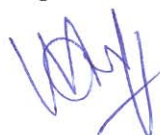


Scheme of Examination
B.Sc.
Geology

Year	Course Code	Subject Name	Theory/ Practical	Total Credit	Total Marks	
First Year	GEOL- 1 T	Geodynamics and Geomorphology	Theory	4	50	17
	GEOL- 2 T	Mineralogy and Crystallography	Theory	4	50	17
	GEOL-1 P	Geodynamics and Geomorphology Mineralogy and Crystallography	Practical	2	50	17
Second Year	GEOL- 3 T	Petrology	Theory	4	50	17
	GEOL - 4 T	Structural Geology	Theory	4	50	17
	GEOL – 2P	Petrology Structural Geology	Practical	2	50	17
Third Year	GEOL- 5 T	Palaeontology and Stratigraphy	Theory	4	50	17
	GEOL – 6T	Earth Resources and Applied Geology	Theory	4	50	17
	GEOL – 3P	Palaeontology and Stratigraphy Earth Resources and Applied Geology	Practical	2	50	17

Note : There shall be four extra credits in all the years of under graduation for internship/ apprenticeship/ skill based course. The certificate of extra credits would be provided by the concern university and is not mandatory.


(MAHFOOZ AHMED)

Part A			
Introduction			
Program: Diploma Course		Class: B.Sc. II Year	Year: 2022
		Session: 2023-2024	
S.No.			
1	Course Code	GEOL – 3 T	
2	Course Title	Petrology (Paper I)	
3	Course Type	Theory.	
4	Pre-requisite (if any)	To study this group, a student must have passed in the B.Sc. I Year Geology	
5	Course Learning Outcomes (CLO)	<p>On completion of course, the students should be able to -</p> <ul style="list-style-type: none"> • Discuss about the formation of igneous rocks, their texture and structures. • Explain about forms and classification of igneous rocks • Identify, describe and classify sedimentary rocks using hand specimens. • Describe the formation of sedimentary rocks, their textures and structures. • Explain about the formation of metamorphic rocks, their texture and structure. • Identify and classify various types of metamorphic rocks. • Explain the concept of metamorphic facies, ACF, AKF and AFM diagrams. 	
6	Credit Value	Theory : 4	
7	Total Marks	Maximum Marks: 50	Minimum Passing Marks : 17

Part B		
Content of the Course		
Total Periods: 60		
Unit	Topics	No. of Periods
I	Igneous petrology : Magma: definition, origin & composition, Bowen's reaction series, magmatic differentiation & assimilation, Introduction to crystallisation of Unicomponent (silica), Bicomponent (albite-anorthite and diopside-anorthite) and tricomponent magma (diopside-albite-anorthite), Texture, structures & forms of igneous rocks, Classification of igneous rocks: Mineralogical, Chemical & Tabular classification	12
II	Igneous petrology : Brief idea of the formation of igneous rocks in relation to Plate Tectonics, Introduction to petrology of Acid igneous rocks, Introduction to petrology of Alkaline igneous rocks, Introduction to petrology of Basic igneous rock, Introduction to petrology of Ultrabasic igneous rocks.	12

III	Sedimentary petrology : Origin, transportation & deposition of sediments, Sedimentary depositional environments - Aeolian, fluvial, coastal and abyssal environment, Introduction to sedimentary facies. Lithification&Diagenesis, Textures & structures of sedimentary rocks, Brief idea of the formation of sedimentary rocks in relation to Plate Tectonics	12
IV	Sedimentary & metamorphic petrology: Classification of sedimentary rocks-Clastic, non-clastic and biogenic rocks, Petrographic description of Breccia, Conglomerate, sandstone, shale, siltstone and limestone, Metamorphism: Definition, agents, facies & grades, Textures, structures & classification of metamorphic rocks, Phase rule in metamorphism. Elementary idea about Paragenetic diagrams & projective analysis.	12
V	Metamorphic petrology: A.C.F. & A.K.F. diagrams, Progressive metamorphism of Argillaceous rocks and thermal metamorphism of impure limestone, Progressive metamorphism of basic igneous rocks, Petrographic description of slate, phyllite, schist, gneiss, marble, quartzite, amphibolite, Khondalite, Gondite, Kodurite & Charnockite, Introduction to Paired Metamorphic Belts.	12

