CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of GEOLOGY

Semester 1st Skill Enhancement Course (SEC)

Course Title: Field Geology

Course Code: UGGLG22S101 **Max. Marks 100**
Units: 4 (Theory: 1, Practical: 3) **Theory External: 15; Min Marks: 06**
Contact Hrs: 105 (Theory: 15, Practical: 90) **Theory Internal (Continuous Assessment): 10 Marks, Min Marks: 04**
Practical Experimental Basis= 45 Marks, Min. Marks: 18
Practical Internal (Continuous Assessment): 30 Marks, Min. Marks: 12

Learning Objective:
To develop practical skills in the identification, interpretation, and mapping of geological features in natural environments, enhancing understanding of Earth's processes and history through direct observation and data collection.

Learning Outcome:
Enabling learners to analyze and interpret geological formations, map landscapes, and understand the geological history of the Earth. It equips students with practical skills for fieldwork, critical thinking, and problem-solving in various geoscience disciplines.

THEORY:

Unit-1

Introduction to Maps

1.1 Maps- Definition and types; topographical map, geological map, physiographic and bathymetric map.
1.2 Components of the Map-- map scales, representation of map scales, symbols, colors, marginal information
1.3 Topographic maps- Contour patterns, Reference Level, Reading of topographic map, identification, and interpretation of features on the topographical map.
1.4 Topo sheets- Scope and Utility
1.5 LIS- Land Information System: Cadastral Mapping

PRACTICALS:

Unit-2

Field Work Equipments

2.1 Fieldwork- introduction, objective, and importance.
2.2 Field equipments (brunton-compass, field notebook, a geological hammer, chisel, hand lens, topographic maps, Measuring tape, haversack, cap, Camera, sunglasses, field shoes, water bottle, Safety Helmet, Safety vest with Reflectors, Shade cards).
2.3 Brunton-compass- components of the compass, measurement of dip and strike of rock beds, determination of location using a compass,
2.4 Global Positioning System- introduction and uses.
2.5 Microscopes and Binoculars- importance and uses.
2.6 Recognition and description of lithology, collection of structural data, paleontological data, and preparation of field sketches.
2.7 Practical challenges, precautions, and safety measures of fieldwork.

Unit-3

Practical Manual of Geological Maps

3.1 Conversion of Data from Azimuth to Quadrant
3.2 Derivation of True dip from Apparent dips and vice-versa
3.3 Exercises on Completion of Outcrops
3.4 Conventional symbols of rock types, structures and dip-strike, etc.
3.5 Geological Cross-section

Unit-4

Outcrop Measurements-Field Work

4.1 Acquaintance of Local Geological Formations

4.2 Determination of thickness of beds

4.3 Hands-on Measurement of dip and strike

4.4 Determination of Apparent dip from true dip

4.5 Interpretation of rock exposures

4.6 Interpretation of Geological maps

BOOKS RECOMMENDED:

Asit K. Roy, 1982: Introduction to the study of Geological Maps; The World Press Private Limited

John I. Platt 1945: Elementary Exercises upon geological maps, third Edition: Thomas Murby & Co; London

John I. Platt and John Challinor 1956: Simple geological structures, fourth Edition; Thomas Murby & Co; London:

Bhangar K.M. 2008: Principal of Engineering Geology, Second Edition; Standard Publisher Distributions, New Delhi.