Course Plan

Week -1	Lectures and Hand-ons: Introduction to Remote sensing, Geodetic and Geophysics for geological hazards; Geological and Geophysical Field demonstration
Week -2	Lectures and Hand-ons: Introduction to Remote sensing, Geodetic and Geophysics for geological hazards; Cultural/ heritage visit

Tentative Course Agenda

Proposed Lecture topics

1. Overview of remote sensing and GIS applications in geosciences
2. Advances in microwave and thermal remote sensing techniques for geosciences
3. Overview of Earth Observation System and recent initiatives for terrestrial
4. Advanced digital topographical and image segmentation techniques in geological applications
5. Role of Optical Remote Sensing (including aero-space based technology) in mapping, monitoring and modeling in landslides
6. Application of Microwave Remote Sensing and Geophysical investigations in detection of landslide and surface deformation
7. Application of Remote Sensing in assessment of ice and snow avalanche
8. Strategy for support to development of early warning system for landslide and related disasters
9. Integrated geophysical and earth observation techniques for geological applications
10. Advances in geophysical and geodetic techniques for geodynamics and earthquake precursor studies
11. Applications of optical, microwave and thermal remote sensing data for cryospheric studies
12. Recent approaches in rainfall threshold and landslide initiation; numerical modeling and simulation
13. High altitude glacial hazard studies using remote sensing data and techniques

Proposed Practical

1. Demonstration of microwave remote sensing data analysis for geological hazards
2. Practical/Demonstration on Integrated geophysical and earth observation techniques for geological applications
3. Hand-ons on Electrical Resistivity Tomography, Multichannel Analysis of Surface waves, Ground Penetrating Radar, Space based Geodetic instrument
4. Practical/Demonstration on Assessment of snow cover area and monitoring of glacier snout using optical remote sensing data
5. Landslide hazard zonation and risk analysis; Debris flow/ Rock fall/ Avalanche modelling