A.D.M.COLLEGE FOR WOMEN (AUTONOMOUS)

Affiliated to Bharathidasan University

Nationally Accredited with 'A' Grade by NAAC - (3rd Cycle)

Nagapattinam - 611001

DEPARTMENT OF GEOLOGY

PROGRAMME – B.Sc. GEOLOGY

PO NO.	PROGRAMME OUTCOMES Upon completion of the B.Sc. Degree programme, the graduate will be able to
PO – 1	Gain a better understanding of the planets, Moons and other objects of our solar system in addition to their distribution and dynamical relationships
PO – 2	Understand elastic and viscous strain in role behavior, the effects of temperature, pressure and strain rate on rock strength and the mechanism of rock deformation.
PO – 3	Recognize and quantify the physical and optical properties of minerals. Student would understand the Indian Stratigraphy and its age related problems.
PO – 4	Demonstrate the difference between minerals and ore minerals. Explain the formation of placers and other minerals. Explain the origin of igneous rocks and structures.
PO – 5	Students understand the field basic equipment handling and requirements. Understand the compass its uses rock and mineral direction. Understand the student using base map latitude and longitude direction. Gains a better understand the field writing materials, field sketches and drawings.

PSO NO.	**PROGRAMME SPECIFIC OUTCOMES** **Upon completion of these courses the student would**
PSO – 1	Demonstrate fundamental knowledge of: the physical and chemical properties of the lithosphere and hydrosphere (minerals, rocks, soils and water).
PSO – 2	Geological time and Earth history; and crustal materials and dynamics in the context of plate tectonics theory
PSO – 3	Demonstrate skills in: mineral and rock soil identification; interpretation of topographic and geologic maps; and interpreting and evaluating geological data, hypothesis and ideas.
PSO – 4	Gain an understanding of the social relevance of earth systems.
PSO – 5	Effectively communicate this knowledge and these skills using written and/or oral methods.

Course Title	MAJOR CORE 1: THE DYNAMIC EARTH		
Code	**GUA**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Gain a better understanding of the Planets, Moons and other objects of our solar system in addition to their distribution and dynamical relationships.	PSO1, PSO4	Un
CO-2	Understanding the geological origins of especially important natural hazards including Earthquakes, Tsunami, Volcanic eruptions and Landslides.	PSO2	An
CO-3	Understand Plate tectonics and its central role as the unifying theory of geology.	PSO2	Un
CO-4	Articulate the relationship between Volcanoes, Earthquakes, Mountain belts and Tectonic plate boundaries.	PSO2	An
CO-5	Understand the nature of the ocean floor.	PSO2	Ap

Course Title	MAJOR CORE 2: STRUCTURAL GEOLOGY		
Code	**GUC**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Understand the concepts of stress and force, normal and shear stresses and hydrostatic stresses.	PSO1, PSO2	Un
CO-2	Understand elastic and viscous strain in role behaviour, the effects of temperature, pressure and strain rate on rock strength and the mechanism of rock deformation.	PSO1, PSO2	An
CO-3	Know the classification of fold, joints and fault systems, the terminology used to describe them.	PSO1	Ap
CO-4	Know the types of foliation and lineation, their origin, and their relationship to folding.	PSO1	Un
CO-5	Determining the same of fault movement from structures associated with faults.	PSO1	An

Course Title	MAJOR CORE 3: PHYSICAL GEOLOGY		
Code	**GUD**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Understand the concepts of weathering.	PSO1, PSO2, PSO3	Un
CO-2	Understand the process and features formed due to running water	PSO1, PSO2	Un
CO-3	Know the sources of groundwater and its features.	PSO1, PSO2	An
CO-4	Know the weathering process of glaciers and ice age.	PSO2	Un
CO-5	Determining the ocean features and tsunami.	PSO2	Un

Course Title	MAJOR CORE 4: PALAEONTOLOGY AND CRYSTALLOGRAPHY		
Code	**GUF**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Demonstrate their understanding of how life has evolved through geologic time.	PSO2	An
CO-2	Identify and explain the morphological characters of fossils.	PSO2	Un
CO-3	Explain the evolutionary trends of fossils.	PSO2	An
CO-4	Understand the concepts origin of crystal.	PSO1	Ap
CO-5	Know the forms and faces of crystals.	PSO1	Ap

