

NAAC Accredited Grade A⁺, College with CPE - Phase III (UGC), STAR COLLEGE (DBT)
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Website - www.govtsciencecollegedurg.ac.in, Email – autonomousdurg2013@gmail.com

DEPARTMENT OF GEOLOGY

COURSE CURRICULUM & MARKING SCHEME

B.Sc.VII and VIII Semester

GEOLOGY

(Based on Choice Based Credit System)

SESSION : 2025-26



ESTD: 1958

**GOVT. V.Y.T. PG AUTONOMOUS COLLEGE,
DURG, 491001 (C.G.)**

Scheme Of Curricular Framework For B.Sc. – VII Semester Geology Under Four Year Under Graduate Program

B. Sc. VII Sem (CGPA < 7.5)	Credits	Mark distribution	B. Sc. VII Sem (CGPA > 7.5)	Credits	Mark distribution
DSC Advance Geomorphology	04 (3T+1P)	Th 60 IA 15	DSC Advance Geomorphology and Geodynamics	04 (3T+1P)	Th 60 IA 15
DSE-I Advance Structural Geology and Tectonics	04 (3T+1P)	Th 60 IA 15	DSE-I Advance Structural Geology	04 (3T+1P)	Th 60 IA 15
DSE-II Advance Mineralogy and Crystallography	04	Th 80 IA 20	DSE-II Advance Mineralogy and Crystallography	04	Th 80 IA 20
DSE-III Geochemistry, Instrumentation and Analytical Techniques	04	Th 80 IA 20	DSE-III Geochemistry	04	Th 80 IA 20
DSE-IV Tools and Techniques in Field Geology	04	Th 80 IA 20	DSE-IV Tools and Techniques in Field Geology	04	Th 80 IA 20
Geology Labcourse	1+1=2P	50	Geology Labcourse	1+1=2P	50

Scheme Of Curricular Framework For B.Sc. – VIII Semester Geology Under Four Year Under Graduate Program

B. Sc. VIII Sem (CGPA < 7.5)	Credits	Mark distribution	B. Sc. VIII Sem (CGPA > 7.5)	Credits	Mark distribution
DSC Igneous Petrology	04 (3T+1P)	Th 60 IA 15	DSC Igneous Petrology	04 (3T+1P)	Th 60 IA 15
DSE-I Sedimentology	04 (3T+1P)	Th 60 IA 15	DSE-I Sedimentology and Metamorphic Petrology	04 (3T+1P)	Th 60 IA 15
DSE-II Metamorphic Petrology	04	Th 80 IA 20	Dissertation / Project (Equivalent to three papers)	12	
DSE-III Palaeontology	04	Th 80 IA 20			
DSE-IV Stratigraphy	04	Th 80 IA 20			
Geology Labcourse	1+1=2P	50	Geology Labcourse	1+1=2P	50

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Scheme and Syllabus for B.Sc. Year 4 (Semester VII)
Courses and Marking Scheme for Fourth-year UG with Geology

Year	Sem	Course Code	Paper Title	Theory/ Practical	Credits	Marks	Sem End	IA
For Bachelor Degree with Honours'/ Honours' with Research*								
Discipline Specific Courses – DSC (Core Courses)/ Generic Elective Course - GEC								
4	VII	BGL701	Advance Geomorphology	Theory	3	75	60	15
Discipline Specific Electives DSE - 1, 2, 3 & 4 (For CGPA less than 7.5)								
4	VII	BGL702	Advance Structural Geology and Tectonics	Theory	3	75	60	15
		BGL703	Advance Mineralogy and Crystallography	Theory	4	100	80	20
		BGL704	Geochemistry, Instrumentation and Analytical Techniques	Theory	4	100	80	20
		BGL705	Tools and Techniques in Field Geology.	Theory	4	100	80	20
		BGL701	Geology Labcourse	Practical	2	50		
Discipline Specific Electives DSE – 1 (For CGPA greater than 7.5)*								
4	VII	BGL702	Advance Structural Geology and Tectonics	Theory	3	75	60	15
		BGL703	Advance Mineralogy and Crystallography	Theory	4	100	80	
		BGL704	Geochemistry, Instrumentation and Analytical Techniques	Theory	4	100	80	20
		BGL705	Tools and Techniques in Field Geology.	Theory	4	100	80	20
		BGL701	Geology Labcourse	Practical	2	50		

Note: Semester End – 80% and Internal Assessment (IA) – 20% (Weightage of marks internal examinations will be included as per guidelines of Autonomous Examination Cell)

Minimum pass requirement: 40%

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Scheme and Syllabus for B.Sc. Year 4 (Semester VIII)
Courses and Marking Scheme for Fourth-year UG with Geology

Year	Sem	Course Code	Paper Title	Theory/ Practical	Credits	Marks	Sem End	IA
For Bachelor Degree with Honours’/ Honours’ with Research*								
Discipline Specific Courses – DSC (Core Courses)/ Generic Elective Course - GEC								
4	VIII	BGL801	Igneous Petrology	Theory	3	75	60	15
Discipline Specific Electives – DSE – 1, 2, 3 & 4								
Discipline Specific Electives DSE - 1, 2, 3 & 4 (For CGPA less than 7.5)								
4	VIII	BGL802	Sedimentology	Theory	3	75	60	15
		BGL803	Metamorphic Petrology	Theory	4	100	80	20
		BGL804	Palaeontology	Theory	4	100	80	20
		BGL805	Stratigraphy	Theory	4	100	80	20
		BGLL801	Geology Labcourse	Practical	2	50		
Discipline Specific Courses – DSC (Core Courses)/ Generic Elective Course - GEC								
		BGL801	Igneous Petrology	Theory	3	75	60	15
Discipline Specific Electives DSE – 1 (For CGPA greater than 7.5)*								
4	VIII	BGL802A	Sedimentology and Metamorphic Petrology	Theory	3	75	60	15
		BGLL801A	Geology Labcourse	Practical	2	50		
		BGLL803B	Project/ Dissertation			12	300	300

Note: Semester End – 80% and Internal Assessment (IA) – 20% (Weightage of marks internal examinations will be included as per guidelines of Autonomous Examination Cell)

Minimum pass requirement: 40%

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Four Year Undergraduate Program
Semester VII Geology
Session 2025-26
DSC :Advance Geomorphology



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PART-A:Introduction				
Program: Bachelor in Geology (Certificate/Diploma/Degree)		Semester: VII		Session: 2025-2026
1	Course Code	BGL701		
2	Course Title	Advance Geomorphology		
3	Course Type	Discipline Specific Course (Theory) DSC		
4	Pre-requisite (if any)	As per Government norms		
5	Course Learning Outcomes (CLO)	After successfully completing this course, the students will be able to: 1. Describe the fundamental concepts of Geomorphology, Weathering, Soil processes and Geomorphic regions of India, Coastal landforms. 2. Identify and describe the landforms formed by the volcanoes, tectonic activities and the geological work done by a river and Karst Topography. 3. Describe the geological work done by the wind and glacial processes. 4. Analyze the drainage patterns using morphometric analysis and apply the principles of geomorphology in various domains.		
6	Credit Value	3 Credits	(Credit=15 hours-learning & observation)	
7	Total Marks	Max. Marks: 75 (60T+15IA)		Min. Passing Marks :
PART-B: CONTENT OF THE COURSE				
Total No. of Teaching-learning Periods (01 hour per period)-45 Periods (45 Hours)				
Unit	Topics (Course Contents)			No. of Period
I	(i) Concepts of Geomorphology, weathering processes, cycle of erosion. (ii) Landforms in relation to climate, rock type, structure & tectonics. (iii) Geomorphic regions of India. Rock weathering and soil formation. (iv) Hypsography of the continents and ocean floor- Continental shelf, slope, rise and abyssal plains. (v) Coastal landforms.			12
II	(i) Fluvial landforms: Erosional and depositional landforms formed due to fluvial action. (ii) Karst landforms. Erosional landforms formed due to the action of underground water. (iii) Karst landforms. Depositional landforms formed due to the action of underground water. (iv) Volcanoes- Their form & structure, Types, Volcanic products. (v) Volcanic landforms, volcanic belts of the world.			11
III	(i) Aeolian landforms: Erosional landforms formed due to the action of wind. (ii) Aeolian landforms: Depositional landforms formed due to the action of wind. (iii) Glacial landforms Erosional landforms formed due to glacial action. (iv) Glacial landforms: Depositional landforms formed due to glacial action. (v) Ice Age and its causes.			11
IV	(i) Morphometric Analysis, slope analysis, stream ordering, Bifurcation ratio, stream frequency, drainage density. (ii) Applied Geomorphology meaning and concept. (iii) Geomorphology and hazard management. (iv) Geomorphology and engineering works. (v) Geomorphology and mineral exploration.			11

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Part-C
Learning Resource: Text Books, Reference Books, Others
Text Books Recommended- Thornbury, W.D., 1986: Principles of Geomorphology. John Wiley. Singh, Savindra, 2007: Geomorphology. Prayag Pustak Bhavan, Allahabad.

