



M.E.S MAMPAD COLLEGE (AUTONOMOUS)

MAMPAD COLLEGE P.O, MALAPPURAM, KERALA, INDIA, 676542

Affiliated to University of Calicut

Accredited by NAAC with A grade

Syllabus Year	2021-2022
Department	GEOLOGY
Programme	BSc GEOLOGY

Programme outcome.

Sl.No	Programme Outcome
PO1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO2	Problem Solving: Understand and solve problems of relevance to society to meet the specified needs using the knowledge, skills and attitudes acquired from humanities/ sciences/ mathematics/ social sciences.
PO3	Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
PO4	Effective Citizenship: Demonstrate empathetic social concern and equity centered national

	development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
P05	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
P06	Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Programme specific outcome:

Sl.No	Programme Specific Outcome.
PSO1	Understand the nature and basic concepts of Physical Geology, Geomorphology, and Historical Geology.
PSO2	Understand the physical, chemical and optical characteristics of rocks and minerals, their economic aspects and distribution.
PSO3	Understand the structural aspects of rock formations, global tectonics and earth dynamics.
PSO4	Understand the applications of geosciences in environmental planning and management.

Course Outcome:

Semester	Course Code	Course Name	Course out come
I	GEO1B01	Essentials of Geology	The student will be able to explain the origin and evolution of earth, various branches of geology and elementary ideas of plate tectonics
			The student will be able to identify the various methods of age determination of earth and also about the time span represented by the geological time scale.
			The student will be able to discuss about the nature of crystals, role of minerals in making rocks and also about the rock cycle.
			The student will be able to describe in detail about earthquakes, volcanism, mass movements and marine processes
II	GEO2B03	DYNAMIC GEOLOGY AND GEOTECTONICS	The student will be able to explain the work of various geological agents, the different processes involved and the resulting landforms.
			The student will be able to describe the fundamental concepts of GIS and its application in geosciences.
			The student will be able to discuss the basics of remote sensing, different satellite data products, platforms and sensors.
III	GEO3B05	CRYSTALLOGRAPHY AND MINERALOGY	The student will be able to explain the different crystal systems, symmetry elements and classification of crystals
			The student will be able to describe the symmetry elements and forms of the different classes of cubic, tetragonal, hexagonal, orthorhombic, monoclinic and triclinic systems with special reference to the type minerals
			The student will be able to discuss about twin crystals, effects of twinning and law
			The student will be able to describe the physical and chemical properties of minerals
IV	GEO4B07	OPTIC AND	The student will be able to explain double refraction, polarized light and the working of petrological microscope.

		DESCRIPTIVE MINERALOGY	<p>The student will be able to discuss about the optical classification of minerals and their various optical properties.</p> <p>The student will be able to discuss about the different mineral groups and their properties</p>
V	GEO5B09	STRUCTURAL GEOLOGY AND GEOTECTONICS	<p>The student will be able to describe the fundamental field techniques of structural geology using Brunton compass</p> <p>The student will be able to discuss rock deformation and various structural features such as folds, faults, joints and unconformities</p> <p>The student will be able to explain the structure and characteristics of layers of the Earth</p> <p>The student will be able to describe the concept of plate tectonics and the tectonic evolution of Indian subcontinent.</p>
V	GEO5B11	IGNEOUS PETROLOGY	<p>The student will be able to explain the composition and constitution of magma and forms of intrusive igneous rocks</p> <p>The student will be able to describe the textures and structures of igneous rocks</p> <p>The student will be able to discuss the different classification schemes of igneous rocks.</p>

			The student will be able to explain the crystallization of unicomponent magma, crystallization and petrogenetic significance of Binary magmas
			The student will be able to describe the various rock types giving their texture, mineralogy, classification, and modes of occurrence.
V	GEO5B10	STRATIGRAPHY AND SEDIMENTOLOGY	The student will be able to explain the different types of stratigraphic classification.
			The student will be able to explain the sedimentary processes, classification of sedimentary rocks and different types of sedimentary
			The student will be able to describe the textures and structures of sedimentary rocks.
			The student will be able to discuss the important and typical sedimentary rock types

V	GEO5B12	METAMORPHIC PETROLOGY	The student will be able to describe the limits, variables and types of metamorphism.
			The student will be able to explain the metamorphic structures, textures and mineral paragenesis.
			The student will be able to explain metamorphic grade, metamorphic facies and the effects of metamorphism on various types of rocks.
			The student will be able to discuss the petrography and origin of common metamorphic rocks, concepts of pro-grade and retrograde metamorphism.
			The student will be able to explain UHP and UHT metamorphism; anatexis and migmatites; metamorphic differentiation, geo-thermometry and geo-barometry; P-T-t paths and tectonic environments
VI	GEO6B17	PALAEOONTOLOGY	The student will be able to describe the fossils and their preservation and uses.
			<p>The student will be able to explain the general morphology, Geological history, distribution and stratigraphic significance of the important phylum's of organisms.</p> <p>The student will be able to discuss a brief outline of the classification of vertebrates, general classification of plant kingdom and plant fossils from India.</p>

VI	GEO6B18	INDIAN GEOLOGY	The student will be able to explain the Precambrian stratigraphy of India with particular reference to the important rock units.
			The student will be able to explain the Palaeozoic stratigraphy of India with particular reference to the important rock units.
			The student will be able to explain the Mesozoic stratigraphy of India with particular reference to the important rock units.
			The student will be able to explain the Cenozoic stratigraphy of India with particular reference to the important rock units.
VI	GEO6B19	ECONOMIC GEOLOGY	The student will be able to explain the geochemical distribution of elements, materials of mineral deposits, metallogenic epochs and provinces, geologic thermometers.
			The student will be able to describe the classification of mineral deposits.
			The student will be able to explain the various processes of ore formation
			The student will be able to describe the diagnostic physical properties, chemical composition, uses, modes of occurrence and distribution in India of the important ore minerals.

			The student will be able to report the uses, classification, constitution, origin and distribution in India of fossil fuels.
	GEO6B22	ENVIRONMENTAL GEOLOGY	The student will be able to describe the scientific method as applied in the earth sciences; and explain the fundamental concepts and man as a geological agent
			The interaction of man and environmental hazards; explain how earth processes create hazards to life and property
			The interaction of man and Hydrosphere and the interaction of man and atmosphere
			Learn about the global energy scenario and geology and waste management.