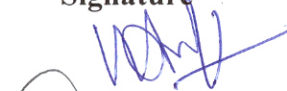





Part C	
Learning Resource	
Suggested Readings:	
(1)	शैलिकी के सिद्धान्त-डॉ.अंबिकाप्रसादअग्रवाल
(2)	शैलिकी के सिद्धान्त- ए.जी. झिंगरन
(3)	Principles of petrology - G.W. Tyrell
(4)	Petrology - H. William, F.J. Turner & E.M. Gilbert
(5)	Petrology of igneous & metamorphic rocks of India- S.C. Chattarjee
(6)	A text book of sedimentary petrology - Verma & Prasad
(7)	Metamorphism & Metamorphic rocks of India - S. Ray
(8)	Sedimentary rocks - F.J. Pettijohn
(9)	Introduction of sedimentology - S. Sengupta
(10)	Sedimentary environment - H.G. Readings
E-resources	
1.	https://epgp.inflibnet.ac.in/Home
2.	https://archive.org/details/in.ernet.dli.2015.233340/page/n15/mode/2up
3.	https://egyankosh.ac.in/
4.	https://sites.google.com/ignou.ac.in/bscgeology
5.	SWAYAM – https://swayam.gov.in/explorer?searchtext
6.	National digital library – https://ndl.iitkgp.ac.in
7.	e-PG pathshala (MHRD) portal, https://epgp.inflibnet .ac.in

PartD AssessmentandEvaluation		
SuggestedContinuousEvaluationMethods:		
MaximumMarks:50		
ContinuousComprehensiveEvaluation(CCE):NA		
UniversityExam(UE):		50 marks
InternalAssessment:	Class Test	
ContinuousComprehensive Evaluation(CCE)	Assignment/Presentation	NA



Declaration

This is to certify that the syllabus is framed by the Central Board of Studies in Geology as per the guidelines of the Department of Higher Education, Chhattisgarh. This meeting was held at AtalBihariBajpai University Bilaspur on 3rd June 2022.

S.No	Name	College	Designation	Signature
1	Prof. MahfoozArif	Govt.E.RaghvendraRao Science college, Bilaspur(C.G.)	Chairman	
2	Prof.Ramesh Joshi	Govt.Kaktiya PG College, Jagdapur, Bastar (C.G.)	Member	
3	Prof.Pradeep Singh Gour	BhanuPratapDeoGovt.PG.C ollege, Kanker(C.G.)	Member	
4	Dr.Shailendra Singh Bhauria	Govt.Nagarjuna Science College, Raipur (C.G.)	Member	
5	Dr.S.D.Deshmukh	Govt.V.Y.T PG Autonomous College,Durg (C.G.)	Member	 3.6.22
6	Prof.AmitanshuShekharJ ha	Govt.Kaktiya PG College, Jagdapur, Bastar (C.G.)	Member	
7	Prof.SunilA.K.Kerketta	Rajiv Gandhi Govt.PG College, Ambikapur (C.G.)	Member	Present online
8	Dr. NinadBodhankar	Prof. & Head Department of Geology & WRM SOS in Geology, Pt. RS University Raipur	Member	Present online
9	Dr. SandeepVansutre	Govt.Nagarjuna Science College, Raipur (C.G.)	Member	Present online
10	Pro A.K.Sandilaya	Prof., Department of Applied Geology, Dr. HS Gour University Sagar, M.P.	Member	Present online
11	Dr. BhargavaAyangar	Department of Applied Geology,NIT Raipur	Member	Present online

Part A			
Introduction			
Program: Diploma Course		Class: B.Sc. II Year	Year: 2022
		Session: 2023-2024	
S.No.			
1	Course Code	GEOL – 4 T	
2	Course Title	Structural Geology (Paper II)	
3	Course Type	Theory.	
4	Pre-requisite (if any)	To study this group, a student must have passed in the B.Sc. Part I Geology	
5	Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able to -</p> <ul style="list-style-type: none"> • Demonstrate the use of Clinometer compass and Brunton compass in measurement of attitude of rock bed. • Explain about parts of fold and classify various folds. • Recognize and classify the faults in the field and on geological map. • Identify and classify Unconformities. • Discuss about various types of Joints. • Explain various types of foliations and lineations. • Identify the top and bottom of rock beds in a series of rocks. 	
6	Credit Value	Theory : 4	
7	Total Marks	Maximum Marks: 50	Minimum Passing Marks : 17

Part B		
Content of the Course		
Total Periods: 60		
Unit	Topics	No. of Periods
I	Attitude of rocks and unconformity : Structural Geology: Definition and scope. Study of outcrops. Identification of bedding, Dip and strike: definition & measurement. Effects of Dip and slope on outcrops: Rule of 'Vs', Clinometer and Brunton compass: Understanding and use in measuring attitude of rocks, Unconformity: Definition & types, Outlier and inlier. Overlap & offlap. Recognition of unconformity.	12
II	Fold : Fold: Definition and morphology, Geometric and genetic classification of folds, Recognition of folds in the field and on geological maps, Effect of folds on outcrops, Elementary idea of mechanics of folding.	12

III	Fault: Fault: Definition and morphology, Geometric and genetic classification of faults, Recognition of faults in the field and on geological maps, Effect of faults on outcrops, Elementary idea of mechanics of faulting.	12
IV	Joint, Foliation & Lincation : Joint: Definition, geometric & genetic classification of joints. Significance of joints, Foliation: terminology, kinds, origin and relation to major structures, Lincation: terminology, Kinds, origin and relation to major structures, Plutons; tectonics & emplacement, Recognition of top and bottom of beds.	12
V	Rock deformation and geological maps : Concept of rock deformation, Stress and Stress Ellipsoids, Tectonic framework of India, Contours: Definition, patterns. Introduction to geological maps and their interpretation, Stereographic projection & its use in Structural geology.	12