PART D: ASSESSMENT AND EVALUATION		
Suggested Continuous Evaluation Methods:		
Maximum Marks:	75 Marks	
Continuous Comprehensive Evaluation (CCE):	15 Marks	
Semester End Exam (SEE):	60 Marks	
Continuous Comprehensive Evaluation (CCE)	Internal Test of 15 Marks and Assignment of 15 Marks	
Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) Question - C: Short answer type question Question - D: Long answer type question	04 x 4 = 16 Marks 04 x 4 = 16 Marks 07 x 4 = 28 Marks Total = 60 Marks

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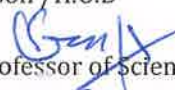
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Four Year Undergraduate Program
Semester VII Geology
Session 2025-26
DSE-I : Advance Structural Geology and Tectonics


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PART-A:Introduction				
Program: Bachelor in Geology (Certificate/Diploma/Degree)		Semester: VII		Session:2025-2026
1	Course Code	BGL702		
2	Course Title	Advance Structural Geology and Tectonics		
3	Course Type	Discipline Specific Elective Course (Theory) DSE-I		
4	Pre-requisite(if any)	As per Government norms		
5	Course Learning Outcomes(CLO)	After successfully completing this course, the students will be able to: 1.Understand and assess stress acting on a rock during deformation. Identify, classify and compare various types of folds. 2. Classify and describe faults, joints and unconformities and conclude about the mechanics of their formation. 3. Demonstrate the ability to judge the order of superposition of rock beds. Identify, classify, interpret and compare planar and linear fabric in rocks. Construct and interpret geological maps and π and β diagrams. 4. Summarize the theory of plate tectonics and explain the evolution of continental and oceanic crust and anatomy of Precambrian orogenic belts of India.		
6	Credit Value	3 Credits	(Credit=15hours-learning&observation)	
7	Total Marks	Max. Marks: 75 (60T+15IA)		MinPassing Marks :
PART-B: CONTENT OFTHE COURSE				
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)				
Unit	Topics(Course Contents)			No. of Period
I	(i) Mechanical principles of rocks and their controlling factors. Concept of stress and strain and theory of rock failure. Role of fluids in deformation processes. (ii) Stress analysis: Compressive and shear stress, biaxial and triaxial stress, Mohr's circle and envelope. Two-dimensional stress and strain analyses. Types of stress and strain ellipsoids, their properties and geological significance. (iii) Folds, their description and classification. (iv) Causes and mechanics of folding and buckling. (v) Fold development and distribution of strains in folds.			12
II	(i) Elements, terminology and classification of faults. (ii) Causes and mechanics of faulting. Strike slip fault, normal fault, over thrust and nappe structure. (iii) Causes and mechanics of faulting. Strike slip fault, normal fault, over thrust and nappe structure. (iv) Fractures and joints, their nomenclature, classification, origin and significance. (v) Unconformities, types and significance.			11
III	(i) Top and bottom criteria (order of superposition of rock beds) using primary and secondary structures. (ii) Planar and linear fabrics in deformed rock, their origin and significance. (iii) Field techniques of lithological and structural mapping. (iv) Significance and limitations of π diagrams. (v) Significance and limitations of β diagrams.			11
IV	(i) Concept of continental drift and plate tectonics and recent advances. (ii) Isostasy, Sea Floor spreading. (iii) paleomagnetism, polar wandering. (iv) Tectonics of precambrian orogenic belts of India. (v) Formation of mountain roots and Anatomy of orogenic belts.			11

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Part-C	
Learning Resource: Text Books, Reference Books, Others	
Ramsay, J.G., 1967: Folding and Fracturing of Rocks. McGraw Hill. Hobbs, B.E., Means, W.D. and Williams, P.F., 1976: An Outline of Structural Geology, John Wiley. Davis, G.R., 1984: Structural Geology of Rocks and Region. John Wiley. Ramsay, J.G. and Huber, M.I., 1987: Modern Structural Geology, Vol. I and II Academic Press. Ghosh, S.K., 1995: Structural Geology Fundamentals of Modern Developments. Pergamon Press. Billings, M.P., Structural Geology Moore, E. and Twiss, R.J., 1995: Tectonics. Freeman. Valdiya, K.S., 1998: Dynamic Himalaya. Universities Press, Hyderabad. Summerfield, M.A., 2000: Geomorphology and Global Tectonics. Springer Verlag.	

PART D: ASSESSMENT AND EVALUATION	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	75 Marks
Continuous Comprehensive Evaluation (CCE):	15 Marks
Semester End Exam (SEE):	60 Marks
Continuous Comprehensive Evaluation (CCE)	Internal Test of 15 Marks and Assignment of 15 Marks
Semester End Exam (SEE)	Pattern - FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 16 Marks Question - D: Long answer type question 07 x 4 = 28 Marks Total = 60 Marks


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Four Year Undergraduate Program
Semester VII Geology
Session 2025-26
DSE-II: Advance Mineralogy and Crystallography



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PART-A:Introduction			
Program:BachelorinGeology (Certificate/Diploma/Degree)		Semester: VII	
		Session:2025-2026	
1	Course Code	BGL703	
2	Course Title	Advance Mineralogy and Crystallography	
3	Course Type	Discipline Specific Elective Course (Theory) DSE-II	
4	Pre-requisite(if any)	As per Government norms	
5	Course Learning Outcomes(CLO)	OncompletionofCourse,the students shouldbeable to- 1. Identify and classify the rock-forming minerals on the basis of their physical and optical properties and discuss the construction and working of Quartz wedge, Gypsum plate and Mica plate. 2. Determine the optical characters, order of interference color and pleochroic scheme of minerals. 3. Discuss the symmetry characteristics and forms of various crystal systems. 4. Categorize and describe the properties of rock forming silicates and gemstones.	
6	Credit Value	4Credits	(Credit=15hours-learning&observation)
7	Total Marks	Max.Marks:100(80+20)	MinPassing Marks : 40
PART-B:CONTENT OFTHE COURSE			
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)			
Unit	Topics(Course Contents)		No. ofPeriod
I	(i) Minerals and their classification. (ii) Physical and optical properties of minerals. (iii) Refractrometry and its determination. Uniaxial and Biaxial indicatrics. (iv) Dispersion in minerals, optic orientation, optical anomalies. (v) Optical accessories: Quartz wedge, Gypsum plate and Mica plate.		15
II	(i) Determination of order of interfenececolour and pleochroic scheme of minerals. (ii) Optical characters of Uniaxial and Biaxial minerals. (iii) Morphology of crystals. Fundamental laws of crystal Zones and Zonal symbols. (iv) Classification of crystals in 32 classes. (v) Symmetry and forms of crystals of Isometric, Tetragonal, Hexagonal systems.		15
III	(i) Symmetry and forms of crystals of orthorhombic, monoclinic and triclinic systems. (ii) Crystal aggregates- Twinning. Irregularities and imperfection in crystals. (iii) Classification of silicate structure. (iv) Systematic mineralogy (atomic structure, mineral chemistry and their P-T stability and mode of occurrence of Nesosilicates – Olivine, Garnet, Topaz, and Zircon. (v) Systematic mineralogy of Sorosilicates- Epidote, Staurolite and Sphene.		15
IV	(i) Systematic mineralogy of Cyclosilicates – Cordierite, Tourmaline and Beryl. (ii) Systematic mineralogy of Inosilicates – Pyroxene and Amphibole groups. (iii) Systematic mineralogy of Phyllosilicates – Mica, Chlorite, Serpentine, Clay minerals, Kaolinite and Talc. (iv) Systematic mineralogy of Tectosilicates- Silica, Felspar, Feldspathoids and Zeolite groups. (v) Gems and Semiprecious stones.		15

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Part-C
Learning Resource: Text Books, Reference Books, Others
Deer, W.A., Howie, R.A., and Zussman, J., 1996: The Rock Forming Minerals. Longman. Klein and Hurlbut, Jr., C.S., 1993: Manual of Mineralogy. John Wiley. Phillips, W.R. and Griffen, D.T., 1986: Optical Mineralogy. CBS Edition. Perkins, D. 2002: Mineralogy. Prentice Hall. Nesse, W.D., 2000: Introduction to Mineralogy. Oxford University Press.

PART D: ASSESSMENT AND EVALUATION	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	100 Marks
Continuous Comprehensive Evaluation (CCE):	20 Marks
Semester End Exam (SEE):	80 Marks
Continuous Comprehensive Evaluation (CCE)	Internal Test of 20 Marks and Assignment of 20 Marks
Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 24 Marks Question - D: Long answer type question 07 x 4 = 40 Marks Total = 80 Marks

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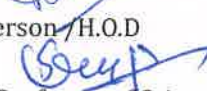
Four Year Undergraduate Program

Semester VII Geology

Session 2025-26

DSE-III: Geochemistry, Instrumentation and Analytical Techniques.


