



**BISHOP KURIALACHERRY COLLEGE FOR WOMEN  
AMALAGIRI, KOTTAYAM, 686561**

**Affiliated to Mahatma Gandhi University, Kottayam, Kerala**

**Re - accredited by NAAC with A+ Grade & NIRF 2023 Rank-Band 101-150**

**BSc GEOLOGY & WATER MANAGEMENT**

**PROGRAMME SPECIFIC OUTCOME**

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**COURSE OUTCOME**

### B Sc Geology and Water Management

PSO	Programme Specific Outcomes	PO
1	Provide a knowledge with respect to understanding the essentials of dynamics of Earth, its interior, geomorphological features rocks and minerals, water resources, geological structures, geological time periods, fossil remains.	4
2	Identify and interpret different geological, geomorphic and structural features of Earth in the field and in maps. Illustrate topographic maps and draw geological cross sections and profiles. Help students to carry out field mapping.	1,4,5,6
3	Extract minerals and metals, various petroleum refining. It deals with occurrence, origin, economic importance and distribution of ore minerals.	4
4	The study of geology distinguish different aspects of geology for a deeper understanding of the subject giving students the potential to survive the changes earth is undergoing in the present scenario. Students will be able to know the basic earth science as applied to interaction between human activity and natural environment.	1,3,8
5	Understand the basics of Environmental Geology and Natural Disaster Management. Distinguish and differentiate various natural disasters by its characteristics.	1,3,8
6	Understand the significance of the availability, scarcity, occurrence and storage of water resources, for the sustenance of life.	1,2,6,8
7	Enhance practical skills, develop aptitude skill, and problem solving skills and capabilities, self-confidence for a better career. Develop proficiency in oral and written communications of geologic concepts.	1,3,4,6

Course	Details				
Code	EN1CC01				
Title	<b>FINE TUNE YOUR ENGLISH</b>				
Degree	BSC.				
Branch(s)	Geology and Water Management				
Year/Semester	I/ I				
Type	Common				
Credit	4	Hours/Week	5	Total Hours	90

CO No	Expected Course Outcome	Cognitive Level	PSO No
1	Execute the best language usage in English in both written and spoken forms.	Ap	3
2	Identify the common errors in the language usage and implement the proper use.	A	3
3	Recognize the proper tense usage and enhance individual writing patterns.	R	2, 3
4	Create an advanced and creative language structure with the use of idiomatic expressions.	C	1, 3
5	Understand the world of words to improve everyday use of language.	U	1, 3

Course	Details	
Code	CH1CMT01	
Title	BASIC THEORETICAL AND ANALYTICAL CHEMISTRY	
Degree	BSc	
Branch(s)	Geology	

Year/Semester	1				
Type	Complementary Chemistry				
Credits	2	Hrs/Week	2	Total Hours	36

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Create basic knowledge in atomic structure, atomic models and chemical bonding in different molecules.	C	7
2	Develop an interest in studying the basic concepts of equilibrium, solubility and periodic properties.	C	7
3	Understand the fundamental concepts of analytical chemistry.	U	7
4	Apply chromatographic techniques to analyze and identify different samples.	Ap	7

Course	Details				
Code	CH2CMP01				
Title	Volumetric Analysis				
Degree	BSc				
Branch(s)	Geology				
Year/Semester	1&2				
Type	Complementary Chemistry Practical				
Credits	2	Hrs./Week	3	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Analyze and estimate the mass of the given substance quantitatively.	A	7
2	Build practical knowledge on analytical chemistry.	C	7
3	Create a skill in standardizing different solutions	C	7
4	Apply titration methods in biochemical and pharmaceutical analysis.	Ap	7

Course	Details				
Code	MM1CMT01				
Title	Partial Differentiation, Matrices, Trigonometry And Numerical Methods				
Degree	BSc				
Branch(s)	Geology				
Year/Semester	I/I				
Type	Complementary				
Credits	3	Hrs/Week	4	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	To understand functions of different variables and fundamentals of partial differential equations	U	PS0 7
2	To get an idea about Rank of a matrix, Reduction to normal form, Row and column transformation of matrices.	Ap	PS0 7
3	To identify solution techniques to solve system of linear homogeneous and non-homogeneous equations	R	PS0 7
4	Get an idea about Characteristic roots and vectors of a matrix and Cayley Hamilton Theorem and application of theorem in different problems.	Ap	PS0 7

