GEOMORPHIC PROCESSES: LANDFORMS AND LANDSCAPES

PROF. JAVED N. MALIK
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IIT Kanpur

PRE-REQUISITES : Basic course in Earth Sciences
INTENDED AUDIENCE : UG students of Science and Engineering.
INDUSTRIES APPLICABLE TO : Any company dealing with Landscape mapping

COURSE OUTLINE :
The course introduces the student to basic principles of geomorphology and related geological environment. The modules of this course will help the student to have better understanding towards processes operating in the interior of the earth and also on the earth surface. After this course, a student can be well equipped with the knowledge of the different landforms and processes going on in fluvial, glacial, karst, aeolian, coastal terrains.

ABOUT INSTRUCTOR :
Prof. Javed N. Malik finished his PhD 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.

Area of Specialization: Active Tectonics, Paleoseismology and Paleo-tsunami

Current Areas of Research:

• Active fault mapping and Paleoseismological studies along NW Himalaya and Kachchh

• Paleo-Tsunami studies in Andaman & Nicobar Islands

• Collaboration with Japan, US and France – related to earthquake and tsunami studies

Research Projects:

• Active tectonic investigation along northwestern Himalayan foothill zone, sponsored by DST

• Active fault mapping and paleoseismic investigations in Kachchh region. Gujarat, by OYO International Japan.

• Active Tectonic investigations around South-Middle Andaman and Car Nicobar Islands, A&N Islands, sponsored by INCOIS, Hyderabad, MoES.

COURSE PLAN :

WEEK 1: Fundamentals of the Earth Surface System and Processes

WEEK 2: Interior of Earth, Plate Tectonics and Sea-floor Spreading

WEEK 3: The Atmospheric System: Atmospheric composition and mixing, Hydrological cycle, carbon cycle greenhouse effect, Milankovitch Cycles

WEEK 4: Fluvial Geomorphology: Drainage basins and river systems, river morphology and hydrology, hydraulic geometry and governing principles of open channel flow

WEEK 5: Fluvial Geomorphology (continued): fluvial erosion, sediment transport and depositional landforms, river dynamics.

WEEK 6: Aeolian Geomorphology: Atmospheric circulation, wind erosion, sediment transport and depositional landforms.

WEEK 7: Glacial Geomorphology: Glacial Basics and Mass Balance; Ice Motion: Deformation, Sliding, and Surging; Glacial Erosional Processes and Landforms; Depositional Glacial Landforms

WEEK 8: Karst Geomorphology: KarstErosional Processes and Landforms; Depositional Landforms; Coastal and submarine Geomorphology: Coastal environment, waves, tides and currents. The relative movement ofland and sea, coastal erosion and resulting topographic features, coastal deposition and landfarms

Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

SIVANANDHAN S

for successfully completing the course

Geomorphic Processes: Landforms and Landscapes

with a consolidated score of **90** %

Online Assignments	20.42/25	Proctored Exam	70/75

Total number of candidates certified in this course: **128**

Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

Jan-Mar 2023

(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL23CE56S34372786

To validate the certificate

No. of credits recommended: 2 or 3