



# EARTHQUAKE GEOLOGY: A TOOL FOR SEISMIC HAZARD ASSESSMENT

## **PROF. JAVED N. MALIK**

Department of Earth Sciences  
IIT Kanpur

**INTENDED AUDIENCE :** UG/PG students of Science and Engineering.

### **COURSE OUTLINE :**

Paleoseismic study is a common practice in many countries like United States, Japan, New Zealand etc. These studies have provided significant data towards recognition of individual paleoseismic (old earthquake) events, behavior of individual active fault segment, rate of faulting; reconstructing the history of large magnitude earthquakes and their repeat time etc. Paleoseismological studies are very important because they provide valuable information to the society to assess the probability and severity for the future earthquakes. This is an upcoming field in India. This course is designed for the PG as well as UG students to help them in developing their knowledge in this field.

### **ABOUT INSTRUCTOR :**

Prof. Javed N. Malik finished his Ph. D in 1998 from M. S. University Baroda, Vadodara. Gujarat (Geology), did his Post-Doctrate (Japan Society for Promotion of Science) from (1999-2001) Hiroshima University, JAPAN.

### **COURSE PLAN :**

**Week 1:** Crustal deformation and earthquakes (Seismicity), and its significance, Plate Tectonics

**Week 2:** Signature of prehistoric earthquakes: Primary and Secondary signatures preserved in landforms and sediment succession

**Week 3:** Signature of prehistoric earthquakes (continued)

**Week 4:** Interpretation and Identification of Active Fault and associated Tectonic Landforms

**Week 5:** Interpretation and Identification of Active Fault and associated Tectonic Landforms (continued)

**Week 6:** Field Techniques in Paleoseismology

**Week 7:** Field Techniques in Paleoseismology (continued)

**Week 8:** Identification and mapping of secondary effects

**Week 9:** Paleo-tsunami geology

**Week 10:** Paleo-tsunami geology (continued)

**Week 11:** Paleo-tsunami geology (continued)

**Week 12:** Field Study: Identification and mapping of active faults and associated landforms in field.