

## SEMESTER-I

**GEOG. 651:**

**GEOMORPHOLOGY**

**3(3-0)**

### **Course Objectives**

To educate students about the mechanics of processes that operates on earth surface to develop landforms.

### **Learning Outcomes**

This course will enable students to identify and interpret landforms and their characteristics features with recognition of their formative processes and agents of change, not only in the field but also on topographic maps and remotely sensed sources.

### **Course Outline**

#### **1. Introduction**

- Nature and scope of Geomorphology

#### **2. Earth's Internal Structure**

- Crust
- Mantle
- Core

#### **3. Factors of Landforms Development**

- Geologic structure
- Geomorphic processes
- Geological time

#### **4. Endogenic Processes**

- Isostasy
- Earthquakes
- Volcanism
- Plate-tectonics

#### **5. Exogenic Processes**

- Weathering
- Erosion
- Mass-Wasting

#### **6. Landform Development and Fluvial Process**

- Surface Streams: Erosional mechanics, load, erosional and depositional landforms.
- Underground Water: Erosional and depositional landforms.
- Glacial processes: Types, erosional mechanics, erosional and depositional landforms.
- Aeolian processes: Erosional and transportational mechanics, erosional and depositional landforms.
- Coastal processes: Erosional and depositional landforms produced by sea waves.

### **Field Visits**

1. Ziarat Valley for various geologic structures
2. Aurak Valley for river terraces, erosion and deposition
3. Offices of Geological Survey of Pakistan, Geo-physical Centre and, Meteorological stations, Quetta.
4. Any area of karst topography/Aab-e-gum and others.

**Recommended Books**

1. Hugget, R.J. (2002), "Fundamentals of Geomorphology", Rutledge, London.
2. Burbank, D.W (2001), "Tectonic Geomorphology", Blackwell Publ.
3. Ritter, D.F. (2001) "Process Geomorphology", McGraw hill
4. Martini (2001) "Glacial Geomorphology and Geology", Prentice Hall.
5. Kings, Cuchlame, M. (1996) "Techniques in Geomorphology", Edward Arnold Ltd,  
Gerard, J. (1993) "Soil Geomorphology", London, Longman.
6. Rowell, D.L. (1993) "Soil Science: An Approach", London, Longman.
7. Taylor, I. (1993) "Integrated Physical Geography", London Longman.
8. Scheidegger, A.E. (1991) "Theoretical Geomorphology", New York. Springer.
9. Thornbury, W.D. (1991) "Principles of Geomorphology", New York John Wiley.