

GEMS ARTS AND SCIENCE COLLEGE, RAMAPURAM

POST GRADUATE DEPARTMENT OF APPLIED GEOLOGY

PROGRAMME OUTCOMES (POs), PROGRAMME SPECIFIC OUTCOMES (PSOs), AND COURSE OUTCOMES (Cos)

PROGRAMME: BSc. GEOLOGY

PROGRAMME OUTCOMES

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 centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO5. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.

PO6. Self-directed and Life-long Learning: Acquire the ability to engage in independent and lifelong learning in the broadest context socio-technological changes

Programme Specific Outcomes (PSOs)

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 geoscience in environmental planning and management.

COURSE OUTCOMES (COs)

SEMESTER 1

COURSE CODE	PAPER NAME	CREDITS	COURSE OUTCOME
GEO1B01	ESSENTIALS OF GEOLOGY	3	CO 1. The student will be able to explain the origin and evolution of earth, various branches of Geology and elementary ideas of plate tectonics.
			CO 2. The student will be able to identify the various methods of age determination of earth and about the time span represented by the Geological Time Scale.
			CO 3. The student will be able to discuss about the nature of crystals, the role of minerals in making rocks and about the rock cycle.
			CO 4. The student will be able to describe in detail about earthquakes, volcanism, mass movements and marine processes

SEMESTER 11

COURSE CODE	PAPER NAME	CREDITS	COURSE OUTCOME
GEO2B03	DYNAMIC GEOLOGY AND GEOINFORMATICS	3	CO 1. The student will be able to explain the work of various geological agents, the different processes involved and the resulting landforms
			CO2. The student will be able to describe the fundamental concepts of GIS and its applications in geosciences
			CO 3. The student will be able to discuss the basics of remote sensing, different satellite data products, platforms and sensors

SEMESTER III

COURSE CODE	PAPER NAME	CREDITS	COURSE OUTCOME
GEO3B05	CRYSTALLOGRAPHY AND MINERALOGY	3	CO1. The student will be able to explain the different crystal systems, symmetry elements and classification of crystals
			CO2. 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
			CO3. The student will be able to discuss about twin crystals, effects of twinning and law
			CO4 The student will be able to describe the physical and chemical properties of minerals

SEMESTER IV

COURSE CODE	PAPER NAME	CREDITS	COURSE OUTCOME
GEO4B07	OPTICAL AND DESCRIPTIVE MINERALOGY	4	CO1. The student will be able to explain double refraction, polarized light and the working of petrological microscope.
			CO2. The student will be able to discuss about the optical classification of minerals and their various optical properties.
			CO3. The student will be able to discuss about the different mineral groups and their properties

COURSE CODE	PAPER NAME	CREDITS	COURSE OUTCOME
GEO4 B08(P)	GEOINFORMATICS, CRYSTALLOGRAPHY AND MINERALOGY	2	CO 1. The student will be able to work with a GIS software. To learn with the possibilities of Gt.Aide software in the study of coordinates and toposheets
			CO 2. The student will be able to identify and classify the crystal models according to the symmetry elements
			CO3. The student will be able to identify and classify the mineral using its physical properties.
			CO4. The student will be able to identify and classify the mineral using its optical properties.

SEMESTER V

COURSE CODE	PAPER NAME	CREDITS	COURSE OUTCOME
GEO5B09	STRUCTURAL GEOLOGY AND GEOTECTONICS	3	CO1. The student will be able to describe the fundamental field techniques of structural geology using Brunton compass.
			CO2. The student will be able to discuss rock deformation and various structural features such as folds, faults, joints and unconformities
			CO3. The student will be able to explain the structure and characteristics of layers of the Earth
			CO4. The student will be able to describe the concept of plate tectonics and the tectonic evolution of Indian subcontinent.
GEO5B10	STRATIGRAPHY AND SEDIMENTOLOGY	3	CO1. The student will be able to explain the different types of stratigraphic classification.
			CO2. The student will be able to explain the sedimentary processes, classification of sedimentary rocks and different types of sedimentary
			CO3. The student will be able to describe the textures and structures of sedimentary rocks.
			CO 4. The student will be able to discuss the important and typical sedimentary rock types
GEO5B11	IGNEOUS PETROLOGY	3	CO1. The student will be able to explain the composition and constitution of magma and forms of intrusive igneous rocks
			CO2. The student will be able to describe the textures and structures of igneous rocks
			CO3. The student will be able to discuss the different classification schemes of igneous rocks.
			CO4. The student will be able to explain the crystallization of unicomponent magma, crystallization and petrogenetic significance of Binary magmas
			CO5. To describe the various rock types giving their texture, mineralogy, classification, and modes of occurrence.
GEO5B12	METAMORPHIC PETRLOGY	3	CO1. The student will be able to describe the limits, variables and types

			of metamorphism.
			CO2. The student will be able to explain the metamorphic structures, textures and mineral paragenesis.
			CO3. The student will be able to explain metamorphic grade, metamorphic facies and the effects of metamorphism on various types of rocks.
			CO4. The student will be able to discuss the petrography and origin of common metamorphic rocks, concepts of prograde and retrograde metamorphism.
			CO5. The student will be able to explain UHP and UHT metamorphism; anatexis and migmatites; metamorphic differentiation, geothermometry and geobarometry; P-T-t paths and tectonic environments

COURSE CODE	PAPER NAME	CREDITS	COURSE OUTCOME
GEO6B17	PALAEOONTOLOGY	4	CO1. The student will be able to describe the fossils and their preservation and uses.
			CO2. The student will be able to explain the general morphology, geological history, distribution and stratigraphic significance of the important phylums of organisms.
			CO3. 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.
GEO6B18	INDIAN GEOLOGY	4	CO1. The student will be able to explain the Precambrian stratigraphy of India with particular reference to the important rock units.
			CO2. The student will be able to explain the Palaeozoic stratigraphy of India with particular reference to the important rock units.
			CO3. The student will be able to explain the Mesozoic stratigraphy of India with particular reference to the important rock units.
			CO4. The student will be able to explain the Cenozoic stratigraphy of India with particular reference to the important rock units.
GEO6B19	ECONOMIC GEOLOGY	4	CO1. The student will be able to explain the geochemical distribution of elements, materials of mineral deposits, metallogenic epochs and provinces, geologic thermometers.
			CO2. The student will be able to describe the classification of mineral deposits.
			CO3. The student will be able to explain the various processes of ore formation.
			CO4. 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.

			CO5. To report the uses, classification, constitution, origin and distribution in India of fossil fuels.
GEO6B22(E01)	ENVIRONMENTAL GEOLOGY	3	CO1. 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 agentV
			CO2. The interaction of man and environmental hazards; explain how earth processes create hazards to life and property
			CO3. The interaction of man and Hydrosphere and the interaction of man and atmosphere
			CO4. Learn about the global energy scenario and geology and waste management
GEO6B20(P)	STRUCTURAL AND ECONOMIC GEOLOGY	4	CO1. The student will be able to solve structural problems.
			CO2. The student will be able to megascopically identify and describe the minerals together with a description of their Indian occurrences & uses.
GEO6B21(P)	PETROLOGY AND PALAEONTOLOGY	4	CO1. The student will be able to identify and classify the rocks using its optical properties and mineralogy
			CO2. The student will be able to identify and classify fossils according to their morphological features.