

Semester-I



MGU-UGP (HONOURS)

Syllabus



Mahatma Gandhi University Kottayam

Programme	BSc (Hons) Geology					
Course Name	THE EARTH: AN INTRODUCTION					
Type of Course	DSC A					
Course Code	MG1DSCGEO100					
Course Level	100-199					
Course Summary	The course provides an introduction to the Earth by understanding the materials with which the earth is made of, the external and internal processes operating in/on it, structures noticed in the rocks, and the representation of features on maps.					
Semester	1	Credits			4	Total Hours
Course Details	Learning Approach	Lecture	Tutorial	Practical	Others	
		3		1		75
Pre-requisites, if any	Knowledge in basic science					

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome	Learning Domains *	PO No
1	Understand the various branches of geology and geologic timescale; the dimensions, origin and general characteristics of the Earth; and internal structure of the Earth.	U	PO 1 PO 2
2	Distinguish exogenic and endogenic processes of the earth.	U	PO 2 PO 3
3	Understanding of mineral classification, rock types, and basic identification techniques, applying knowledge to differentiate between igneous, metamorphic, and sedimentary rocks based on their distinct properties.	U	PO 1 PO 2
4	Understand the fossils, their uses, processes of fossilization, and branches of Palaeontology.	U	PO 2 PO 3
5	Basic understanding of major geological structures; joints, fractures, foliations, folds, and faults	U	PO 1 PO 2
6	Read and interpret SOI Toposheets, apply geological map symbols, create thematic maps,	A	PO 1 PO 2

	and accurately measure strike and dip using a Brunton compass and clinometer.		
*Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)			

COURSE CONTENT

Content for Classroom transactions (Units)

Module	Units	Course description	Hrs (75)	CO No.
1	1.1	Introduction to Geology; scope, and branches of Geology: Physical Geology, Geomorphology, Mineralogy, Petrology, Palaeontology, Structural Geology, Remote Sensing and Geoinformatics, Engineering Geology, Exploration Geology	3	CO 1
	1.2	Origin of Earth: Big Bang theory, Nebular hypothesis.	3	CO 1
	1.3	Geologic timescale	2	CO 1
	1.4	Basic facts about the earth: Size, Shape, Volume, Density, Rotation, and Revolution of the Earth	2	CO 1
	1.5	Internal Structure of the Earth: Crust, Mantle, Core; Lithosphere, Asthenosphere, Mesosphere	3	CO 1
	1.6	Introduction to geomorphic processes: exogenic and endogenic processes.	2	CO 2
	1.7	Introduction to weathering and soil formation	2	CO 2
2	2.1	Introduction to Mineralogy: definition and general classification of minerals; Identification based on distinguishing properties	3	CO 3
	2.2	Rock cycle	2	CO 3
	2.3	Petrology: definition; broad classification of rocks: Igneous, Metamorphic, and Sedimentary	2	CO 3
	2.4	Introduction to Igneous rocks: Intrusive and extrusive forms; Granite, and Basalt	2	CO 3
	2.5	Introduction to Metamorphic rocks: Slate, Schist, Marble, Charnockite, and Gneiss.	2	CO 3
	2.6	Introduction to Sedimentary rocks: Shale, Sandstone, Limestone, and Conglomerate.	2	CO 3
	3.1	Fossils and Palaeontology: definition; uses of fossils	2	CO 4
	3.2	Processes of fossilisation	2	CO 4

3	3.3	Branches of Palaeontology: Invertebrate Palaeontology, Vertebrate Palaeontology, Palynology, Ichnology and Micropaleontology (definitions only)	2	CO 4
	3.4	Geological structures, and Structural Geology: definition; Attitude of beds: Strike and dip	3	CO 5
	3.5	Joints, and foliation in rocks: definition	3	CO 5
	3.6	Folds and faults in rocks: definition	3	CO 5
Practical Contents 4	4.1	Map Reading using SOI Toposheet: Scale, Legends, Rock symbols in geological maps, geographical coordinates; Toposheet Indexing	20	CO 6
	4.2	Use of Brunton compass and clinometer; Measurement of strike and dip.	10	CO 6
5	Teacher specific content			

Teaching and Learning Approach	CLASSROOM PROCEDURE Lectures, Demonstrations, Assignments, Hands on training
Assessment Types	<p>MODE OF ASSESSMENT</p> <p>A. Continuous Comprehensive Assessment (CCA) Theory: 25 Marks Assignments, Viva/Seminar, Class Tests Practical: 15 Marks Lab Report, Viva, Lab involvement</p> <p>B. End Semester Evaluation (ESE) Theory: 50 Marks Short Answer in 60 words (7 out of 8): 7x2=14 Short Notes in 250 words (3 out of 5): 3x8 = 24 Essays in 400 words (1 out of 2): 1x12=12</p> <p>Practical: 35 Marks Examination: 25, Viva:10</p>

References

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- Anantharaman, M. S. & Jain, P. C. Paleontology (Palaeobiology) Evolution and Animal Distribution. Vishal Publishing. Co., 2014
- Billings, M. P. Structural Geology. Pearson, 2016.
- Mathur, S. M. Elements of Geology, PHI New Delhi, 2008.
- Carlson, Plummer & McGeary. Physical Geology: Earth Revealed. McGraw-Hill, 2006.
- Gribble, C. D. Rutley's Elements of Mineralogy. 27th ed., CBS New Delhi, 2005.

- Berry, L. G. Mason, B. & Dietrich, R. V. Mineralogy. CBS Publishers and Distributors Pvt. Ltd., 2004
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