



Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 21001:2018 Certified

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Department of Civil Engineering

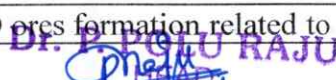
Program: M.Science –Geology

Academic Year: 2019-2021

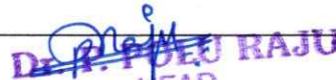
Course Code	Course Name	Description of Course Outcome
19GE5101	Crystallography	Understand theory of Crystals and external symmetry of crystals
		Understand crystal notation and internal symmetry of crystals
		Understand laws of zoning, Coordination Number, Pauling's Rules
		Understand packing, Voids in closest packing and Crystal Imperfections
19GE5102	Mineralogy	Understand Structural and chemical principles of minerals and classification of minerals
		Understand optical properties of minerals
		Understand Structure, chemistry, physical and optical characters of Olivine, pyroxene, amphibole, mica and spinel groups
		Understand Structure, chemistry, physical and optical characters of Feldspar, quartz, feldspathoid, aluminum silicate, epidote and garnet groups
19GE5103	Paleontology	Understand Evolution of the fossil record and functional morphology of major fossil groups
		Remember, Understand, classification, evolutionary trends and distribution of Bivalves, cephalopoda and Gastropods, Echinoids, Corals and Brachiopods
		Understand vertebrate life through ages, mass extinction events, Use of Palaeontological data in Stratigraphy
		Understand different microfossil groups and their distribution, Plant fossils and their significance.
19GE5104	Stratigraphy	Understand Principles of stratigraphy, Stratigraphic procedures and Stratigraphic procedures of correlation
		Understand Precambrian stratigraphy and Proterozoic stratigraphy
		Understand Paleozoic stratigraphy
		Understand and remember Gondwana system, Cenozoic formations and Quaternary stratigraphy
19GE5105	Structural Geology & Geo tectonics	Understand stress and strain their relationships, classification and causes of folding
		Understand Shear zones and faults and mechanics of shearing and faulting
		Understand tectonic framework of earth's crust and Continental Drift
		Understand concept of Plate tectonics and its relation to igneous, sedimentary and metamorphic processes and mineralization
		Understand Geomorphic concepts, endogenous and exogenous forces responsible in landforms

Dr. P. POLU RAJU
 HEAD
 Department of Civil Engineering
 Koneru Lakshmaiah Educational Foundation
 Deemed to be University
 Guntur District

19GE5106	Geomorphology	Understand Denudational processes, soils profiles and types
		Understand drainage network characteristics, Valleys and their development, processes of river erosion, transportation and deposition; Landforms produced by geomorphic agents
19GE5107	Surveying	Understand Stream channel morphology changes, drainage modifications, fault reactivation, Uplift – subsidence pattern in coastal areas, Application of geomorphology in various fields of earth sciences
		Apply the knowledge of plane surveying for computation of bearings in a traverse
		Apply the knowledge of theodolite and tacheometric survey, and total station for calculation of area, height of building
		Applying field procedures in elevation using differential levelling techniques and preparation of contour plan
		Computation of areas of field and volume of earthwork
19GE5109	Geological Field Survey *	Field visit to understand and analyze different structural/mineralogical aspects studied in lectures.
19GE5201	Igneous Petrology	Understand origin Physics and chemistry of magma, Phase equilibrium in igneous systems, Magmatic evolution and differentiation
		Understand Structures and textures, Classification, Magmatism and tectonics
		Understand Igneous rock suites, petrogenesis and distribution of Ultramafic rocks: Dunite-peridotite-pyroxenite suite; kimberlites, lamprophyres, lamproites, komatiites; Basic rocks: Gabbro-norite anorthosite- troctolite suite, Dolerites; Basalts
		Understand Igneous rock suites, petrogenesis and distribution of Ultramafic rocks: Dunite-peridotite-pyroxenite suite; kimberlites, lamprophyres, lamproites, komatiites; Basic rocks: Gabbro-norite anorthosite- troctolite suite, Dolerites; Basalts
		Demonstration of megascopic and microscopic identification of the rocks
19GE5202	Metamorphic Petrology & Processes	Understand the changes occur to rock under metamorphic conditions and causes of those changes
		Understand the key texture, micro structures of metamorphic rocks
		Understand the concept and classification of metamorphic facies, facies series and grades
		Understand the chemographic projections and graphical representation of metamorphic mineral assemblages
19GE5203	Sedimentology & Petroleum Geology	Learn to describe, identify and classify the metamorphic rocks
		Understand sedimentary textures and structures
		Understand the sedimentary facies and processes
		Understand the origin of petroleum hydrocarbons, types of traps
		Understand the concepts of Exploration and exploitation of petroleum
19GE5204	Ore Genesis	Learn to describe, identify and classify the sedimentary rocks
		Understand metallogeny, ore textures, paragenesis, magmatic processes and hydrothermal mineralization
		Understand ore associations, ortho magmatic ores and mineralization associated with various rock types mineralization, magma related mineralization, metallogeny and mineral belts.
		Understand ores of sedimentary affiliation, ores related to weathering and weathered surfaces AND ores formation related to