Course Title	NON MAJOR 1: FUNDAMENTALS OF GEOLOGY		
Code	**GUE1**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Gain a better understanding of the Planets, Moons and other objects of our solar system in addition to their distribution and dynamical relationships.	PSO2	Un
CO-2	Understanding the geological origins of especially important natural hazards including Earthquakes, Tsunami, Volcanic eruptions and Landslides.	PSO2	Un
CO-3	Understand plate tectonics and its central role as the unifying theory of geology.	PSO2	An
CO-4	Understand the concepts of weathering.	PSO1	Ap
CO-5	Know the sources of groundwater and its features.	PSO1	Ap

Course Title	SKILL BASED ELECTIVE 1: CLIMATOLOGY		
Code	**BGS1**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Demonstrate their understanding about Earth's present atmosphere evolved over time.	PSO1	Un
CO-2	Explain the causes of season.	PSO1	Un
CO-3	Explain the different clouds and how cloudiness varies from pole to pole.	PSO4	An
CO-4	Understand the concepts of major cyclones.	PSO2	Ap
CO-5	Recognize how mankind is enhancing Global warming.	PSO2, PSO4	Ap

Course Title	NON MAJOR II: INTRODUCTION TO MINERALS, ROCKS AND FOSSILS		
Code	**GUE2**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Demonstrate the difference between minerals and ore minerals.	PSO1	An
CO-2	Explain the formation of placers and other minerals.	PSO1, PSO2	Un
CO-3	Explain the origin of igneous rocks and structures.	PSO1, PSO2, PSO3	An
CO-4	Understand the origin of sedimentary and metamorphic rocks.	PSO1, PSO3	Ap
CO-5	Identify few fossils and explain their morphological characteristics.	PSO2, PSO3	Ap

Course Title	MAJOR CORE 5: STRATIGRAPHY		
Code	**GUG**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	It focus specifically on settings and time periods that the students will encounter on our field trips, emphasizing the combined use of sedimentological characteristics and fossil content	PSO1, PSO2, PSO3	An
CO-2	Student would understand the Indian Stratigraphy and its age related problems.	PSO1, PSO2	Un
CO-3	Utilizes both forward reasoning and inverse reasoning to construct one or more hypotheses for the paleogeographic and environmental histories that produced a series of strata.	PSO3	Ap
CO-4	The course then adds larger geological principles to the foundation stratigraphy, effects of sedimentary processes and sedimentation rates on interpretation of evolution in the fossil record.	PSO1, PSO2	An
CO-5	Student would understand world physiographic divisions and rock formation.	PSO1	Ap

Course Title	MAJOR CORE 6: MINERALOGY		
Code	**GUH**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Student thoroughly understands the various crystal structures and megascopic and optical characters of various minerals.	PSO1	Ap
CO-2	Understand the basic crystal-chemical properties of minerals and how variability in these properties relates to physical and optical characteristics as well as the formation and stability of minerals in igneous, metamorphic, and sedimentary environments.	PSO1	Ap
CO-3	Recognize and quantify the physical and optical properties of minerals.	PSO1	An
CO-4	Microscopic thin section study and identity characterize common rock-forming minerals.	PSO1, PSO3	An
CO-5	Extract information about the conditions of formation and subsequent history of a mineral from its properties and its presence in a rock.	PSO1	Un

Course Title	MAJOR BASED ELECTIVE I HYDROLOGY AND ENVIRONMENTAL GEOLOGY		
Code	**GUE3**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Student would understand the hydrodynamics, quality of groundwater, groundwater exploration and groundwater conservation	PSO1	Ap
CO-2	Understand the components of hydrologic cycle.	PSO1	Ap
CO-3	Understand measurement of ground water exploration techniques	PSO1	An
CO-4	Understand the various artificial recharge techniques	PSO1, PSO3	An
CO-5	Understand the quality of groundwater	PSO1	Un

Course Title	MAJOR BASED ELECTIVE II: REMOTESENSHING AND MINING GEOLOGY		
Code	**GUE4**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Students will be able to recognize and explain at basic level fundamental physical principles of remote sensing, including the electromagnetic spectrum; the emission, scattering, reflection, and absorption of electromagnetic (EMR) radiation.	PSO3	Ap
CO-2	Student would understand the remote sensing, image processing and application of Geographic Information system.	PSO3	Ap
CO-3	Students will be able to recognize and explain basic computational properties of remote sensing data acquisition, storage, and image processing.	PSO3	An
CO-4	Students will be able to discuss the surface and subsurface mining methods.	PSO1, PSO3	An
CO-5	Students will be able to analysis satellite images of mining by creating the topography and geological map.	PSO3	Un