5	To understand the expansion using de Moivre's theorem, in powers of sines and cosines, recognize circular and hyperbolic functions also learns the separation of real and imaginary parts. Express Trigonometric expression in C+iS form to sum trigonometric series.	An	PS0 7
6	To apply numerical methods to find solution of algebraic as well as transcendental expressions.	Ap	PS0 7

Course	Details				
Code	GL1CRT01				
Title	Methodology and Perspectives in Geology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	First Semester				
Type	Core				
Credits	2	Hrs/Week	2	Total Hours	36

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Distinguish various branches of Geology and define each of its characteristics	U	1,4
2	Interpret evolutionary history of the planet Earth and its time scale	U	1
3	Identify and Monitor different natural disasters and their impacts on human life	E	1,4,5
4	Distinguish different types of Volcanoes and Earthquakes and identify their global distribution	An	1,5

Course	Details				
Code	GW1VOT01				
Title	Introduction to water management				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	First Semester				
Type	Vocational Core				
Credits	3	Hrs/Week	4	Total Hours	72

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand basic concepts of hydrologic cycle and illustrate processes responsible for the formation of precipitation.	U	1, 6
2	Distinguish various climatic zones and understand weather patterns.	A	1,4,5
3	Recognize causative factors for climate change which help students to detect and monitor present day changes in climate and weather and their effects on life forms	E	1,4, 5,7
4	Understand and execute different techniques of water harvesting methods.	Ap	1, 6, 7

5	Analyze importance of wetlands and their role in regulating drought/flood, climate change. Identify and discuss major wetlands in India.	A	1,4,6
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Course	Details				
Code	GW1VOT02				
Title	Groundwater Hydrology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	First Semester				
Type	Vocational Core				
Credits	4	Hrs/Week	4	Total Hours	72

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Identify the occurrence, movement, and quality of water beneath the Earth's surface	U	1, 6
2	Understand the water-related problems in society: problems of quantity, quality and availability.	E	2, 6, 7
3	Identify the Industrial discharges, urban activities, agriculture, groundwater pumpage, and disposal of waste all can affect ground water quality.	E	4, 6

Course	Details				
Code	GL2CRT02				
Title	Geomorphology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	Second Semester				
Type	Core				
Credits	2	Hrs/Week	2	Total Hours	36

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Recognize and describe different geomorphic processes and geological agents responsible for those processes	U	1,2
2	Describe geomorphic cycles and identify landforms generated by streams, groundwater, oceans, glaciers and wind	U	1, 2
3	Students will be able to distinguish coastal geomorphic processes and features and evaluate causative factors for global warming and sea level changes	E	1,2,4

Course	Details				
Code	PH2CMP01				
Title	Practical I				
Degree	BSc				
Branch(s)	Chemistry				
Year/Semester	I & II semester				
Type	Complementary Physics				
Credits	2	Hrs/Week	2	Total Hours	36

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Determine the acceleration due to gravity by using compound pendulum	Ap	8
2	Determine the moment of inertia of flywheel	Ap	8
3	Determine the surface tension of liquids	Ap	8
4	Determine the refractive index of glass by liquid lens method	Ap	8
5	Determine the rigidity and Young's modulus of different materials by torsion pendulum and cantilever method	Ap	8
6	Determine the spring constant and verify Hook's law	An	8

Course	Details				
Code	GW2VOT03				
Title	Surface Water Hydrology and Water Resources of India				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	Second Semester				
Type	Vocational Core				
Credits	4	Hrs/Week	4	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Identify and understand various components of the hydrosphere and their characteristics	U	1,6
2	Describe physical and chemical properties of ocean water and understand processes occurring associated with oceans like El-Nino, La-Nina, Cyclones etc. Categorize various types of cyclones.	A	1,5,6,7
3	Classify rivers of India and describe characteristics of major river basins	U	1,6
4	Identify and describe floods and droughts, evaluate their impacts, detect ways to control it, and plan for mitigation measures	C	1, 5, 6, 7

