Government PG College, Ambala Cantt

Course File: 2023-24 Even semester

Name of Professor: Ajay Chauhan

Class: M.Sc. Geography_2nd Semester

Subject code and Name: Geog 201_ Geomorphology

SYLLABUS

Maximum Marks: 100 **External: 80**

Minimum Pass Marks: External 32 and Internal 8 **Internal: 20**

Note:- There will be nine questions in all. Question No. 1 is compulsory and consists of 10 short notes (required to be answered in not more than 25 words each). Short notes shall cover entire syllabus. There will be 8 long questions, two from each unit. The candidate shall attempt FOUR long questions, one from each unit. Question 1 carries 20 marks while remaining four questions carry 15 marks each.

UNIT-I

1. Introduction to geomorphology as a science: definition, nature, scope and recent developments.
2. Fundamental concepts:
(i) Geological structure and landforms
(ii) Uniformitarianism
(iii) Multicycle and polygenetic evolution of landscape
(iv) Frequency concept of geomorphic processes
(v) Climatogenetic geomorphology

UNIT-II

3. Continental drift theory and its basic considerations; Plate tectonics-meaning and concept, margins and boundaries, plate motion and cycle; Tectonic activities along boundaries and distribution of plates.
4. Hill slope-definition and forms of slope, geomorphic processes and slope forms, slope evolution: down wearing, parallel retreat and slope replacement models.

UNIT-III

5. Weathering: Causes; types of weathering: physical, chemical, and biological.
6. Mass movement, causes, classifications, and types of mass movements- slow and rapid mass
movements.

UNIT-IV

7. Geomorphic processes and resulting land forms:
(i) Fluvial

(ii) Glacial
(iii) Aeolian
(iv) Karst
8. Applied geomorphology: Meaning and concept, role of geomorphology in environmental management of the following:
(i) Accelerated erosion and sedimentation
(ii) Construction of large dams
(iii) Urban geomorphology

Suggested Readings:

1. Embleton, C. Thormne. J. (eds) 1979. Process in Geomorphology. London, Edward Arnold.
2. Fourbridge, R. W. (Ed) 1968 Encyclopedia of Geomorphology, New York, John Wiley & Sons.
3. Rittern D. F. Kochel, R. C. and Miller J. R., 1995, Process Geomorphology. Dubuque, Win C. Brown Publishers (3rd Edn)
4. Sharma, V.K. 2010. Introduction to process Geomorphology. Tayler and Francs'S, London
5. Kale VS and Gupta A.2001. Introduction to Geomorphology orient –Longman, Hyderabad.
6. Bloom AL. 2002. Geomorphology: A systematic Analysis of late Canozic landforms. Prentice –Hall Private Limited, New Delhi
7. Thornbury, W. D. 1969, Principle of Geomorphology, New York, John Wiley & Sons.
8. Sparks B. W. Geomorphology, Longman, London, 1960.
9. Singh, Savinder. Geomorphology, Prayag Publication, Allahabad, 1998.
10.Sharma, H.S. and Kale VS. 2009. Geomorphology in India, Prayag Pustak Bhawan, Allahabad.

COURSE OBJECTIVES

The course objectives outlined are as follows:

1. Understand the foundational principles of geomorphology as a science, including its definition, scope, and recent advancements in the field.
2. Comprehend the fundamental concepts in geomorphology such as geological structure and landforms, uniformitarianism, multicycle and polygenetic evolution of landscapes, frequency concept of geomorphic processes, and climatogenetic geomorphology.
3. Analyze the Continental Drift Theory and Plate Tectonics, including their basic considerations, plate motion, margins, boundaries, and tectonic activities along these boundaries.
4. Examine hill slopes, their definitions, forms, geomorphic processes shaping them, and models of slope evolution including down wearing, parallel retreat, and slope replacement models.
5. Explore the various causes and types of weathering including physical, chemical, and biological weathering processes.
6. Classify and understand the causes, mechanisms, and types of mass movements, distinguishing between slow and rapid mass movements.
7. Investigate geomorphic processes and resulting landforms in various environments, including fluvial, glacial, aeolian, and karst landscapes.

8. Apply geomorphological knowledge to environmental management, specifically in addressing issues such as accelerated erosion and sedimentation, construction of large dams, and urban geomorphology planning and development.

By achieving these objectives, students will develop a comprehensive understanding of geomorphology as a science, its fundamental principles, processes, and applications in real-world environmental management scenarios.

Course Outcomes (COs)

1: Development of understanding about the fundamental concepts of geomorphology.
2: Enrichment of knowledge about tectonic activities and hill slope relationship.
3: Familiarization with the processes and patterns shaping the landforms.
4: Understanding of environmental management using principles of applied geomorphology.

Lesson Plan

Sr. No	Topics	No. of Days	To be Completed up to	Activities
	UNIT-I			
1	Introduction to geomorphology as a science: definition, nature, scope, and recent developments.	4	04 January	
2	Fundamental concepts: (i) Geological structure and landforms (ii) Uniformitarianism (iii) Multicycle and polygenetic evolution of landscape (iv) Frequency concept of geomorphic processes (v) Climatogenetic geomorphology	5	15 January	Class Test 1
	UNIT-II			
3	Continental drift theory and its basic considerations; Plate tectonics-meaning and concept, margins and boundaries, plate motion and cycle; Tectonic activities along boundaries and distribution of plates.	10	01 February	Assignment 1
4	Hill slope-definition and forms of slope, geomorphic processes and slope forms, slope evolution: down wearing, parallel retreat and slope replacement models.	10	21 February	Student's power point presentation
	UNIT-III			
5	Weathering: Causes; types of weathering: physical, chemical, and biological.	3	27 February	Student's power point presentation
6	Mass movement, causes, classifications, and types of mass movements- slow and rapid mass movements.	5	06 March	Assignment 2
	UNIT-IV			
7	Geomorphic processes and resulting land forms: (i) Fluvial (ii) Glacial (iii) Aeolian (iv) Karst	12	03 April	Class Test 2

8	Applied geomorphology: Meaning and concept, role of geomorphology in environmental management of the following: (i) Accelerated erosion and sedimentation (ii) Construction of large dams (iii) Urban geomorphology	6	16 April	
	Revision	7	30April Up to Exam	