel, J.S. and McGlone, J.C., Introduction to Modern Photogrammetry, John Wiley, NY, 2001

Greve, C.W. (ed.), Digital Photogrammetry: An addendum to the Manual of Photogrammetry, American Society for Photogrammetry and Remote Sensing, 1996

Hofman-Wellenhof. B., Lichtenegger H. and Collinn, Global Positioning System: theory and practice, 5th edition, Springer-Verlag, New York, 2001

Parkinson B.W., Spielker Jr. J. J. (eds.), Global Positioning System: Theory and Applications, Vol I and Vol. II, American Institute of Aeronautics and Astronautics, Inc., Washington D.C., 3rd edition, 1996

## **Course Evaluation Scheme**

**Attendance : 80 % minimum**

**Mid-Sem. Exam : 45 %**

**End-Sem. Exam : 50 %**

**Quizzes : 10 %**

**Class Participation : 5 %**