Course	Details				
Code	GW2VOT04				
Title	Groundwater Exploration and Management				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	Second Semester				
Type	Vocational Core				
Credits	4	Hrs/Week	4	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understanding the geological conditions, structural conditions and hydrogeological conditions which favour the occurrence of groundwater.	A	1,2,6
2	Understand the quantitative occurrence of groundwater and various methods of groundwater exploration	E	1, 2, 4, 6
3	Define Subsurface investigation -logging methods	A	2, 3
4	Evaluate the effects of groundwater level fluctuations	E	4, 5, 6

Course	Details				
Code	CH2CMT02				
Title	Basic Organic Chemistry				
Degree	B Sc				
Branch(s)	Geology				
Year/Semester	2				
Type	Complementary Chemistry				
Credits	2	Hrs/Week	2	Total Hours	36

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Construct a basic idea about the concepts in organic chemistry.	Ap	7
2	Understand the reactivity of compounds through various organic reactions.	U	7
3	Illustrate the stereochemical aspects of chemical reactions.	U	7
4	Recognize different types of polymers and identify their applications in various fields.	R	7

Course	Details				
Code	EN2CC03				
Title	Issues that Matter				
Degree	B.Sc				
Branch(s)	Geology				
Year/Semester	1/II				
Type	Common				
Credits	4	Hrs./Week	5	Total Hours	90

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Identify those major issues that the contemporary world face.	R	5
2	Analyze the facts, inferences and value statements that are raised in association with those issues.	A	2
3	Implement and internalize the values imparted through the excerpts.	Ap	2
4	Execute the re-orientation of oneself as a conscious, cautious, concerned, and conscientious human being.	Ap	2,5
5	Summarize and articulate the acquired values in error- free English.	U	3,5

Course	Details				
Code	MM2CMT01				
Title	Integral Calculus And Differential Equations				
Degree	B. Sc				
Branch(s)	Geology				
Year/Semester	I/II				
Type	Complementary				
Credits	3	Hrs/Week	4	Total Hours	72

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
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1	Evaluate the volumes of solids using cross-sections. Calculate arc length of a curve	E	7
2	Evaluate the area of surfaces of revolution	E	7
3	To determine the area and volume using double and triple integrals	Ap	7
4	To Identify different types of Ordinary differential equations and solve them	U	7
5	To understand theory of Partial differential equations. Apply different methods to solve the equations of the form $\frac{dx}{p} = \frac{dy}{Q} = \frac{dz}{R}$	E	7
6	Form the partial differential equations by elimination of constants and elimination of functions	C	7
7	Solve the partial differential equation using Lagrange's method	A	7

Course	Details				
Code	CH2CMT02				
Title	BASIC ORGANIC CHEMISTRY				
Degree	B. Sc				
Branch(s)	Geology				
Year/Semester	I/II				
Type	Complementary				
Credits	2	Hrs/Week	2	Total Hours	36

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Construct a basic idea about the concepts in organic chemistry	Ap	7
2	Understand the reactivity of compounds through various organic reactions.	U	7
3	Illustrate the stereochemical aspects of chemical reactions.	U	7
4	Recognize different types of polymers and identify their applications in various fields.	R	7

Course	Details				
Code	GL3CRT03				
Title	Crystallography and physical minerology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	2/3				
Type	Core				
Credits	2	Hrs/Week	3	Total Hours	54

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand and identify various crystal forms and discuss their characteristics	U	2
2	Differentiate various crystallographic systems and classify forms based on their symmetry elements and crystallographic axes	A	1, 2
3	Define minerals and understand their occurrence	U	1, 2



4	Categorize minerals based on their physical properties	U	1, 2
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Course	Details				
Code	MM3CMT01				
Title	Vector Calculus, Analytic Geometry and Abstract Algebra				
Degree	B.Sc				
Branch(s)	Geology				
Year/Semester	2/3				
Type	Complementary				
Credits	4	Hrs/Week	5	Total Hours	90

