



School of Planning and Architecture: Vijayawada
(An Institute of National Importance under the Ministry of Education, Govt. of India)
Survey No.4/4, ITI Road, Vijayawada-520008, Andhra Pradesh, India

Department of Architecture

Course:	MLAR114: Geology, Hydrology and Geomorphology	Class: MLAR I Yr I Sem A.Y. 2026-27
Instructors:	Ms. Somaina Islary	Internal Assessment: 50
		External Exam: 50
Contact Periods/ week:	03 Periods (55 min. each)	Total Marks: 100
Time Table:		Credits: 3
Attendance: Min 75%	Min. Passing Marks: 50% each in Internal & External Assessment, 50% in Aggregate	
Objectives:		
To develop an understanding of geological pattern of the region and devise an approach to use the parameters in landscape design.		
To develop an understanding of the drainage pattern, watershed and usefulness of the hydrological principles in evolving a landscape design.		

LECTURE PLAN

WEEK	DATE	TOPIC OF CLASS LECTURE & DISCUSSION	TOPIC OF STUDIO WORK & ASSIGNMENTS / REMARKS
1	Week-1	Earth in space: Origin and interior structure of the earth. Early history of Earth: Origin of life and meaning of fossils as keys to the past; Life through the geologic ages, Deccan Basalt volcanism, Plate tectonics	Lecture, Discussion
2	Week-2	Natural hazards: Causes and effects viz. Volcano, tsunamis Earthquakes; seismic micro-zonation, seismic zones of India. Minerals and Metals	Lecture, Discussion
3	Week-3	Rocks: Igneous, Sedimentary and Metamorphic rocks, Isostasy, plate tectonics, crustal deformation and mountain building.	Assignment: Understanding Landforms of Various Continents Internal Assessment 1
4	Week-4	Field Trip for LA Design Studio	-
5	Week 5	Structural geology: dip, strike, folds, faults, joints, unconformities; Stratigraphy: principles, geologic time scale and geology of India. Glaciers of India, geothermal fields of India.	Lecture, Discussion
6	Week-6	Geologic maps, Application of geological information in the interpretation of landscapes on maps and in the field.	Lecture, Discussion
7	Week-7	Application of geologic principles to environmental problems e.g.: Stream restoration, hydrogeology, geotourism	Lecture, Discussion
8	Week-8	Hydrological Cycle; Evaporation, evapotranspiration; and sources of surface water, forms of subsurface water, Occurrence and movement of ground water, geologic formations as aquifers, Infiltration, Soil moisture.	Lecture, Discussion
9	Week-9	-	Mid-Sem Assessment
10	Week-10	Precipitation, weather system's for precipitation, Rainfall regime with specific reference to the Indian region. Characteristics and management of drainage basins: Introduction to watersheds; Types of Flow: Channel and over-land.	Lecture, Discussion

11	Week-11	Artesian conditions, development of Karst topography; saltwater intrusions. Aquifers recharge area, infiltration characteristics; Running water and underground water: Channel networks and drainage basins, Hill slope geomorphology	Landscape Lab visit to understand the geomorphologic landforms
12	Week-12	Major processes and associated landforms. Tectonic, Fluvial, Aeolian, Coastal, Karst, Glacial, and topography caused by ground water, deformations in landform Climatic geomorphology and morphogenic regions	Lecture, Discussion
13	Week-13	Structural geomorphology, landforms developed on sedimentary sequences, volcanoes and volcanic landforms, pseudo structural landforms.	Lecture, Discussion
14	Week-14	Water efficient landscape designs, rainwater harvesting, artificial recharge, Groundwater management, sources of ground water pollution and its control	Lecture, Discussion
15	Week-15	Landforms related to the activities of organisms and man. Application of remote sensing in geomorphology. Geomorphological features of the Indian subcontinent.	Hands-on Exercise and Discussion in GIS Lab. Special Lecture by Dr. Prashanti Rao (Architect and Urban Planner) Internal Assessment 3
S. No.	Stages of Evaluation		Weightage
1	First stage: Assessment 1 (A+B)		15
2	Second stage: Mid-semester Examination		20
3	Third stage: Assessment 3		15
	Total		50

References:

1. Allaby, M. (2013) A Dictionary of Geology and Earth Sciences, Oxford Publications.
2. Harris C.W and Dine, N.T. (1997) Time Saver Standards for Landscape Architecture, , 2nd edition, McGraw-Hill Education.
3. Gohau, G. (1990) A History of Geology, revised edition, Rutgers University Press.
4. H.Davis, G. (2013) Structural Geology of Rocks and Region, John Wiley and Sons.
5. ISSS (2015) Soil Science: An Introduction, Indian Society of Soil Science (ISSS).
6. M.A.Glazovskaya (1984) Soils of the World: Soil Families and Soil Types, Amerind Publishing Co.Pvt.Ltd.
7. Mahapatra, G.B. (2008) Textbook of Physical Geology, CBS.
8. Oldroyd, D. (1996) Thinking about the Earth: A History of Ideas in Geology, First Edition edition edition, Harvard University Press;.
9. Rathinasamy.A (2014) Fundamentals of Soil Science, Scientific Publisher.
10. Robinson, H. (1969) Morphology and Landscape , 1st edition, University Tutorial Press.

Course Instructors:

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(Ms. Somaina Islary)

Head of Department:

(Prof. Dr. Amitava Sarkar)