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PART-A:Introduction			
Program:BachelorinGeology (Certificate/Diploma/Degree)		Semester: VII	
		Session:2025-2026	
1	Course Code	BGL704	
2	Course Title	Geochemistry, Instrumentation and Analytical Techniques	
3	Course Type	Discipline Specific Elective Course (Theory) DSE-III	
4	Pre-requisite(if any)	As per Government norms	
5	Course Learning Outcomes(CLO)	OncompletionofCourse,the students shouldbeable to- 1. Understand about the chemical differentiation of solar system and the earth, 2. Formulate the radioactive decay schemes and their application in radiometric dating, recall laws of Thermodynamics and geochemistry of oceanic crust, continental crust and island arcs. 3. Explain element partitioning in minerals and rocks and its use in P-T Estimation; Understand elemental mobility in Geochemical cycle and Bio geochemical cycle. 4. Describe instrumentation and analytical techniques used in geochemical analysis.	
6	Credit Value	4Credits	(Credit=15hours-learning&observation)
7	Total Marks	Max.Marks:100(80+20)	MinPassing Marks : 40
PART-B: CONTENT OF THE COURSE			
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)			
Unit	Topics(Course Contents)		No. ofPeriod
I	(i) Origin and abundance of elements in solar system and in the earth and its constituents. (ii) Special properties of transition and rare earth elements. (iii) Geochemical classification of elements. (iv) Principles of ionic substitution in minerals. Isomorphism, polymorphism andPseudomorphism. (v) Radiogenic isotopes, Stable isotopes: nature, abundance and fractionation.		15
II	(i) Radioactive decay schemes of U-Pb, Sm-Nd, Rb-Sr, K-Ar and growth of daughter isotopes. (ii) Radiometric dating of single minerals and whole rocks. (iii) Laws of Thermodynamics: Concepts of free energy, fugacity and equilibrium constant. (iv) Geochemistry of oceanic crust. Composition of continental crust. (v) Geochemistry of island arcs.		15
III	(i) Element partitioning in minerals. Element partitioning in rocks. (ii) Concept of simple distribution coefficients. (iii) Use of Element partitioning in P-T Estimation. (iv) Elemental mobility in surface environment Mineral stability in Eh-pH diagram. (v) Geochemical cycle. Bio geochemical cycle.		15
IV	(i) X-ray Diffractometry, X-ray Fluorescence spectrometry. (ii) Scanning and Transmission, electron microprobe analysis. (iii) Thermal ionization and gas source mass spectrometry. (iv) Principles and application of AAS. Principles and application of cathodo-luminescence, thermoluminescence. (v) Sampling and sample preparations. Sample etching, staining and modal count techniques. Techniques of photomicrography.		15

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Part-C	
Learning Resource: Text Books, Reference Books, Others	
Mason B. and Moore, C.B., 1991: Introduction to Geochemistry. Wiley Eastern. Krauskopf, K.B., 1967: Introduction to Geochemistry. McGraw Hill. Henderson, P. 1987: Inorganic Geochemistry. Pergamon Press. Faure, G.,:1986: Principles of Isotope Geology. John Wiley.	

PART D: ASSESSMENT AND EVALUATION	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	100 Marks
Continuous Comprehensive Evaluation (CCE):	20 Marks
Semester End Exam (SEE):	80 Marks
Continuous Comprehensive Evaluation (CCE)	Internal Test of 20 Marks and Assignment of 20 Marks
Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 24 Marks Question - D: Long answer type question 07 x 4 = 40 Marks Total = 80 Marks


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Four Year Undergraduate Program

Semester VII Geology

Session 2025-26

DSE-IV: Tools and Techniques in Field Geology.


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PART-A:Introduction			
Program:BachelorinGeology (Certificate/Diploma/Degree)		Semester: VII	Session:2025-2026
1	Course Code	BGL705	
2	Course Title	Tools and Techniques in Field Geology.	
3	Course Type	Discipline Specific Elective Course (Theory) DSE-IV	
4	Pre-requisite(if any)	As per Government norms	
5	Course Learning Outcomes(CLO)	OncompletionofCourse,the students shouldbeable to- 1. Identify and classify theFossils, minerals and rocks in the field. 2. Measure the attitude using clinometer and Brunton compass. 3. Use the toposheet. 4. Carry out geological map and geological cross section. 5. Use Google Earth Engine in geological studies. 6. Identify the geological structures.	
6	Credit Value	4Credits	(Credit=15hours-learning&observation)
7	Total Marks	Max.Marks:100(80+20)	MinPassing Marks : 40
PART-B: CONTENT OF THE COURSE			
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)			
Unit	Topics(Course Contents)		No. ofPeriod
I	1. Fundamentals of Field Geology: Definition, importance, and applications of field geology 2. Basic concepts of attitude of rock beds 3. Dip: True dip and apparent dip, strike, plunge and pitch. 4. Clinometer compass construction and working. 5. Brunton compass construction and working.		15
II	1. Maps: Classification and types, scale of topographic map. 2. Coordinate systems: Polar and rectangular. 3. Survey of India topographical maps: Reference scheme of old and open series. 4. Information on a topographic map. 5. Plotting a location on topographic map.		15
III	1. Geological mapping techniques: An overview 2. Preparation of geological map and geological cross section 3. Use of global positioning system in geological studies 4. Sampling and photography in geological studies 5. Use of Google Earth Engine in geological studies		15
IV	1. Folds and faults basic terminology, classification and their identification on map and in field 2. Joints and unconformities basic terminology, classification and their identification on map and in field. 3. Identification of minerals in the field. 4. Identification of rocks in the field. 5. Identification of fossils in the field.		15

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Part-C

Learning Resource: Text Books, Reference Books, Others

1. Field Geology. Lahee, Frederick H. ISBN 13: 9780070358089. Language: English. Seller: HPB-Red, Dallas, TX, U.S.A.
2. Compton, R.R. (1962) Manual of Field Geology. John Wiley & Sons, New York, 378 p.
3. Guide To Field Geology 2004 Edition, Author(s)-S. M. Mathur , Publisher-PHI Learning , ISBN-9788120319158, Pages-220,

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Comprehensive Evaluation (CCE): 20 Marks

Semester End Exam (SEE): 80 Marks

Continuous
Comprehensive
Evaluation (CCE)

Internal Test of 20 Marks and Assignment of 20 Marks

Semester End
Exam (SEE)

Pattern -FOUR Questions (A, B, C, D) from each Unit

Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks

Question - C: Short answer type question 04 x 4 = 24 Marks

Question - D: Long answer type question 07 x 4 = 40 Marks

Total = 80 Marks

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PART-A:Introduction			
Program: Bachelor in (Certificate/Diploma/Degree)		Semester: VII	Session:2025-2026
1	Course Code	BGLL701	
2	Course Title	Geology Labcourse	
3	Course Type	Practical	
4	Pre-requisite(ifany)	AsperGovernmentnorms	
5	Course Learning Outcomes(CLO)	After successfully completing this course, the students will be able to: 1. Identify various landforms and distinguish various types of drainage patterns. 2. Do calculations of Morphometric analysis. 3. Demonstrate the skill of preparation of geological cross sections and interpretations of geological maps, Completion of outcrops. 4. Solve structural problems with the help of stereographic projections. 5. Identify structures present in natural rock specimens and models. 6. Identify rock forming minerals in hand specimen and thin section 7. Determine pleochroic scheme in minerals. 8. Estimate Anorthite content in plagioclase. 9. Determine order of interference colour in common minerals. 10. Interpret of results of water analysis with the help of various diagrams.	
6	Credit Value	2 Credits	(1 Credit=30 hours Laboratory or Field learning/Training)
7	Total Marks	Max.Marks:50	Min Passing Marks: 20
PartB: Content of the Course			
Total No. of learning- Training/ performance Periods: 60 Periods (60 Hours)			
Module	Topics (Course contents)		No. of Period
Lab./Field Training/ Experiment Contents of Course,	1. Study of various models of landforms and geological structures. 2. Study of various types of drainage patterns. 3. Preparation and Interpretations of geological maps and sections and completion of outcrops. 4. Megascopic and microscopic study of rock forming minerals. 5. Solution of structural problems with the help of stereographic projections. 6. Determination of pleochroic scheme in minerals, Anorthite content in plagioclase. 7. Interpretation of results of water analysis with the help of various diagrams. 8. Morphometric analysis. 9. Estimation of birefringence, determination of order of interference colors and sign of elongation in common minerals. 10. Study of interference figure and determination of optic sign. 11. Study of crystal models of various crystal systems. 12. Numerical based on radioactive age dating.		60

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Part-C

Learning Resource: Text Books, Reference Books, Others

TextBooks Recommended-

1. खनिज तथा क्रिस्टलविज्ञान-डॉ.बी.सी.जैश
2. खनिज विज्ञान के सिद्धान्त डॉ.ए.पी. अग्रवाल
3. प्रकाशीय खनिज विज्ञानकेमूल तत्व -विंचेल
4. खनिज तथा क्रिस्टलविज्ञान-डॉ.दीपकराज तिवारी
5. Gribble,C.D.Rutley'sElementsofMineralogy.CBS,2005.
6. FordW.E.;Dana'sTextBookofMineralogy.CBS,2006.
7. Perkins,D.;Mineralogy,PrenticeHallIndia,3rded.2012.
8. Rathore, B.S.; BasicsofCrystallography, MineralogyandGeochemistry. Notion Pressindia,2020
9. Sharma, R.S.andSharma, Anurag; CrystallographyandMineralogy- ConceptsandMethods. Geol.Soc. Ind., Bengaluru, 2013.
10. Thornbury, W.D., 1986: Principles of Geomorphology. John Wiley.
11. Singh, Savindra, 2007: Geomorphology. Prayag Pustak Bhavan, Allahabad.

