DEPARTMENT OF GEOLOGY

COURSE CURRICULUM & MARKING SCHEME

B.Sc. III, IV, V, VI Semester GEOLOGY

(Based on Choice Based Credit System)

SESSION : 2024-25



ESTD: 1958

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

(Former Name – Govt. Arts & Science College, Durg) NAAC Accredited Grade A⁺, College with CPE - Phase III (UGC), STAR COLLEGE (DBT) Phone : 0788-2212030 Website - www.govtsciencecollegedurg.ac.in, Email – <u>autonomousdurg2013@gmail.com</u>

GOVT. V.Y.T.PG AUTONOMOUS COLLEGE, DURG(C.G.) FOUR YEAR UNDERGRADUATE PROGRAM

DEPARTMENT OF GEOLOGY

COURSE CURRICULUM 2024-25

DSC				DS	SE .		GEC		
Sem.	Code	Title	Sem.	Code	Title	Sem.	Code	Title	
Ι	GESC-01T	Fundamentals of Geology	-	i Ai	-	Ŧ	GEGE-01	Fundamentals of Geology	
	GESC-01P	Fundamentals of Geology				Ι	GEGE-01P	Fundamentals of Geology Lab Course	
	GESC-02T	Essentials of Geology	-	-	-	II	GEGE-02	Essentials of Geology	
II	GESC-02P	Essentials of Geology					GEGE-02P	Essentials of Geology Lab Course	
	BGL- 301	Petrology		BGL- 302	Elements of Geology		GLSEC-01	Topographic map skills	
III	BGLL-301	Petrology Lab Course	III	BGLL- 302	Elements of Geology Lab Course	III	GLSEC-01P	Topographic map skills Lab Course	
	BGL-401	Structural Geology		BGL- 402	Fuel Geology		GLSEC-02	Attitude and its measurement	
IV	BGLL-401	Structural Geology Lab Course	IV	BGLL- 402	Fuel Geology Lab Course	IV	GLSEC-02P	Attitude and its measurement Lab Course	
	BGL-501	Stratigraphy		BGL- 502	Palaeontology		BGL-503	Geologyand Mineral Resources of Chhattisgarh	
V	BGLL-501	Stratigraphy Lab Course	V	BGLL- 502	Palaeontology Lab Course	V	BGLL-503	Geology and MineralResources of Chhattisgarh Lab Course	
	BGL -601	Economic Geology		BGL- 602	Applied Geology	XII	BGL-603	Photogeology and Remote Sensing	
VI	BGLL-601	Economic Geology Lab Course	VI	BGLL- 602	Applied Geology Lab Course	VI	BGLL-603	Photogeology and Remote Sensing Lab Course	

Chairperson /H.O.D

Subject Expert Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

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Program: B.Sc.		Class: Semest	er – III	Session:2024-2025	
1 Course Code		BGL301			
2 Course Title		PETROLOGY			
3	Course Type		DSC		
4	Course Learning Outcome (CLO)	 Discuss abo Explain abo Identify, des Describe the Explain ab structure Identify and 	ut forms and classification scribe and classify sedimentery formation of sedimentary out the formation of Me classify various types of r	s rocks, their texture and structures of igneous rocks ntary rocks using hand specimens rocks, their textures and structures stamorphic rocks, their texture and	
5	Credit Value	3Credits	1 credit =15 H	ours – Learning and Observation	
6	Total Marks	Max	imum Marks :100	Minimum Passing Marks:40	

0	PART B: CONTENT OF THE COURSE				
		Total no. of Teaching/ Learning Periods = 45 Periods (45 Hours)			
0	Unit	Topics (COURSE CONTENTS)	No. of Periods		
0	I	Magma: definition, origin & composition. Bowen's reaction series, magmatic differentiation & assimilation.Introduction to crystallisation of Unicomponent (Silica), Bicomponent (albile-anorthile and diposide-anorthite) and tricomponent magma (diopside-albilte-anorthite). Texture, structures & forms of igneous rocks. Classification of igneous rocks: Mineralogical, chemical &Tabular classification.	9		
0	п	Brief idea of 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.	9		
0	ш	Origin, transportation & deposition of sediments. Sedimentary depositional environments ; Aeolian, fluvial, coastal and abyssal environment.Introduction to sedimentary facies. Lithification & Digenesis.Textures & structures of sedimentary rocks.Brief idea of formation of sedimentary rocks in relation to plate Tectonics	9		
0000	IV	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.	9		
0000	v	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	9		
0000		Chairperson /H.O.D Subject Expert Subject Expert Subject Expert Subject Expert Subject Expert Subject Expert Senior Professor of Science Faculty Departmental members Alumnus Student			