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	To understand the concept of curves in space , Able to calculate Arc length in space, Curvature and normal vectors of a curve	Ap	7
2	Evaluate Directional derivatives and Gradient vectors	E	7
3	To get an idea about line integrals, Path independence, Conservative field. Evaluation of work , potential function, circulation, flux	E	7
4	To identify the important theorems in vector integration : Green's theorem, Stoke's theorem and divergence theorem and solve problems using these theorems	Ap	7
5	Able to convert polar coordinates to Cartesian coordinates. Recognise conic sections and their properties.	Ap	7
6	To solve and graph problems related to conic	Ap	7
7	To understand basic concepts in Group Theory and to solve problems related to Group Theory.	Ap	7

Course	Details				
Code	CH3CMT03				
Title	Physical Chemistry -1				
Degree	B.Sc				
Branch(s)	Geology				
Year/Semester	2/3				
Type	Complementary Chemistry				
Credits	3	Hrs/Week	3	Total Hours	54

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the symmetry of crystals and determine the symmetry of simple molecules	U	7
2	Develop an idea in properties of liquid and liquid crystals.	C	7
3	Illustrate laws based on ideal and real gases.	U	7
4	Reproduce the knowledge based on surface chemistry, colloids and fundamentals of phase equilibrium	R	7

Course	Details			
Code	GW3VOT05			
Title	Irrigation and Hydropower			
Degree	BSc.			
Branch(s)	Geology and Water management			
Year/Semester	2/3			

Type	Vocational Core				
Credits	4	Hrs/Week	5	Total Hours	72

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand basic concepts of irrigation and identify its benefits and ill-effects.	U	1,6
2	Differentiate and classify different irrigation systems	A	1,6
3	Evaluate the quality of irrigation water and analyze its physical and chemical parameters	E	1,6
4	Describe irrigation canals and classify based on different Characteristics	U	1,6
5	Understand the significance of hydropower and describe the principal components of hydroelectric power scheme	U	1,6

Course	Details				
Code	GW3VOT06				
Title	Water Supply Engineering				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	2/3				
Type	Vocational Core				
Credits	4	Hrs/Week	5	Total Hours	90

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the development of sources of supply, transmission, distribution, and treatment of water.	A	1, 6, 7
2	Understand the importance of water Source refers to bodies of water (such as rivers, streams, lakes, reservoirs, springs, and ground water) that provide water to public drinking-water supplies and private wells.	E	1, 6
3	Define various types of intakes structures and their significance	E	4, 6

Course	Details				
Code	GL4CRT04				
Title	Minerology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	2/4				
Type	Core				
Credits	2	Hrs/Week	3	Total Hours	54

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Differentiate Physical and optical mineralogy and identify minerals using their diagnostic properties	A	1, 2
2	Classify minerals into silicate and non-silicates	U	1, 2
3	Carry out megascopic and microscopic identification of minerals and draw their thin section images	Ap	1, 2

4	Distinguish between ore forming and rock forming minerals	A	1, 2, 3
5	Evaluate the importance of different minerals in rock forming processes and their significance in modern day	E	1, 2, 3
6	Discuss parts of a petrological microscope and differentiate various optical accessories	A	1, 2

Course		Details			
Code	GW4VOT07				
Title	Water Supply Management				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	2/4				
Type	Vocational Core				
Credits	4	Hrs/Week	6	Total Hours	108

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the process of planning, developing, and managing water resources, in terms of both water quantity and quality, across all water uses	A	1, 6
2	Define water treatment processes including sedimentation, filtration and disinfection.	A	6, 7
3	Understand the major kinds of water pollutants and how they degrade water quality	E	1, 4, 6

Course		Details			
Code	CH4CMT04				
Title	Physical Chemistry - 2				
Degree	B.Sc				
Branch(s)	Geology				
Year/Semester	4				
Type	Complementary Chemistry				
Credits	3	Hrs/Week	3	Total Hours	54

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the basic concepts and facts of IR,UV and rotational spectroscopy	U	7
2	Identify different nanomaterial and discuss their synthesis and applications	R	7
3	Predict the kinetics of reactions, employ different catalysts for reactions and understand photochemical reactions.	E	7
4	Memorize the concept of electrochemical reactions and fuel cells.	R	7