PART-D:AssessmentandEvaluation-Practical

SuggestedContinuousEvaluationMethods:

MaximumMarks: 50Marks

(Will include Internal assessment, Lab records and End Semester Viva/Voce and performance)

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Scheme Of Curricular Framework For B.Sc. – VII Semester Geology Under Four Year Under Graduate Program

B. Sc. VII Sem (CGPA < 7.5)	Credits	Mark distribution	B. Sc. VII Sem (CGPA > 7.5)	Credits	Mark distribution
DSC Advance Geomorphology	04 (3T+1P)	Th 60 IA 15	DSC Advance Geomorphology and Geodynamics	04 (3T+1P)	Th 60 IA 15
DSE-I Advance Structural Geology and Tectonics	04 (3T+1P)	Th 60 IA 15	DSE-I Advance Structural Geology	04 (3T+1P)	Th 60 IA 15
DSE-II Advance Mineralogy and Crystallography	04	Th 80 IA 20	DSE-II Advance Mineralogy and Crystallography	04	Th 80 IA 20
DSE-III Geochemistry, Instrumentation and Analytical Techniques	04	Th 80 IA 20	DSE-III Geochemistry	04	Th 80 IA 20
DSE-IV Tools and Techniques in Field Geology	04	Th 80 IA 20	DSE-IV Tools and Techniques in Field Geology	04	Th 80 IA 20
Geology Labcourse	1+1=2P	50	Geology Labcourse	1+1=2P	50

Scheme Of Curricular Framework For B.Sc. – VIII Semester Geology Under Four Year Under Graduate Program

B. Sc. VIII Sem (CGPA<7.5)	Credits	Mark distribution	B. Sc. VIII Sem (CGPA> 7.5)	Credits	Mark distribution
DSC Igneous Petrology	04 (3T+1P)	Th 60 IA 15	DSC Igneous Petrology	04 (3T+1P)	Th 60 IA 15
DSE-I Sedimentology	04 (3T+1P)	Th 60 IA 15	DSE-I Sedimentology and Metamorphic Petrology	04 (3T+1P)	Th 60 IA 15
DSE-II Metamorphic Petrology	04	Th 80 IA 20	Dissertation / Project (Equivalent to three papers)	12	
DSE-III Palaeontology	04	Th 80 IA 20			
DSE-IV Stratigraphy	04	Th 80 IA 20			
Geology Labcourse	1+1=2P	50	Geology Labcourse	1+1=2P	50

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Scheme and Syllabus for B.Sc. Year 4 (Semester VII)
Courses and Marking Scheme for Fourth-year UG with Geology

Year	Sem	Course Code	Paper Title	Theory/ Practical	Credits	Marks	Sem End	IA
For Bachelor Degree with Honours'/ Honours' with Research*								
Discipline Specific Courses – DSC (Core Courses)/ Generic Elective Course - GEC								
4	VII	BGL701	Advance Geomorphology	Theory	3	75	60	15
Discipline Specific Electives DSE - 1, 2, 3 & 4 (For CGPA less than 7.5)								
4	VII	BGL702	Advance Structural Geology and Tectonics	Theory	3	75	60	15
		BGL703	Advance Mineralogy and Crystallography	Theory	4	100	80	20
		BGL704	Geochemistry, Instrumentation and Analytical Techniques	Theory	4	100	80	20
		BGL705	Tools and Techniques in Field Geology.	Theory	4	100	80	20
		BGLL701	Geology Labcourse	Practical	2	50		
Discipline Specific Electives DSE – 1 (For CGPA greater than 7.5)*								
4	VII	BGL702 BGL703	Advance Structural Geology and Tectonics	Theory	3	75	60	15
			Advance Mineralogy and Crystallography	Theory	4	100	80	
		BGL704	Geochemistry, Instrumentation and Analytical Techniques	Theory	4	100	80	20
		BGL705	Tools and Techniques in Field Geology.	Theory	4	100	80	20
		BGLL701	Geology Labcourse	Practical	2	50		

Note: Semester End – 80% and Internal Assessment (IA) – 20% (Weightage of marks internal examinations will be included as per guidelines of Autonomous Examination Cell)

Minimum pass requirement: 40%

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Scheme and Syllabus for B.Sc. Year 4 (Semester VIII)
Courses and Marking Scheme for Fourth-year UG with Geology

Year	Sem	Course Code	Paper Title	Theory/ Practical	Credits	Marks	Sem End	IA
For Bachelor Degree with Honours'/ Honours' with Research*								
Discipline Specific Courses – DSC (Core Courses)/ Generic Elective Course - GEC								
4	VIII	BGL801	Igneous Petrology	Theory	3	75	60	15
Discipline Specific Electives – DSE – 1, 2, 3 & 4								
Discipline Specific Electives DSE - 1, 2, 3 & 4 (For CGPA less than 7.5)								
4	VIII	BGL802	Sedimentology	Theory	3	75	60	15
		BGL803	Metamorphic Petrology	Theory	4	100	80	20
		BGL804	Palaeontology	Theory	4	100	80	20
		BGL805	Stratigraphy	Theory	4	100	80	20
		BGLL801	Geology Labcourse	Practical	2	50		
Discipline Specific Courses – DSC (Core Courses)/ Generic Elective Course - GEC								
		BGL801	Igneous Petrology	Theory	3	75	60	15
Discipline Specific Electives DSE – 1 (For CGPA greater than 7.5)*								
4	VIII	BGL802A	Sedimentology and Metamorphic Petrology	Theory	3	75	60	15
		BGLL801A	Geology Labcourse	Practical	2	50		
		BGLL803B	Project/ Dissertation			12	300	300

Note: Semester End – 80% and Internal Assessment (IA) – 20% (Weightage of marks internal examinations will be included as per guidelines of Autonomous Examination Cell)

Minimum pass requirement: 40%

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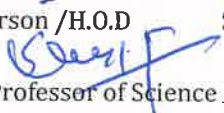
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Four Year Undergraduate Program
Semester VIII Geology
(For CGPA less than 7.5)
Session 2025-26
DSC :Igneous Petrology



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PART-A:Introduction				
Program:BachelorinGeology (Certificate/Diploma/Degree)		Semester:VIII		Session:2025-2026
1	Course Code	BGL801		
2	Course Title	Igneous Petrology		
3	Course Type	DisciplineSpecificCourse(Theory) DSC		
4	Pre-requisite(ifany)	AsperGovernmentnorms		
5	Course Learning Outcomes(CLO)	Aftersuccessfullycompletingthiscourse,thestudentswillbe able to: 1. Explain about the concepts of phase equilibria, Bowen’s Reaction Series and petrographic province and describe various forms, structures and textures of igneous rocks. 2. Relate behavior of major and trace elements to the evolution of magma. 3. Classify the igneous rocks and describe their megascopic and microscopic characters and discuss their petrogenesis. 4. Summarize the generation of magma with reference to plate tectonics and explain petrogenesis of various igneous rocks.		
6	CreditValue	3 Credits	(Credit=15hours-learning&observation)	
7	Total Marks	Max.Marks: 75 (60T+15IA)		Min. Passing Marks :
PART-B:CONTENT OFTHE COURSE				
TotalNo.ofTeaching –learningPeriods (01hourperperiod)-45 Periods(45 Hours)				
Unit	Topics(Course Contents)			No. of Period
I	(i) Principles and general concept of petrology, petrography & petrogenesis. (ii) Various forms, structures and textures of igneous rocks & their significance in petrogenesis. (iii) Phase equilibria of unicomponent, Binary (mixed & eutectic) silicate systems. (iv) Phase equilibria of Ternary (Albite-Anorthite-Diopside and Forsterite- Diopside-Silica) Silicate systems. (v) Bowen’s reaction series. Petrographic Province.			12
II	(i)Composition of primary magma; mantle mineralogy. (ii) Factors affecting evolution of magma. Magmatic differentiation processes. (iii) Partial melting of mantle – different models. Trace element behavior during partial melting. (iv) Behavior of major and trace elements during fractional crystallization. (v) Concurrent assimilation and fractional crystallization. Magma mixing.			11
III	(i) Criteria for classification of the igneous rocks. Factors of chemical composition & mineral composition. Tabular classification. CIPW and Niggli values. Petrogenetic study of the following rock types and their distribution in India: (ii) Basalt and Ophiolite. (iii) Peridotite, Komatiite, (iv) Granite, Anorthosite: (v) Kimberlite and Lamproite.			11
IV	(i) Rock suite and series. Generation of magma with reference to plate tectonics. (ii) Petrogenetic study of Carbonatite, Lamprophyre, and their distribution in India. (iii) Mid-oceanic ridge volcanism and oceanic intra-plate volcanism. (iv) Magmatism associated with subduction related igneous activity- continental and island arc. (v) Magmatism in Large Igneous Plutons and continental alkaline magmatism.			11

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Part-C	
Learning Resource: Text Books, Reference Books, Others	
Text Books Recommended- Philpotts, A., 1992: Igneous and Metamorphic Petrology. Prentice Hall. Best, M.G., 1986: Igneous and Metamorphic Petrology, CBS Publishers. Bose, M.K., 1997: Igneous Petrology. World Press. Winter, J.D., 2001: Igneous and Metamorphic Petrology. Prentice Hall India Ltd.	

