



INTRODUCTORY FIELD STRUCTURAL GEOLOGY

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PRE-REQUISITES : Elementary Structural Geology

INTENDED AUDIENCE : Undergraduate students of Earth Sciences, Civil Engineering, Geography

INDUSTRY SUPPORT : Geological Survey of India, ONGC, Reliance Industries Ltd.

COURSE OUTLINE :

Geological Fieldwork is considered as an important part of a geologist's training and a modern geologist must have a strong understanding of the features offered by the rock-exposures. The fieldwork program emphasizes techniques and provides training in the field interpretation of structural geology and tectonics, geomorphology, stratigraphy, sedimentology, and igneous processes. This course will cover and provide basic understandings on different structural features observed in a typical deformed geological terrane. The content of the course has been designed largely to motivate mostly undergraduate geology students to understand the deformation processes operating in the different deformed regions by observing and interpreting different outcrop scale deformation structures in the field.

ABOUT INSTRUCTOR :

Prof. Santanu Misra is a Professor of Structural Geology in the Department of Earth Sciences of Indian Institute of Technology, Kanpur. He is also a DST Swarna Jayanti Fellow, PK Kelkar Research Fellow and INSA Young Scientist. He teaches Structural Geology and leads the Experimental Rock Deformation Laboratory in IIT Kanpur. His main research focus is to understand the mechanical response of composite rock systems at various deformation conditions. Please visit his webpage to know more: <http://home.iitk.ac.in/~smisra/>

COURSE PLAN :

Week 1: Basics and Ethics of Field Geology ; Tools and Equipments ; Geological Maps and features ; Locating yourself in the field ; Defining structural elements in the field

Week 2: Primary structures ; Secondary structures ; Measurement and record of structural data; Sample collection ; Geometrical parameters of folds definition and measurements ; Fold geometries in outcrop scales

Week 3: Superposed deformation ; Sequence of deformation from superposed fold patterns ; Ductile shear zones ; Shear Sense indicators ; Strain analysis from deformed markers

Week 4: Brittle Deformation ; Analysing brittle deformation ; Mapping structural data ; Interpreting large-scale structures ; Summary & Conclusion