

**DRAFT STRUCTURE OF FOUR-YEAR UNDERGRADUATE PROGRAMME (FYUGP)
IN GEOLOGY FOR AFFILIATED COLLEGES UNDER RABINDRANATH TAGORE
UNIVERSITY AS PER NEP-2020**

YEAR	SEMESTER	COURSE	TITLE OF THE PAPER & PAPER CODE	TOTAL CREDIT
1st Year	1st Semester	Core/Major-DSC-1	Earth System Science GLG-DSC-1014	4
		Minor/DSE-1	General Geology GLG-DSE-1014	4
		GE/MDC-1	Introduction to Geology GLG-GE-1013	3
		SEC-1	Basic Field Training GLG-SE-1013	3
	2nd Semester	Core/Major-DSC-2	Crystallography and Mineralogy GLG-DSC-2014	4
		Minor/DSE-2	Crystallography and Mineralogy GLG-DSE-2014	4
		GE/MDC-2	Minerals and Rocks GLG-GE-2013	3
		SEC-2	Geological Mapping GLG-SE-2013	3

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1. Four Year Undergraduate Programme (FYUGP)
2. Subject: Geology (DSC-1)
3. Course code: GLG-DSC-1014
4. Semester: First Semester
5. Course Name: Earth System Science
6. Existing base syllabus: UGC CBCS Syllabus
7. Course level: 100
8. Credit:4 (Th-3, Pract-1)

Programme Specific Outcome: *The Bachelor of Science Programme in Geology(Four Years Undergraduate Programme (FYUGP) of Lumding College under Rabindranath Tagore University includes a Graded Semester System which combines detailed theoretical knowledge, practical knowledge and experiential learning. The Primary goal of this Undergraduate Programme is to provide students' Academic competencies, ethical values and professional skills that facilitate their transition from Undergraduate to Post-graduate education or professional positions. After completion of this programme the students will develop the aptitudes and dispositions necessary to gain employment as a professional Geologist or engage in entrepreneurial/self employment activities through application of geological knowledge, e.g., in the field of mineral exploration and production, mapping and surveying, ground water exploration etc..*

Course Outcome: *This course provides a general understanding of the Solar system, the Earth as a Planet, its surface processes, past and future evolution and interaction with society. After completion of this course students will be able to describe the mutual interaction between and among the earth's system components the process and product relationship and to decipher the significance of the earth system as a whole for the sustainability of the humankind. Students will also be able to interpret and gainfully use various maps for terrane analysis.*

Syllabus showing each unit against class number and marks

Unit No.	Unit Content	No. of Classes	Credit/ Marks
Unit-1	Holistic understanding of dynamic planet 'Earth'. Introduction to various branches of Earth Sciences. General characteristics and origin of the Universe, Solar System and its planets. The terrestrial and Jovian planets. Meteorites and Asteroids; Earth in the solar system - origin, size, shape, mass, density, and its age, Internal Structure of the Earth. Concept of Geological Time Scale	15	1(25)
Unit-2	Elementary knowledge of Lithosphere, Biosphere, Hydrosphere and Atmosphere. Pressure belts, Atmospheric circulation, Oceanic current system, Coriolis effect; Land air-sea interaction. Weather and climatic changes. Endogenetic and exogenetic processes of the Earth-weathering and erosion; Soil: formation, types and soil profile, soil types of India	15	1(25)
Unit-3	Fundamental Concept of plate tectonics and continental drift. Sea-floor spreading ; Mid Oceanic Ridges, trenches; Wilson's Cycle; ; Origin of oceans and continents; Earthquake and earthquake belts; Volcanoes- types and their distribution	15	1(25)
Unit-4 (Practical)	Map elements and scale. Reading and interpretation of Survey of India topographic maps; Study of elevation contours to interpret topographic features and decipher landscape elements. Preparation of topographic profile.Exercises on major ocean currents of the World. Study of soil profile of any specific area.	30 (15classes of two hours duration each)	1(25)

SUGGESTED READINGS:

1. Duff, P.M.D., & Duff, D.(Eds). (1993). Holmes' Principles of Physical Geology. Taylor & Francis.
2. Emiliani, C. (1992). Planet Earth: Cosmology, Geology, and the Evolution of Life & Environment. Cambridge University Press
3. Alan P. Trujillo and Harold B. Thurman, Essentials of Oceanography, Prentice Hall
4. Summerfield M.A.(1991), Global Geomorphology-an introduction to the Study of Landforms, Prentice Hall
5. Bloom A.L.(1998), Geomorphology: A Systematic Analysis of Late Cenozoic Landforms. Pearson Education
6. Anderson S. R. and Anderson Suzanne P.(2010), Geomorphology-the mechanics and Chemistry of Landscapes, Cambridge University Press, U.K.
7. 6. J.T.Jenkins , A Text book of Oceanography, Constable and Co. Ltd., London
8. General Climatology, H J Critchfield, Pearson

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1. Four Year Undergraduate Programmes (FYUGP)
2. Subject : Geology (DSE-1)
3. Semester : First Semester
4. Course Name : General Geology
5. Course code : GLG-DSE-1014
6. Existing base syllabus : UGC CBCS Syllabus
7. Course level : 100
8. Credit : 4 (Theory)

Programme Specific Outcome: The Bachelor of Science Programme in Geology(Four Years Undergraduate Programme (FYUGP) of Lumding College under Rabindranath Tagore University includes a Graded Semester System which combines detailed theoretical knowledge, practical knowledge and experiential learning. The Primary goal of this Undergraduate Programme is to provide students' Academic competencies, ethical values and professional skills that facilitate their transition from Undergraduate to Post-graduate education or professional positions. After completion of this programme the students will develop the aptitudes and dispositions necessary to gain employment as a professional Geologist or engage in entrepreneurial/self employment activities through application of geological knowledge, e.g., in the field of mineral exploration and production, mapping and surveying, ground water exploration etc..