PART D: ASSESSMENT AND EVALUATION	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	75 Marks
Continuous Comprehensive Evaluation (CCE):	15 Marks
Semester End Exam (SEE):	60 Marks
Continuous Comprehensive Evaluation (CCE)	Internal Test of 15 Marks and Assignment of 15 Marks
Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 16 Marks Question - D: Long answer type question 07 x 4 = 28 Marks Total = 60 Marks

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Four Year Undergraduate Program
Semester VIII Geology
(For CGPA less than 7.5)
Session 2025-26
DSE-I :Sedimentology



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PART-A:Introduction				
Program: Bachelor in Geology (Certificate/Diploma/Degree)		Semester:VIII		Session:2025-2026
1	Course Code	BGL802		
2	Course Title	Sedimentology		
3	Course Type	Discipline Specific Elective Course (Theory) DSE-I		
4	Pre-requisite(if any)	As per Government norms		
5	Course Learning Outcomes(CLO)	After successfully completing this course, the students will be able to: 1. Evaluate the role of various sedimentary environments in the formation of sedimentary rocks and evolution of sedimentary basins. 2. Identify various structures and textures of sedimentary rocks and classify the sedimentary rocks on the basis of their megascopic and microscopic characters. 3. Explain various aspects of analysis of sedimentary rocks. 4. Summarize Field and Laboratory techniques in Sedimentology.		
6	Credit Value	3 Credits	(Credit=15hours-learning&observation)	
7	Total Marks	Max. Marks: 75 (60T+15IA)		MinPassing Marks :
PART-B: CONTENT OFTHE COURSE				
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)				
Unit	Topics(Course Contents)			No. of Period
I	1. Earth Surface System: Liberation and flux of sediments. 2. Sedimentary environments. Continental alluvial, fluvial, lacustrine, desert, aeolian and glacial sedimentary systems. 3. Marine and continental evaporates. Shallow water carbonates. Shallow coastal clastics. 4. Deep Sea Basins. Volcanoclastics. 5. Evolution of Sedimentary Basins: Tectonics and Sedimentation.			12
II	1. Textures of sedimentary rocks. 2. Classification of sedimentary rocks. 3. Sedimentary facies. 4. Petrographic description of sedimentary rocks. 5. Structures of sedimentary rocks			11
III	1. Palaeocurrent and Basin Analysis. 2. Palaeoclimateanalysis. 3. Palaeoenvironment analysis 4. Top and Bottom Criteria. 5. Application of trace element, rare earth element and isotope geochemistry to sedimentological problems.			11
IV	1. Field and Laboratory techniques in Sedimentology, recording of sedimentological structures. 2. Grain size analysis of sedimentary rocks: Graphic representation of data and calculation of statistical parameters. 3. Preparation of thin section and staining. 4. Cathodoluminescence, use of Coulter counter. 5. Heavy minerals in sedimentary rocks and their significance.			11

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Part-C

Learning Resource: Text Books, Reference Books, Others

Allen, J.R.L., 1985: Principles of Physical Sedimentation. George Allen and Unwin.
Allen, P., :1997: Earth Surface Processes. Blackwell.
Nichols, G., 1999: Sedimentology and Stratigraphy. Blackwell.
Pettijohn, F.J., Potter, P.E. and Siever, R., 1990: Sand and Sandstone. Springer Verlag.
Boggs Sam Jr., 1995: Principles of Sedimentology and Stratigraphy. Prentice Hall.
Sengupta, S., 1997: Introduction to Sedimentology. Oxford –IBH.

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:

Maximum Marks: 75 Marks

Continuous Comprehensive Evaluation (CCE): 15 Marks

Semester End Exam (SEE): 60 Marks

Continuous Comprehensive Evaluation (CCE) Internal Test of 15 Marks and Assignment of 15 Marks

Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit	
	Question - A & B: (Compulsory) Very short answer type (02 each)	04 x 4 = 16 Marks
	Question - C: Short answer type question	04 x 4 = 16 Marks
	Question - D: Long answer type question	07 x 4 = 28 Marks
		Total = 60 Marks

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Four Year Undergraduate Program
Semester VIII Geology
(For CGPA less than 7.5)
Session 2025-26
DSE-II:Metamorphic Petrology



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PART-A:Introduction			
Program:BachelorinGeology (Certificate/Diploma/Degree)		Semester:VIII	
		Session:2025-2026	
1	Course Code	BGL803	
2	Course Title	Metamorphic Petrology	
3	Course Type	Discipline Specific Elective Course (Theory) DSE-II	
4	Pre-requisite(if any)	As per Government norms	
5	Course Learning Outcomes(CLO)	OncompletionofCourse,the students shouldbeable to- 1. Describe agents and types of metamorphism, various types, forms, structures and textures of metamorphic rocks and describe their megascopic and microscopic characters. 2. Explain mineralogical phase rule, ACF, AKF, and AFM, diagrams and various facies. 3. Discuss regional and thermal metamorphism of various groups of rocks and elaborate metamorphic reactions and special types of metamorphism. 4. Explain paired metamorphic belts with reference to Plate Tectonics and influence of P-T conditions on metamorphism	
6	Credit Value	4Credits	(Credit=15hours-learning&observation)
7	Total Marks	Max.Marks:100(80+20)	MinPassing Marks : 40
PART-B:CONTENT OFTHE COURSE			
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)			
Unit	Topics(Course Contents)		No. ofPeriod
I	1. Metamorphism: Definition, Agents, Types of metamorphism. 2. Structures of metamorphic rocks, metamorphic grades, Zones, 3. Textures of metamorphic rocks. 4. Classification of metamorphic rocks. 5. Study of important metamorphic rocks- Granulite, Charnockite, Eclogite, migmatites, Khondalite, Gondite.		15
II	1. Mineralogical phase rule of closed and open systems. 2. Graphic representation of metamorphic mineral assemblages, ACF, AKF, and AFM, diagrams 3. Metamorphic Facies. 4. Facies of low pressures, medium to high pressure and very high pressure with special reference to characteristic metamorphic zones and subfacies. 5. Facies of very high pressure with special reference to characteristic metamorphic zones andsubfacies.		15
III	1. Regional and Thermal metamorphism of mafic, ultramafic rocks,pelitic sediments, and impure calcareous rocks. 2. Ocean floor metamorphism. 3. Ultra-high Temperature, ultra-high-pressure metamorphism. 4. Metasomatism and its types. 5. Retrograde metamorphism.		15
IV	1. Metamorphic differentiation. 2. Anatexis and origin of migmatites in the light of experimental studies. 3. Pressure – Temperature – Time paths. 4. Paired metamorphic Belts, Regional metamorphism and paired metamorphic belts with reference to Plate Tectonics. 5. Nature of metamorphic reactions and Pressure-Temperature conditions of metamorphism Isograd and isoreactiongrad.		15

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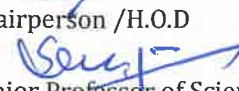
Alumnus

Student

Part-C	
Learning Resource: Text Books, Reference Books, Others	
Turner, F.J., 1980: Metamorphic Petrology. McGraw Hill, New York.	
Yardley, B.W. 1989: An Introduction to Metamorphic Petrology. Longman. New York.	
Philpotts, A., 1992: Igneous and Metamorphic Petrology. Prentice Hall.	
Best, M.G., 1986: Igneous and Metamorphic Petrology, CBS Publishers.	
Winter, J.D., 2001: Igneous and Metamorphic Petrology. Prentice Hall India Ltd.	

PART D: ASSESSMENT AND EVALUATION		
Suggested Continuous Evaluation Methods:		
Maximum Marks:	100 Marks	
Continuous Comprehensive Evaluation (CCE):	20 Marks	
Semester End Exam (SEE):	80 Marks	
Continuous Comprehensive Evaluation (CCE)	Internal Test of 20 Marks and Assignment of 20 Marks	
Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 24 Marks Question - D: Long answer type question 07 x 4 = 40 Marks Total = 80 Marks	


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Four Year Undergraduate Program

Semester VIII Geology

(For CGPA less than 7.5)