Course Title	SKILL BASED ELECTIVE II: WATER QUALITY ANAYSIS		
Code	**GUS2**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Students able to discuss the water quality parameters.	PSO1	Ap
CO-2	Understand the laboratory techniques.	PSO3	Ap
CO-3	To discuss the water related diseases and remedial measures.	PSO1, PSO3	An
CO-4	Describe the Fluoride and Arsenic in groundwater.	PSO1	An
CO-5	Students able to discuss the various drinking water standards.	PSO1	Un

Course Title	SKILL BASED ELECTIVE II: GEOSTATISTICS AND COMPUTER APPLICATION		
Code	**GUS3**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Perform proper and efficient sample statistical assessment and to statistically characterize spatially referenced data.	PSO3	Ap
CO-2	Apply effective quantitative analysis of spatial and spatio-temporal data.	PSO3	Ap
CO-3	Demonstrate a basic understanding of computer hardware and software.	PSO3	An
CO-4	Implement the algorithms and draw flowcharts for solving mathematical problems.	PSO3	An
CO-5	Create maps, images to communicate spatial data in a meaningful way to others.	PSO3, PSO5	Un

Course Title	MAJOR CORE 7: IGNEOUS PETROLOGY		
Code	**GUJ**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO -1	Student would understand the paragenesis of minerals of the Igneous rocks.	PSO1, PSO3	An
CO -2	This course presents a broad review of igneous rocks, emphasizing their tectonic associations, interrelationships and petrogenesis.	PSO1, PSO2	Ap
CO -3	After successful completion of this course you will have an integrated understanding of the range, composition and petrogenesis of the major igneous rock groups and will be able to identify them in thin section and deduce their tectonic association and mode of origin.	PSO2, PSO3	An
CO -4	Students will become familiar with the key skills used to aid the interpretation of igneous rocks.	PSO3	Un
CO-5	Students will become major igneous rock groups and will be able to identify megascopic and microscopic studies.	PSO3	An

Course Title	MAJOR CORE 8: SEDIMENTARY AND METAMORPHIC PETROLOGY		
Code	**GUK**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Student would understand the weathering, provenance, depositional environments, climate and tectonics of the sedimentary rocks.	PSO1, PSO2	An
CO-2	Demonstrate proficiency in common practical skills in Sedimentary Geology.	PSO1	Ap
CO-3	Interpret the processes responsible for the deposition of the sediment from the nature of the sediment and sedimentary structures present within the sedimentary rock.	PSO1, PSO3	Un
CO-4	Understand the depositional environment of a sedimentary rock package based on recognition of facies associations.	PSO1, PSO4	An
CO-5	Student would understand the petrological studies in megascopic and microsopic	PSO1	Ap

Course Title	MAJOR CORE 9: ECONOMIC GEOLOGY		
Code	**GUL**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	An understanding of the socio-economic drivers for mining and exploration activities.	PSO1, PSO2	An

CO-2	Detailed knowledge and the ability to interpret the strength, of the various genetic models associated with each class of mineralization; with emphasis on the mineralogy, geology and geochemical controls on mineralization of ore deposits.	PSO1, PSO2, PSO3	Ap
CO-3	An understanding of the roles of a geologist in the mining and exploration industries.	PSO4	An
CO-4	Students able to understand the ore minerals in the field.	PSO1	Un
CO-5	An understanding of the overall ore minerals various economical value in the field.	PSO4	Ap

Course Title	MAJOR BASED ELECTIVE III: MINERAL PROSPECTING AND FIELD GEOLOGY		
Code	**GUE5**		
CO No.	**Course Outcomes**	**PSOs Addressed**	**Cognitive Level**
CO-1	Students able to collect sampling in the field.	PSO1, PSO3	An
CO-2	To understand and able to interpret the geological map.	PSO3	Ap
CO-3	Students able to write the field report.	PSO1, PSO3, PSO5	An
CO-4	Student would understand the detailed Geophysics and geochemical exploration	PSO1, PSO3	Un
CO-5	To understand student would able to mineral prospecting and drilling technology	PSO1, PSO3	Ap