Course Outcome: On completion of this course students will be able to describe the earth and its relation to the solar system and the universe, the surface processes that operate on earth, the earth's internal dynamics and the geological time scale and the age determination methods. Students will also be able to describe the characteristics of the basic rock types

Syllabus showing each unit against class number and marks

Unit No.	Unit Content	No. of Classes	Credit /Marks
Unit-1	Introduction to various branches of Earth Science and their relation to other branches of Sciences. General characteristics and origin of the Universe, Solar System and its planets. Earth in the solar system - origin and age. Internal Structure of the Earth Elementary knowledge of Lithosphere, biosphere, Hydrosphere and Atmosphere.	15	1(25)
Unit-2	Endogenetic and exogenetic processes of the Earth; weathering and erosion; Soil: formation, types, soil profile and soil types of India Oceanic current system and effect of Coriolis force; Atmospheric circulation, Weather and climatic changes.	15	1(25)
Unit-3	Fundamental Concept of plate tectonics and continental drift. Concept of Sea-floor spreading; Mid Oceanic Ridges, trenches. Earthquake and earthquake belts; Volcanoes types and their distribution.	15	1(25)
Unit-4	Introduction to different types of rock types and their characteristics; Concept of Geological Time Scale; Geochronological methods and their application in dating of rocks; Fossils and their application in dating of rocks.	15	1(25)

SUGGESTED READINGS:

1. Duff, P.M.D., & Duff, D.(Eds). (1993). Holmes' Principles of Physical Geology. Taylor & Francis.
2. Emiliani, C. (1992). Planet Earth: Cosmology, Geology, and the Evolution of Life & Environment. Cambridge University Press
3. Alan P. Trujillo and Harold B. Thurman, Essentials of Oceanography, Prentice Hall
4. Summerfield M.A.(1991), Global Geomorphology-an introduction to the Study of Landforms, Prentice Hall
5. Patwardhan, A.M., The Dynamic Earth System, PHI Learning
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1. Four Year Undergraduate Programmes (FYUGP)
2. Subject : Geology(GE/MDC-1)
3. Semester : First Semester
4. Course Name : General Geology
5. Course code : GLG-GE-1013
6. Existing base syllabus: UGC CBCS Syllabus
7. Course level : 100
8. Credit : 3 (Theory)

Course Outcome: This course provides integrated understanding of the Solar system, Earth as a Planet, its complex processes. Students will get a clear concept about geomorphology, processes and their impact on Earth's surface and landscape development.

Syllabus showing each unit against class number and marks

Unit No.	Unit Content	No. of Classes	Credit/ Marks
Unit-1	Introduction to various branches of Earth Science and their relation to other branches of Sciences. General characteristics and origin of the Universe, Solar System and its planets. Earth in the solar system - origin and age. Internal Structure of the Earth Elementary knowledge of Lithosphere, biosphere, Hydrosphere and Atmosphere.	15	1(25)
Unit-2	Endogenetic and exogenetic processes of the Earth; weathering and erosion; Soil: formation, types, soil profile and soil types of India Oceanic current system and effect of Coriolis force; Atmospheric circulation, Weather and climatic changes.	15	1(25)
Unit-3	Fundamental Concept of plate tectonics and continental drift. Concept of Sea-floor spreading; Mid Oceanic Ridges, trenches. Earthquake and earthquake belts; Volcanoes types and their distribution.	15	1(25)
Unit-4	Introduction to different types of rock types and their characteristics; Concept of Geological Time Scale; Geochronological methods and their application in dating of rocks; Fossils and their application in dating of rocks.	15	1(25)

SUGGESTED READINGS:

1. Duff, P.M.D., & Duff, D.(Eds). (1993). Holmes' Principles of Physical Geology. Taylor & Francis.
2. Emiliani, C. (1992). Planet Earth: Cosmology, Geology, and the Evolution of Life & Environment. Cambridge University Press
3. Patwardhan, A.M., The Dynamic Earth System, PHI Learning
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1. Four Year Undergraduate Programmes (FYUGP)
2. Subject : Geology(SEC-1)
3. Semester : First Semester
4. Course Name : Basic Field Training
5. Course code : GLG-SE-1013
6. Existing base syllabus : UGC CBCS Syllabus
7. Course level : 100
8. Credit : 3 (Th-2, Pract-1)

Course Outcome:

At the end of this course students will be able to read and interpret topographic maps, various geological field tools, identify the basic rock types and geological structures in the field, take measurements on strike, dip and dip direction and plot them on the map

Syllabus showing each unit against class number and marks

Unit No.	Unit Content	No. of classes	Credit/Marks
Unit-1	Reading of Survey of India topographic maps. Orientation of maps in field, Elements of Brunton /clinometers compass and their use in the field to take bearing and to measure dip, dip direction and strike of geological surfaces, marking location on topographic/base map, study of contour patterns to indicate different land forms.	15	1(25)
Unit-2	Physical properties of major rock types and their salient features for identification. structures and textures of Igneous, Metamorphic and sedimentary rocks; Use of various field tools.	15	1(25)
Unit-3 (Practical/experiential learning)	Field work	1(40-45hrs)	1(25)

SUGGESTED READINGS:

1. Lahee, F.H. 1916, Field Geology
2. Gokhale, N.W. (2009). A Guide to Field Geology, CBS
3. Mathur, S.M.(2001). Guide to Field Geology, CBS
4. Compton, R.R., 1985. Geology in the Field