Session 2025-26

DSE-III: Palaeontology


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PART-A: Introduction			
Program: Bachelor in Geology (Certificate/Diploma/Degree)		Semester: VIII	Session: 2025-2026
1	Course Code	BGL804	
2	Course Title	Palaeontology	
3	Course Type	Discipline Specific Elective Course (Theory) DSE-III	
4	Pre-requisite(if any)	As per Government norms	
5	Course Learning Outcomes(CLO)	On completion of Course, the students should be able to- 1. Explain fossil record and geological time scale 2. Discuss about the theory and origin of life 3. Explain vertebrate Palaeontology 4. Discuss invertebrate paleontology 5. Discuss sampling methods and sample processing techniques in micropaleontology.	
6	Credit Value	4 Credits	(Credit=15 hours-learning&observation)
7	Total Marks	Max.Marks: 100(80+20)	Min Passing Marks : 40
PART-B: CONTENT OF THE COURSE			
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)			
Unit	Topics(Course Contents)		No. of Period
I	1. Theories on origin and evolution of life. 2. Fossil record and geological time-scale. 3. Principles of evolution. 4. Taphonomy and environmental factors. 5. Species Concept – Types of Fossils and Types of Species.		15
II	1. Trace Fossils – Fossils and their uses – Biometrics 2. Major events in the history of Precambrian and Phanerozoic life. 3. Functional morphology, evolution and significance of Horse. 4. Functional morphology, evolution and significance of Elephant. 5. Functional morphology, evolution and significance of Horse Man.		15
III	Morphology, classification, evolutionary trend, geological history, geographical distribution and description of important genera of composition and structure of shells of selected groups of organisms : 1. Brachiopoda. 2. Mollusca - Lamellibranchia. 3. Mollusca - Gastropoda. 4. Mollusca - Cephalopoda. 5. Graptoloidea		15
IV	Morphology, classification, evolutionary trend, geological history, geographical distribution and description of important genera of composition and structure of shells of selected groups of organisms : 1. Trilobita 2. Echinoides 3. Coelenterata 4. Micropaleontology: Definition and scope. Morphology, classification and description of important genera of Foraminifera. 5. Functional morphology, evolution and significance of Plant Fossils. Study of important plant fossils in Indian context.		15

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Part-C

Learning Resource: Text Books, Reference Books, Others

1. Palaeontology Evolution and animal distribution. .C. Jain and M.S. Anantharaman, (1996), Vishal Publications, Jalandhar.
2. Invertebrate Palaeontology - H.Woods, (1985), CBS Publishers and Distributors, New Delhi.
3. Agashe, S.N, Paleo botany, Oxford & IBH. Delhi(1995).
4. Stewart W.N. & G.W. Rothwell, Palaeobotany, Cambridge University Press. D 2005)
5. Moore R.C. et al., Invertebrate Fossils. CBS. Delhi (1952).
6. Principles of Invertebrate Palaeontology, Shrock R.R and Twenohofel W.H, (2005), CBS Publishers and Distributors, New Delhi.
7. Invertebrate Fossils. Moore R.C, Lalicker C.G and Fisher A.G (1952) McGraw Hill.
8. The Vertebrate Story, Romer A.S, (1959) University of Chicago Press, 4thEdt. Chicago.
9. Palaeontology An Introduction, E.W.Nield and V.C.T.Tucker (1985) Pergamon Press, Oxford.
10. Colbert E.H. et al., Evolution of the Vertebrates, Wiley. New Delhi 2002)

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Comprehensive Evaluation (CCE): 20 Marks

Semester End Exam (SEE): 80 Marks

Continuous Comprehensive Evaluation (CCE)	Internal Test of 20 Marks and Assignment of 20 Marks
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Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 24 Marks Question - D: Long answer type question 07 x 4 = 40 Marks Total = 80 Marks
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Four Year Undergraduate Program

Semester VIII Geology

(For CGPA less than 7.5)

Session 2025-26

DSE-IV: Stratigraphy



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PART-A:Introduction				
Program:BachelorinGeology (Certificate/Diploma/Degree)		Semester: VIII		Session:2025-2026
1	Course Code	BGL805		
2	Course Title	Stratigraphy		
3	Course Type	Discipline Specific Elective Course (Theory) DSE-IV		
4	Pre-requisite(if any)	As per Government norms		
5	Course Learning Outcomes(CLO)	OncompletionofCourse,the students shouldbeable to- 1) Understand the principles of Stratigraphy and details of Geological Time scale 2) Understand Indian stratigraphic systems of Archean, 3) Dharwar, Cuddapah, and Vindhyan Supergroups 4) Describe the Geological Time events of The Paleozoic, Gondwana, Triassic, Jurassic and Cretaceous and the Tertiary rocks		
6	Credit Value	4Credits	(Credit=15hours-learning&observation)	
7	Total Marks	Max.Marks:100(80+20)		MinPassing Marks : 40
PART-B: CONTENT OF THE COURSE				
Total No. of Teaching-learning Periods(01 hour per period)-45 Periods(45 Hours)				
Unit	Topics(Course Contents)			No. ofPeriod
I	1. Principles of Stratigraphy, Geological Time Scale: Various divisions of Geological Time Scale, their nomenclature and type area, 2. Basic concepts of Lithostratigraphic, Chronostratigraphic & Biostratigraphic Units, 3. Tectonic & Physical Subdivisions of Indian subcontinent, 4. Distribution, classification and Economic importance or Archaeozoic rocks of India (Dharwar), 5. Stratigraphy & Economic Importance of Archaeozoic rocks of Bastar(Chhattisgarh).			15
II	1. Stratigraphy & Economic Importance of Archaeozoic rocks ofSinghbhum. 2. Stratigraphy & Economic Importance of Archaeozoic rocks of Aravalli. 3. Distribution, stratigraphy and Economic importance of Cuddapah supergroup of rocks, 4. Distribution, stratigraphy and Economic importance of Vindhyan & Chhattisgarh supergroup of rocks, 5. Distribution, stratigraphy and Economic importance of Chhattisgarh supergroup and Indravati group of rocks,			15
III	1. Paleozoic formation of extra peninsular India. – Spiti, Kashmir. 2. Stratigraphy, Paleoclimate, Geographical, Geological distribution & economic importance of Gondwana Supergroup, 3. Stratigraphy, distribution and age of Deccan-traps 4. Stratigraphy, Distribution and fossil contents of Inter Trappean and Infra Trappean (Bagh & Lameta) Beds, 5. Stratigraphy, distribution, Fossil content & Economic importance of Jurassic rocks of Kutchh-Region			15
IV	1. Distribution, Stratigraphy, economic importance of Cretaceous rocks of Trichonopoly 2. Tertiary rocks of Assam-Region, 3. Distribution, Stratigraphy and Paleontological importance of Siwalik group of rocks. 4. Boundary problem of Permo - Triassic and Cretaceous – Tertiary 5. Indo-Gangetic alluvium.			15

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Part-C	
Learning Resource: Text Books, Reference Books, Others	
1.	Danbar, C.O. and Rodgers, J. (1957): Principles of Stratigraphy, John Viley and Sons.
2.	Doyle, P. and Bennett. M.R. (1996): Unlocking the Stratigraphic Record, John Viley and Sons.
3.	Krishnan, M.S. (1982): Geology of India and Burma, C.B.S. Publ. and Distributors, Delhi.
4.	Naqvi, S.M. and Rogers, J.J.W. (1987): Precambrian Geology of India, Oxford university press
5.	Wadia, D. (1973). Geology of India. Mc Graw Hill Book co.
6.	Krishnan, M.S. (1982). Geology of India and Burma, 6th Edition. CBS Publ.
7.	Ravindra Kumar (1985). Fundamentals of Historical Geology &
8.	Stratigraphy of India. Wiley Eastern.
9.	Valdiya, K.S. (2010). The making of India, McMillan India Pvt Ltd.

PART D: ASSESSMENT AND EVALUATION	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	100 Marks
Continuous Comprehensive Evaluation (CCE):	20 Marks
Semester End Exam (SEE):	80 Marks
Continuous Comprehensive Evaluation (CCE)	Internal Test of 20 Marks and Assignment of 20 Marks
Semester End Exam (SEE)	Pattern - FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 24 Marks Question - D: Long answer type question 07 x 4 = 40 Marks Total = 80 Marks

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Four Year Undergraduate Program

Semester VIII Geology

(For CGPA less than 7.5)

Session 2025-26

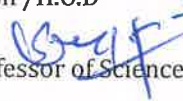
Geology Labcourse


Chairperson /H.O.D


Subject Expert

Subject Expert

Subject Expert 


Senior Professor of Science Faculty

Departmental members

Alumnus

Student

PART-A:Introduction			
Program: Bachelor in (Certificate/Diploma/Degree)		Semester: VIII	Session:2025-2026
1	Course Code	BGLL801	
2	Course Title	Geology Labcourse	
3	Course Type	Practical	
4	Pre-requisite(if any)	As per Government norms	
5	Course Learning Outcomes(CLO)	After successfully completing this course, the students will be able to: 1. Identify various forms, structures and textures of igneous and metamorphic rocks 2. Draw variation diagrams. 3. Construct ACF, AKF and AFM diagrams. 4. Identify various sedimentary rocks and primary, secondary and biogenic sedimentary structures in hand specimens, field photographs and outcrops. 5. Prepare rose diagram from palaeocurrent data . 6. Calculate statistical parameters related to Grain size analysis 7. Identify important fossils from Indian stratigraphic horizons. 8. Plot stratigraphic horizons in the outline map of India.	
6	Credit Value	2 Credits	(1 Credit=30 hours Laboratory or Field learning/Training)
7	Total Marks	Max.Marks:50	Min Passing Marks: 20
PartB: Content of the Course			
Total No. of learning- Training/ performance Periods: 60 Periods (60 Hours)			
Module	Topics (Course contents)		No. of Period
Lab./Field Training/ Experiment Contents of Course,	1. Diagrammatic representation of various forms of igneous & Metamorphic rocks 2. Diagrammatic representation of various structures of igneous & Metamorphic rocks. 3. Megascopic and microscopic study of igneous litho types. 4. Calculation of CIPW Norms. 5. Preparation of variation diagrams. 6. Megascopic and microscopic study of metamorphic rocks of different facies. 7. Graphic construction of ACF, AKF and AFM diagrams. 8. Megascopic and microscopic identification of sedimentary rocks and study of primary, secondary and biogenic sedimentary structures in hand specimens, field photographs and wherever possible on the outcrops. 9. Exercises related to palaeocurrent data from different environments. 10. Grain size analysis and calculation of statistical parameters 11. Study of Important fossils from Indian stratigraphic horizons. 12. Exercises on stratigraphic classification and correlation. 13. Plotting of stratigraphic horizons in the outline map of India. 14. Study of rocks and its sequential arrangement according to geological age.		60