Dr. P. P. RAJU
 Department of Civil Engineering
 Koneru Lakshmaiah Educational Found.

		metamorphism Understand application of ore microscopy in mineral technology, fluid inclusion, its applications and limitations and stable isotopes in ore genesis Demonstrate identification of ores and paragenesis
19GE5205	Indian Mineral Deposits	Learn the geological, geophysical, Geochemical processes involved in the formation of ores Understand the distribution and genesis of precious minerals Understand the distribution and genesis of mineral and energy resources Understand distribution and genesis of building stones Megascopic description with diagnostic physical properties, identification, classification of the ore forming minerals.
19GE5206	Engineering Geology	Understand significance of geology in planning, design and construction of major civil structures, concepts of rock mechanics, engineering properties of rocks and geotechnical aspects Understand causes of occurrence of earthquakes and landslides and vulnerability reduction Study the geological conditions and identify suitable site for civil engineering projects Study the geological conditions to identify potential sites for groundwater, sites for dam and reservoir and tunnels Demonstrate geological conditions for assessing suitability of the site for a major civil engineering project
19GE6101	Mineral Exploration	Understanding the techniques of Geological surface and subsurface mapping. Understanding the drilling techniques and measurement of rock mass characterization. Application of Geophysical techniques in mineral exploration, Geophysical field operations Understanding the scope and objectives of geochemical exploration, geochemical environments, dispersion, mobility, geochemical associations, and, pathfinders Ore reserve estimation methods and techniques
19GE6102	Hydrogeology	Understanding the groundwater availability, classification, aquifer properties Understanding the groundwater flow and modelling Understanding and Application of ground water exploration techniques Study of Groundwater management and sustainable development of groundwater resources Demonstration and estimation aquifer properties and mapping of ground water
19UC2204	Aptitude Builder –I	Apply the concept of Critical Reading and Analytical Reading and comprehend the key ideas and gist of a passage. Understand the importance of the presentation skills, analyze the given topic, apply various strategies and the principles of grammar in written expression. Apply the concepts of grammar, various strategies and the usage of formal language in written expression. By using synonyms rewrite the same text in the same format and meaning. Write the gist of the given text. Apply the concepts of Numbers to solve the problems related to divisibility rules, problems based on Unit's digit, Remainders, Successive Division, Prime Factorization, LCM & HCF problems. Apply the concepts of Averages & Alligations, students will be able to solve the problems related to Averages as well as problems based on Mixtures.


DR. R. RAJU
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		Apply the various concepts of cubes to find out how to cut a cube to get the maximum number of smaller identical pieces, how to minimize the number of cuts required to cut a cube into the given number of smaller identical pieces, how to count the number of smaller cubes which satisfy the given painting scheme. Apply the principles of binary logic to solve problems involving truth-tellers, liars and alternators. Analyze the given data to form an ordered arrangement from an unorganized raw data.
19GE6103	Geochemistry & Isotopic Geology	Understanding the composition, chemistry of planets and solar system, Origin of elements etc. Understanding the chemistry of different rock types Understanding and studying about the various methods involved in determining the age of the earth. Geochronology Applications of techniques and isotope ratios for determining the age of the Earth Geochemical interpretation
19GE61E1	Mineral Economics & Fuel Geology	Understanding the guidelines and underlying policies involved in the development of the mine/mineral exploration Understanding the Coal and coal formation processes Application of coal geology and identification of different coal fields in India. Analysis and applications of radioactive methods for mineral exploration
19GE61E2	Climate Change & Variability	Understanding the paleoclimatic variation of the Earth Understanding the different causes of climate change Understanding the effects of anthropogenic activities in climatic variations Understand the various policies to minimize the effect of climate change and the climatic scenario of the country.
19GE6104	Mining Geology	Understanding the various foundation studies of mining like panning etc Understanding various types of mining Understanding and Application of different mining techniques Study of various mining characteristics, mining policies
19GE61E3	Essentials of Geology	Understand the Key Concepts of Geology Understand the origin of earth and apply the concepts in problem solving Understand and apply appropriate techniques, resources, the structure of the earth Understand the concepts of earth's atmosphere
19GE62E1	Remote Sensing and GIS	Understand the principles of Photogrammetry, and interpretation of aerial photographs Study of introduction to remote sensing and satellite images Study of different satellites, data/images and GIS Understand the use of GIS in structure and tectonics
19GE62E2	Environmental Geology and Natural hazards	Understanding the basic fundamentals and concepts of Environmental Geology Understanding the waste management with the mining and exploration. Understanding the natural hazards and their conceptual principles Study of EIA and applications of GIS in environmental management
19GE62E3	Meteorology & Oceanography	Understand the Fundamentals of Oceanography Understand the Fundamentals of Physical Oceanography Understand the concepts of chemical and dynamic Oceanography Understand the interrelationship between the atmosphere and oceanic science

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19GE62E4

River
Science

Understand the physical properties of water, sediment and channel flow.

Understand the river transport and erosion process.

Understand the drainage network analysis

Understand the river dynamics and channel patterns



Academic Professor I/C


HOD-CE

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