Course		Details			
Code	CH4CMP02				
Title	Physical Chemistry Practicals				
Degree	B.Sc				
Branch(s)	Geology				

Year/Semester	2/4				
Type	Complementary Chemistry Practical				
Credits	4l. 2	Hrs/Week	3	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Identify the degree of experimental skills.	AP	7
2	Develop confidence in the ability to perform physical chemistry experiments.	C	7
3	Understand thermodynamic influences and the entropy changes that drive chemical reactions.	U	7
4	Provide insight about what happens at microscopic levels.	R	7

Course	Details				
Code	MM4CMT01				
Title	Fourier Series, Laplace Transform and Complex Analysis				
Degree	B.Sc				
Branch(s)	Geology				
Year/Semester	2/4				
Type	Complementary				
Credits	4	Hrs/Week	5	Total Hours	90

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	To understand basic concepts of periodic functions, trigonometric series, fourier series	U	7
2	Get an idea of power series method to solve differential equations. Learns Legendre equation and Legendre polynomials	Ap	7
3	To understand fundamental concepts of Laplace transforms.	U	7
4	Finding Laplace transforms of different functions using various methods	Ap	7
5	To understand the fundamental concepts of complex numbers and functions. Evaluate analyticity based on Cauchy – Riemann equation	Ap	7
6	To evaluate complex integral by various methods	E	7

Course	Details				
Code	GL5CRT05				
Title	Stratigraphy and sedimentary petrology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/5				
Type	Core				
Credits	4	Hrs/Week	4	Total Hours	72

C O No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the relationship of geological time scale with relative position of strata.	A	1, 2, 3
2	Identify sedimentary rocks and their forms. Understand their occurrence, composition, texture, and other overall characteristics	E	2, 3, 7

3	Identify stratigraphic features such as unconformities.	A	1, 2, 3
4	Understand the basic principles and concepts of sedimentary petrology and a thorough understanding in different sedimentary processes, environments of deposition and tectonic settings of sedimentary basins.	A	1, 2

Course		Details			
Code	GL5CRT06				
Title	Igneous petrology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/5				
Type	Core				
Credits	4	Hrs/Week	4	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Identify and describe igneous rocks, their types and formation. Classify igneous rocks based on nomenclature, texture, structure, and mineralogy	A	1,2,7
2	Understand and discuss the role of magmas in the formation of igneous rocks	U	1,2
3	Differentiate megascopic and microscopic characteristics of igneous rocks based on their physical and optical properties	E	1,2,7
4	Determine the mode of occurrence of igneous intrusives and identify the tectonic settings in which igneous rocks are found	Ap	1,2,3
5	Describe the course of crystallisation of magma and illustrate binary and ternary systems	U	1,2

Course		Details			
Code	GL5CRT07				
Title	Metamorphic petrology and geochemistry				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/5				
Type	Core				
Credits	4	Hrs/Week	4	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the metamorphic processes and reactions	A	1, 2
2	Identify metamorphic rocks and their forms. Understand their occurrence, composition, texture, and other overall characteristics	Ap	1, 2, 3, 7
3	Analyze and conclude the geological history of Earth and rock systems through current geochemical signatures	E	1, 2, 4, 7

Course		Details			
Code	GL5CRT08				
Title	Environmental Geology				
Degree	BSc.				

Branch(s)	Geology and Water management				
Year/Semester	3/5				
Type	Core				
Credits	4	Hrs/Week	4	Total Hours	72

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the fundamental concept of environmental geology	A	1, 2
2	Understand nature and scope of environmental laws and environmental protection	Ap	4, 6
3	Identify the significance of disaster management system	Ap	5, 7
4	Distinguish between Various environmental pollutions such as Air pollution, Water pollution, Heavy metal pollution, Solid waste etc.	E	4, 5
5	Understand the features, functions and scope of Human Rights	A	4, 6, 7

Course	Details				
Code	GL5OPT01				
Title	Understanding the Earth				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	Fifth Semester				
Type	Open course				
Credits	3	Hrs/Week	4	Total Hours	72

