DEPARTMENT OF GEOLOGY
SEMESTER – IV
BSC (H) Geology
Category - I

DISCIPLINE SPECIFIC CORE COURSE -10 (DSC-10) – : Geomorphology (L3, P1)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
(DSC-10) **Geomorphology (L3, P1)**	**4**	**3**	**0**	**1**	**12th pass with science**	**Studied Earth System Science and Equivalent**

Learning Objectives

The course on geomorphology is intended to provide students basic scientific knowledge Earth surface process and evolution of the landforms. Students will be aught about the basic and fundamentals of geomorphology to comprehend the process and evolution of landscapes through time.

Learning outcomes

After going through this course, students will develop basic skills and understanding about the key concepts of geomorphology, i.e., systems (morphological, cascading, process-response), threshold, magnitude and frequency, unifying concepts such as conservation of mass and energy in geomorphic systems, sediment routing, equilibrium and steady state. They will be able to use the knowledge to identify various landforms and processes in different environments i.e., glacial, fluvial, aeolian, coastal regions. They will also be able to examine the landforms at primary scale. They will be able to analyse the morphometric parameters of a basin. They will develop skills to prepare a geomorphic map using topographic sheets and Google Earth images.

SYLLABUS OF DSC-10 (Credits: 4)
Theory: 45 hours, Practical: 30 hours

UNIT – I (9 hours)

Detailed content

Introduction to Geomorphology: Concepts in geomorphology, Geosphere-Hydrosphere-Biosphere; Unifying concepts

UNIT – II (9 hours)

Detailed contents

Morphological features of Earth: Geoid, Topography, Hypsometry, Global Hypsometry, Major Morphological features. Large Scale Topography - Ocean basins, Plate tectonics overview, Large scale mountain ranges (with emphasis on Himalaya)

UNIT – III (9 hours)

Detailed contents

Earth Surface Processes: Surficial processes and geomorphology; Weathering and associated landforms, Hill slopes Glacial, Periglacial processes and landforms, Fluvial processes and landforms, Aeolian Processes and landforms, Coastal Processes and landforms, Landforms associated with igneous activities.

UNIT – IV (9 hours))

Detailed contents

Methods and techniques: Dating Methods, measuring rates; Rates of uplift and denudation, Tectonics and drainage development, Sea-level change, Long-term landscape development.

UNIT – V (9 hours)

Detailed contents

Overview of Indian Geomorphology. Introduction to Extra-terrestrial landforms

Practical Component- (30 Hours)

Reading topographic maps, Concept of scale, Preparation of a topographic profile, Preparation of longitudinal profile of a river, Preparing Hack Profile and Calculating Stream length gradient index, Morphometry of a drainage basin - Calculating different morphometric parameters, Preparation of geomorphic maps.

Essential/recommended readings

M.A. Summerfield (1991) Global Geomorphology. Wiley & Sons.

Robert S. Anderson and Suzzane P. Anderson (2010): Geomorphology - The Mechanics and Chemistry of Landscapes. Cambridge University Press.

Suggestive readings

Robert S. Anderson and Suzzane P. Anderson (2010): Geomorphology - The Mechanics and Chemistry of Landscapes. Cambridge University Press.

Paul R. Bierman and D.R. Montgomery (2014): Key Concepts in Geomorphology. W.H. Freeman and Company Publishers.

M.A. Summerfield (1991) Global Geomorphology. Wiley & Sons.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.