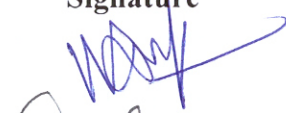



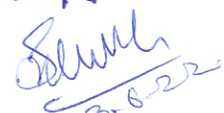

PartC
LearningResources
SuggestedReadings
<p>(1) संरचनात्मकभूविज्ञान—डॉ.डी.के. श्रीवास्तव (2) भूवैज्ञानिकसंरचनाएँ—डॉ. भरत सिंह राठौर (3) प्रायोगिकभूविज्ञान (भाग-2) —आर.पी. मांजरेकर (4) Structural Geology. M.P. Billings. (5) Theory of Structural Geology; Gokhale, N.W. CBS (6) Exercises on Geological maps and dip-Strike: Gokhale, N.W. CBS. (7) Outlines of structural Geology. E.S. Hills. (8) Structural Geology- Hobbs. Means and Williams. (9) Geological maps- Chiplonkar and Pawar.</p>
<p>E-resources :</p> <p>1. https://epgp.inflibnet.ac.in/Home 2. https://archive.org/details/in.ernet.dli.2015.233340/page/n15/mode/2up 3. https://egyankosh.ac.in/ 4. https://sites.google.com/ignou.ac.in/bscgeology 5. SWAYAM – https://swayam.gov.in/explorer?searchtext 6. National digital library – https://ndl.iitkgp.ac.in 7. e-PG pathshala (MHRD) portal, https://epgp.inflibnet .ac.in</p>

Part D Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 50		
Continuous Comprehensive Evaluation (CCE): NA		
University Exam (UE):		50 marks
Internal Assessment:	Class Test	
Continuous Comprehensive Evaluation (CCE)	Assignment/Presentation	NA



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Part A			
Introduction			
Program: Diploma Course		Class: B.Sc. II Year	Year: 2022
		Session: 2023-2024	
S.No.			
1	Course Code	GEOL-2 P	
2	Course Title	Petrology & Structural Geology (Practical)	
3	Course Type	Practical	
4	Pre-requisite (if any)	This practical Course is related to theory course Geology Paper I & II.	
5	Course Learning Outcomes (CLO)	<p>On completion of Course, the students should be able to -</p> <ul style="list-style-type: none"> • Identify the igneous, Sedimentary and metamorphic rocks in hand specimens and thin sections. • Use of Clinometer compass and Brunton compass. • Recognize the folds, faults , unconformities and joints in specimens and models. • Completion of outcrops and preparation of Geological cross section and interpretation of geological history. 	
6	Credit Value	Practical : 2	
7	Total Marks	Maximum Marks: 50	Minimum Passing Marks : 17

Part B1	
Content of the Course	
Petrology	
Topics	No. of Periods
Diagrammatic representation of various forms of igneous, sedimentary & Metamorphic rocks	3
Diagrammatic representation of various structures of igneous, sedimentary & Metamorphic rocks	3
Megascope studies of various sedimentary, metamorphic & igneous rocks.	3
Microscopic studies of various sedimentary, metamorphic & igneous rocks.	3
Diagrammatic representation of petrographic provinces of India in outline map of India.	3

Part B2	
Content of the Course	
Structural Geology	
Topics	Number of Periods
Study of Natural Structures in specimens.	03
Study of structures models.	03
Completion of outcrops.	03
Preparation of geological section from simple to complex geological maps and its interpretation.	03
Introductory idea of stereographic projection in structural geology.	03
Field work of three days is compulsory for the students.	

Part C	
Learning Resource	
Suggested Readings:	
Text Books :	
(1) शैलिकी के सिद्धान्त-डॉ.अंबिकाप्रसादअग्रवाल	
(2) शैलिकी के सिद्धान्त- ए.जी. झिंगरन	
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(6) A text book of sedimentary petrology - Verma& Prasad	
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(14) Structural Geology. - M.P. Billings.	
(15) Theory of Structural Geology; Gokhale, N.W. CBS	
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2. https://archive.org/details/in.ernet.dli.2015.233340/page/n15/mode/2up	





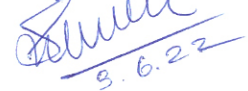

3. <https://egyankosh.ac.in/>
4. <https://sites.google.com/ignou.ac.in/bscgeology>
5. SWAYAM – <https://swayam.gov.in/explorer?searchtext>
6. National digital library – <https://ndl.iitkgp.ac.in>
7. e-PG pathshala (MHRD) portal, <https://egpg.inflibnet.ac.in>

Part D		
Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 50		
Continuous Comprehensive Evaluation (CCE): NA		
University Exam (UE):		50 marks
Internal Assessment:	Class Test	
Continuous Comprehensive Evaluation (CCE)	Assignment/Presentation	NA



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