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Part-C

Learning Resource: Text Books, Reference Books, Others

Text Books Recommended-

1. Principles of petrology G.W. Tyrell
2. Petrology-H. William, F.J. Turner & E.M. Gilbert
3. Petrology of igneous & metamorphic rocks of India-S.C. Chattarjee
4. Metamorphism & Metamorphic rocks of India-S. Ray
5. Principles of igneous and metamorphic petrology John D. Winter
6. Allen, J.R.L., 1985: Principles of Physical Sedimentation. George Allen and Unwin.
7. Allen, P., 1997: Earth Surface Processes. Blackwell.
8. Nichols, G., 1999: Sedimentology and Stratigraphy. Blackwell.
9. Pettijohn, F.J., Potter, P.E. and Siever, R., 1990: Sand and Sandstone. Springer Verlag.
10. Boggs Sam Jr., 1995: Principles of Sedimentology and Stratigraphy. Prentice Hall.
11. Sengupta, S., 1997: Introduction to Sedimentology. Oxford – IBH.
12. Turner, F.J., 1980: Metamorphic Petrology. McGraw Hill, New York.
13. Yardley, B.W. 1989: An Introduction to Metamorphic Petrology. Longman. New York.
14. Philpotts, A., 1992: Igneous and Metamorphic Petrology. Prentice Hall.
15. Best, M.G., 1986: Igneous and Metamorphic Petrology, CBS Publishers.
16. Winter, J.D., 2001: Igneous and Metamorphic Petrology. Prentice Hall India Ltd.
17. Clarkson, E.N.K., 1998: Invertebrate Palaeontology and Evolution. IV Ed. Blackwell.
18. Jain, P.C., and Anantharaman, M.S., 1996: Palaeontology – Evolution and animal distribution. Vishal Publications.
19. Prothero, D.R., 1998: Bringing fossils to life- An Introduction to Palaeobiology. McGraw Hill.
20. Stearn, C.W. and Carroll, R.L., 1989: Palaeontology- the record of life. John Wiley.
21. Boggs Sam Jr., 1995: Principles of Sedimentology and Stratigraphy. Prentice Hall.
22. Kumar, Ravindra, 1985 : Fundamentals of Historical Geology and Stratigraphy of India. Wiley Eastern Ltd.
23. Naqvi, S.M. and Rogers, J.J.W., 1987: Precambrian Geology of India. Oxford University Press.

PART-D: Assessment and Evaluation-Practical

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

(Will include Internal assessment, Lab records and End Semester Viva/Voce and performance)

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Four Year Undergraduate Program
Semester VIII Geology
(For CGPA more than 7.5)
Session 2025-26
DSC : Igneous Petrology


Chairperson /H.O.D


Subject Expert

Subject Expert
2.9/21

Subject Expert


Student

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

FOUR YEAR UNDERGRADUATE PROGRAM

DEPARTMENT OF GEOLOGY

COURSE CURRICULUM

PART-A: Introduction			
Program: Bachelor in Geology (Certificate/Diploma/Degree)		Semester: VIII	Session:2025-2026
1	Course Code	BGL801	
2	Course Title	Igneous Petrology	
3	Course Type	Discipline Specific Course (Theory) DSC	
4	Pre-requisite(if any)	As per Government norms	
5	Course Learning Out comes (CLO)	After successfully completing this course, the students will be able to: 1. Explain about the concepts of phase equilibria, Bowen’s Reaction Series and petrographic province and describe various forms, structures and textures of igneous rocks. 2. Relate behavior of major and trace elements to the evolution of magma. 3. Classify the igneous rocks and describe their megascopic and microscopic characters and discuss their petrogenesis. 4. Summarize the generation of magma with reference to plate tectonics and explain petrogenesis of various igneous rocks.	
6	Credit Value	3 Credits	(Credit=15hours-learning & observation)
7	Total Marks	Max. Marks: 75 (60T+15IA)	Min. Passing Marks :
PART-B:CONTENT OFTHE COURSE			
Total No. of Teaching –learning Periods (01hourper period)-45 Periods(45 Hours)			
Unit	Topics(Course Contents)		No. of Period
I	(i) Principles and general concept of petrology, petrography & petrogenesis. (ii) Various forms, structures and textures of igneous rocks & their significance in petrogenesis. (iii) Phase equilibria of unicomponent, Binary (mixed & eutectic) silicate systems. (iv) Phase equilibria of Ternary (Albite-Anorthite-Diopside and Forsterite- Diopside-Silica) Silicate systems. (v) Bowen’s reaction series. Petrographic Province.		12
II	(i)Composition of primary magma; mantle mineralogy. (ii) Factors affecting evolution of magma. Magmatic differentiation processes. (iii) Partial melting of mantle – different models. Trace element behavior during partial melting. (iv) Behavior of major and trace elements during fractional crystallization. (v) Concurrent assimilation and fractional crystallization. Magma mixing.		11
III	(i) Criteria for classification of the igneous rocks. Factors of chemical composition & mineral composition. Tabular classification. CIPW and Niggli values. Petrogenetic study of the following rock types and their distribution in India: (ii) Basalt and Ophiolite. (iii) Peridotite, Komatiite, (iv) Granite, Anorthosite. (v) Kimberlite and Lamproite.		11
IV	(i) Rock suite and series. Generation of magma with reference to plate tectonics. (ii) Petrogenetic study of Carbonatite, Lamprophyre, and their distribution in India. (iii) Mid-oceanic ridge volcanism and oceanic intra-plate volcanism. (iv) Magmatism associated with subduction related igneous activity- continental and island arc. (v) Magmatism in Large Igneous Plutons and continental alkaline magmatism.		11

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Part-C	
Learning Resource: Text Books, Reference Books, Others	
Text Books Recommended- Philpotts, A., 1992: Igneous and Metamorphic Petrology. Prentice Hall. Best, M.G., 1986: Igneous and Metamorphic Petrology, CBS Publishers. Bose, M.K., 1997: Igneous Petrology. World Press. Winter, J.D., 2001: Igneous and Metamorphic Petrology. Prentice Hall India Ltd.	

PART D: ASSESSMENT AND EVALUATION	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	75 Marks
Continuous Comprehensive Evaluation (CCE):	15 Marks
Semester End Exam (SEE):	60 Marks
Continuous Comprehensive Evaluation (CCE)	Internal Test of 15 Marks and Assignment of 15 Marks
Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 16 Marks Question - D: Long answer type question 07 x 4 = 28 Marks Total = 60 Marks

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Four Year Undergraduate Program

Semester VIII Geology

(For CGPA more than 7.5)

Session 2025-26

DSE-I :Sedimentology and Metamorphic Petrology



Chairperson /H.O.D



Subject Expert

Subject Expert

Subject Expert



Senior Professor of Science Faculty

Departmental members

Alumnus

Student

PART-A:Introduction			
Program: Bachelor in Geology (Certificate/Diploma/ Degree)		Semester: VIII	Session:2025-2026
1	Course Code	BGL802A	
2	Course Title	Sedimentology and Metamorphic Petrology	
3	Course Type	Discipline Specific Elective Course (Theory) DSE-I	
4	Pre-requisite (if any)	As per Government norms	
5	Course Learning Outcomes(CLO)	After successfully completing this course, the students will be able to: 1. Evaluate the role of various sedimentary environments in the formation of sedimentary rocks and evolution of sedimentary basins. 2. Identify various structures and textures of sedimentary rocks and classify the sedimentary rocks on the basis of their megascopic and microscopic characters. 3. Explain various aspects of analysis of sedimentary rocks. 4. Summarize Field and Laboratory techniques in Sedimentology. 5. Describe agents and types of metamorphism, various types, forms, structures and textures of metamorphic rocks and describe their megascopic and microscopic characters. 6. Explain mineralogical phase rule, ACF, AKF, and AFM, diagrams and various facies 7. Discuss regional and thermal metamorphism of various groups of rocks and elaborate metamorphic reactions and special types of metamorphism 8. Explain paired metamorphic belts with reference to Plate Tectonics and influence of P-T conditions on metamorphism.	
6	Credit Value	3 Credits	(Credit=15hours-learning&observation)
7	Total Marks	Max. Marks: 75 (60T+15IA)	Min Passing Marks :
PART-B: CONTENT OFTHE COURSE			
Total No. of Teaching-learning Periods(01 hour per period)- 45 Periods (45 Hours)			
Unit	Topics(Course Contents)		No. ofPeriod
I	1. Sedimentary environments. 2. Evolution of Sedimentary Basins: Tectonics and Sedimentation 3. Textures and structures of sedimentary rocks. 4. Classification of sedimentary rocks. 5. Sedimentary facies.		12
II	1. Petrographic description of sedimentary rocks. 2. Palaeocurrent and Basin Analysis, Palaeoclimateand Palaeoenvironment analysis 3. Field and Laboratory techniques in Sedimentology, recording of sedimentological structures. 4. Grain size analysis of sedimentary rocks: Graphic representation of data and calculation of statistical parameters. 5. Heavy minerals in sedimentary rocks and their significance.		11
III	1. Metamorphism: Definition, Agents, Types of metamorphism. 2. Structures of metamorphic rocks, metamorphic grades, Zones, 3. Textures of metamorphic rocks. 4. Classification of metamorphic rocks. 5. Study of important metamorphic rocks- Granulite, Charnockite, Eclogite, migmatites, Khondalite, Gondite.		11
IV	1. Mineralogical phase rule of closed and open systems. 2. Graphic representation of metamorphic mineral assemblages, ACF, AKF, and AFM, diagrams 3. Metamorphic Facies. 4. Facies of low pressures, medium to high pressure and very high pressure with special reference to characteristic metamorphic zones and subfacies. 5. Facies of very high pressure with special reference to characteristic metamorphic zones and subfacies.		11
Chairperson /H.O.D Subject Expert Subject Expert Subject Expert			
Senior Professor of Science Faculty Departmental members Alumnus Student			