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the Earth's history, interactions with the planet earth and importance of the Earth science.	Ap	1, 2, 3
2	Distinguish various branches of Geology and define each of its characteristics	U	1, 4
3	Evaluate the types of Exogenic and Endogenic processes	Ap	1, 2
4	Recognize and describe different geomorphic features	Ap	2, 7
5	Identify various types of minerals and rocks with distinguishing features	Ap	2, 7

Course	Details				
Code	GW5VOT08				
Title	Crop Water Management				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/5				
Type	Vocational Core				
Credits	1	Hrs/Week	1	Total Hours	18

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the applications of Water is essential for the germination of seeds, growth of plant roots, and nutrition and multiplication of soil organism.	Ap	2, 6, 7
2	Evaluate the main features of crop- water requirements and identify crop seasons and major crops of India	Ap	6, 7
3	Recognize and describe different methods of rain water harvesting	Ap	3, 4, 7
4	Identify the applications of remote sensing and GIS in water resource management.	A	3, 4, 7

Course	Details				
Code	GL6CRT09				
Title	Structural geology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/6				
Type	Core				
Credits	4	Hrs/Week	4	Total Hours	90

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the three dimensional distribution of rock units with respect to their deformational histories.	Ap	1, 3, 7,
2	Identify structures in rocks with respect to change in stress, strain scenario; and includes analyses of faults, folds, and other structures associated with shear zones & poly deformed rocks.	A	2, 7
3	Understand structural mapping methods, and structural analysis using various graphical representations.	A	2, 7

Course	Details				
Code	GL6CRT10				
Title	Phanerozoic stratigraphy of India				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/6				
Type	Core				
Credits	3	Hrs/Week	4	Total Hours	90

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand the concept of geological time scale in relation to Indian Phanerozoic stratigraphy	Ap	1, 2
2	Identify major geological and physiographical divisions of India	Ap	1, 2
3	Describe the characteristics of hydrocarbon bearing formations of India	E	1, 2, 7

Course	Details				
Code	GL6CRT11				
Title	Palaeontology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/6				
Type	Core				
Credits	3	Hrs/Week	4	Total Hours	72

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand and discuss evolution of life through geologic history	U	1
2	Interpret methods of fossilization and identify different fossil types	A	1,7
3	Classify and describe various Phylums and their general characteristics. Draw and illustrate examples of organisms in different classes and identify fossils megascopically	Ap	1
4	Understand basic concepts of micropalaeontology and Palynology	U	1, 7
5	Differentiate different plant fossils	A	1

Course	Details				
Code	GL6CRT12				
Title	Economic geology				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/6				
Type	Core				
Credits	4	Hrs/Week	4	Total Hours	90

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Identify and describe the formation processes of economic mineral deposits.	U	1



2	Differentiate ore minerals from gangue minerals and distinguish mineral resources and reserves.	A	1,2
3	Identify various economic mineral deposits in India and their mode of occurrence. Understand their economic uses and determine their value in day to day life.	Ap	1,2
s	Understand and define the formation of fuel minerals such as coal and petroleum and their occurrence. Identify and categorize petroliferous basins in India and ascertain future prospects. Plan and design proper usage of petroleum products for sustaining for the future generation.	C	1,2,3,6
5	Provides students basic knowledge about mineral deposits, their formation and distribution thereby helping them to understand basics of exploration and mining prospects of these deposits.	U	1,3
6	Understand and describe the mineral resources of Kerala.	U	1

Course	Details				
Code	GL6CBT01				
Title	Geotectonics and Precambrian stratigraphy of India				
Degree	BSc.				
Branch(s)	Geology and Water management				
Year/Semester	3/6				
Type	Core				
Credits	3	Hrs/Week	4	Total Hours	54

CO No.	Expected Course Outcomes <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Describes the processes of the earth crusts and its evolution through time.	Ap	1, 2
2	Understand the large- scale structural or deformational features of the Earth's crust and their relations, origin and historical evolution.	Ap	1, 2, 7
3	Identify the concept of geological time scale in relation to Indian's Precambrian stratigraphy	E	1, 2