Part-C	
Learning Resource: Text Books, Reference Books, Others	
1.	Alen, J.R.L., 1985: Principles of Physical Sedimentation. George Allen and Unwin.
2.	Allen, P., :1997: Erath Surface Processes. Blackwell.
3.	Nichols, G.,1999: Sedimentology and Stratigraphy. Blackwell.
4.	Pettijohn, F.J., Potter, P.E. and Siever, R., 1990: Sand and Sandstone. Springer Verlag.
5.	Boggs Sam Jr., 1995: Principles of Sedimentology and Stratigraphy. Prentice Hall.
6.	Sengupta, S., 1997: Introduction to Sedimentology. Oxford –IBH.
7.	Turner, F.J., 1980: Metamorphic Petrology. McGraw Hill, New York.
8.	Yardley, B.W. 1989: An Introduction to Metamorphic Petrology. Longman. New York.
9.	Philpotts, A., 1992: Igneous and Metamorphic Petrology. Prentice Hall.
10.	Best, M.G., 1986: Igneous and Metamorphic Petrology, CBS Publishers.
11.	Winter, J.D., 2001: Igneous and Metamorphic Petrology. Prentice Hall India Ltd.

PART D: ASSESSMENT AND EVALUATION		
Suggested Continuous Evaluation Methods:		
Maximum Marks:		75 Marks
Continuous Comprehensive Evaluation (CCE):		15 Marks
Semester End Exam (SEE):		60 Marks
Continuous Comprehensive Evaluation (CCE)	Internal Test of 15 Marks and Assignment of 15 Marks	
Semester End Exam (SEE)	Pattern -FOUR Questions (A, B, C, D) from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 4 = 16 Marks Question - C: Short answer type question 04 x 4 = 16 Marks Question - D: Long answer type question 07 x 4 = 28 Marks Total = 60 Marks	

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Four Year Undergraduate Program

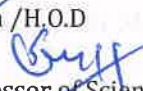
Semester VIII Geology

(For CGPA more than 7.5)

Session 2025-26

Geology Labcourse


Chairperson / H.O.D


Senior Professor of Science Faculty


Subject Expert

Departmental members

Subject Expert

Alumnus

Subject Expert


Student

PART-A: Introduction				
Program: Bachelor in (Certificate/Diploma/Degree)		Semester: VIII		Session: 2025-2026
1	Course Code	BGLL801		
2	Course Title	Geology Labcourse		
3	Course Type	Practical		
4	Pre-requisite(if any)	As per Government norms		
5	Course Learning Outcomes(CLO)	After successfully completing this course, the students will be able to: 1. Identify various forms, structures and textures of igneous and metamorphic rocks 2. Draw variation diagrams. 3. Construct ACF, AKF and AFM diagrams. 4. Identify various sedimentary rocks and primary, secondary and biogenic sedimentary structures in hand specimens, field photographs and outcrops. 5. Prepare rose diagram from palaeocurrent data . 6. Calculate statistical parameters related to Grain size analysis 7. Identify important fossils from Indian stratigraphic horizons. 8. Plot stratigraphic horizons in the outline map of India.		
6	Credit Value	2 Credits	(1 Credit=30 hours Laboratory or Field learning/Training)	
7	Total Marks	Max. Marks:50		Min Passing Marks: 20
Part B: Content of the Course				
Total No. of learning- Training/ performance Periods: 60 Periods (60 Hours)				
Module	Topics (Course contents)			No. of Period
Lab./Field Training/ Experiment Contents of Course,	15. Diagrammatic representation of various forms of igneous & Metamorphic rocks 16. Diagrammatic representation of various structures of igneous & Metamorphic rocks. 17. Megascopic and microscopic study of igneous litho types. 18. Calculation of CIPW Norms. 19. Preparation of variation diagrams. 20. Megascopic and microscopic study of metamorphic rocks of different facies. 21. Graphic construction of ACF, AKF and AFM diagrams. 22. Megascopic and microscopic identification of sedimentary rocks and study of primary, secondary and biogenic sedimentary structures in hand specimens, field photographs and wherever possible on the outcrops. 23. Exercises related to palaeocurrent data from different environments. 24. Grain size analysis and calculation of statistical parameters 25. Study of Important fossils from Indian stratigraphic horizons. 26. Exercises on stratigraphic classification and correlation. 27. Plotting of stratigraphic horizons in the outline map of India. 28. Study of rocks and its sequential arrangement according to geological age.			60

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

Student

Part-C

Learning Resource: Text Books, Reference Books, Others

Text Books Recommended-

24. Principles of petrology G.W. Tyrell
25. Petrology-H.William, F.J.Turner&E.M.Gilbert
26. Petrology of igneous & metamorphic rocks of India-S.C. Chattarjee
27. Metamorphism & Metamorphic rocks of India-S.Ray
28. Principles of igneous and metamorphic petrology John D. Winter
29. Allen, J.R.L., 1985: Principles of Physical Sedimentation. George Allen and Unwin.
30. Allen, P., 1997: Earth Surface Processes. Blackwell.
31. Nichols, G., 1999: Sedimentology and Stratigraphy. Blackwell.
32. Pettijohn, F.J., Potter, P.E. and Siever, R., 1990: Sand and Sandstone. Springer Verlag.
33. Boggs Sam Jr., 1995: Principles of Sedimentology and Stratigraphy. Prentice Hall.
34. Sengupta, S., 1997: Introduction to Sedimentology. Oxford –IBH.
35. Turner, F.J., 1980: Metamorphic Petrology. McGraw Hill, New York.
36. Yardley, B.W. 1989: An Introduction to Metamorphic Petrology. Longman. New York.
37. Philpotts, A., 1992: Igneous and Metamorphic Petrology. Prentice Hall.
38. Best, M.G., 1986: Igneous and Metamorphic Petrology, CBS Publishers.
39. Winter, J.D., 2001: Igneous and Metamorphic Petrology. Prentice Hall India Ltd.
40. Clarkson, E.N.K., 1998: Invertebrate Palaeontology and Evolution. IV Ed. Blackwell.
41. Jain, P.C., and Anantharaman, M.S., 1996: Palaeontology – Evolution and animal distribution. Vishal Publications.
42. Prothero, D.R., 1998: Bringing fossils to life- An Introduction to Palaeobiology. McGrawHill.
43. Stearn, C.W. and Carroll, R.L., 1989: Palaeontology- the record of life. John Wiley.
44. Boggs Sam Jr., 1995: Principles of Sedimentology and Stratigraphy. Prentice Hall.
45. Kumar, Ravindra, 1985 : Fundamentals of Historical Geology and Stratigraphy of India. Wiley Eastern Ltd.
46. Naqvi, S.M. and Rogers, J.J.W., 1987: Precambrian Geology of India. Oxford University Press.

PART-D: Assessment and Evaluation- Practical

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

(Will include Internal assessment, Lab records and End Semester Viva/Voce and performance)

Chairperson /H.O.D

Senior Professor of Science Faculty

Subject Expert

Subject Expert

Departmental members

Alumnus

Subject Expert

Student

Four Year Undergraduate Program

Semester VIII Geology

(For CGPA more than 7.5)

Session 2025-26

Dissertation / Project

(Equivalent to three papers)

Students choosing a 4-Year Bachelor's Degree (Honours with Research) shall be the students with CGPA more than 7.5. They are required to take up research projects/dissertation equivalent to three papers(total 12 credits) under the guidance of a faculty member in VIII Semester will be considered as a mandatory component for the award of the degree. The students are expected to complete the Research Project/Dissertation in the eighth semester. The students need to essentially submit the research project/dissertations/thesis/project work to the allotted mentor. The submission of the report with the conduction of viva will also be a component for the successful evaluation of the dissertation/research project/thesis/Project work.


Chairperson /H.O.D

Senior Professor of Science Faculty


Subject Expert

Departmental members · Alumnus

Subject Expert

Subject Expert


Student