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	PART C - LE	ARNING RESOURCES	
		Text Books, Reference Books, Other Resources	
\bigcirc	TEXT BOOKS	Recommended :	
5	1)	षैलिकी के सिद्धान्त— डॉ. अंबिका प्रसाद अग्रवाल	
,	(2)	षैलिकी के सिद्धान्त— ए. जी. झिंगरन Drive in lag of Detrologer C. W. Terroll	
\cap .	(3) (4)	Principles of Petrology-G.W. Tyrell Petrology-H.William, F.J. Turner & E.M. Gilbert	
0	(4)	Petrology of Igneous & Metamorphic rocks of India- S.C. Chattarjee	
· · · ·	(6)	A text book of Sedimentary Petrology -Verma & Prasad	
\bigcirc	(7)	Metamorphism & Metamorphic rocks of India- S.Ray	
	(8)	Sedimentary rocks -F.J. Pettijohn	
\bigcirc	(9)	Introduction of Sedimentology - S.Sengupta	-
0	(10)	Sedimentary environment -H.G. Readings	
	Reference B	DOKS	
0	Igneous and M	Aetamorphic petrology: J.D Winter	
0	Online Reso	arces: (e- Resources/ e- Books/ e- Learning Portals)	
5		p.inflibnet.ac.in/Home	
0	· ·	hive.org/details/in.ernet.dli.2015.233340/page/n15/mode/2up	
\bigcirc		rankosh.ac.in/	
0		s.google.com/ignou.ac.in/bscgeology 1-https://swayam.gov.in/explorer?searchtext	
9		gitallibraryhttps://ndl.iitkgp.ac.in	
0		hala(MHRD)portal,https://egpg.inflibnet.ac.in	
0			
-		SSESSMENT AND EVALUATION	
0	Maximum N	ontinuous Evaluation Methods: Iarks: 100 Marks	
0		Comprehensive Evaluation (CCE): 20 Marks	
		nd Exam (SEE): 80 Marks	
0	Internal Ass		ach and
O		omprehensive Evaluation (CCE) Assignment of 20 Marks	
-	Semester En		$0.4 \approx 5 = 20$ Morts
0	Exam (SEE)	Question - A & B: (Compulsory) Very short answer type (02 each) Question - C: Short answer type question	$04 \times 5 = 20$ Marks $05 \times 5 = 25$ Marks
\bigcirc	· · · · · · · · · · · · · · · · · · ·	Question -D: Long answer type question	$07 \times 5 = 35$ Marks
-		Total = 80 Marks	
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Chairperson /H.O.D Subject Senior Professor of Science Faculty

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Subject Expert

Student

		Lab Course				
	RT A: INTRODU					
	Program: B.Sc.	Class: Semester - III Session:2024-2025				
1	Course Code	BGLL-30				
2	Course Title	PETROLOGY LAB-COURSE				
3	Course Type	Practical .				
4	Course Learnin	This Course will enable the students to:1. Identify igneous, sedimentary and metamorphic rocks in hand specimen.				
	Outcome (CLO)					
		2. Describe microscopic properties of igneous, sedimentary and				
		metamorphic rocks. 3. Discuss structures and textures of igneous, sedimentary and				
		metamorphic rocks.				
		4. Draw ACF, AKF and AFM diagrams.				
5	Credit Value	4. Draw ACF, AKF and AFM diagrams. 1Credit 1 credit =15 Hours – Learning and Observation				
6	Total Marks	Maximum Marks: 50 Minimum Passing Marks:20				
PA	RT B: CONTEN	Γ OF THE COURSE				
S.N	No.	List of Experiments				
0		eous, sedimentary and metamorphic rocks in hand specimen				
0		croscopic properties of igneous, sedimentary and metamorphic rocks				
0		actures of igneous, sedimentary and metamorphic rocks.				
0	4 Study of tex	res of igneous, sedimentary and metamorphic rocks.				
0	5 PlottingACI	F, AKF and AFM diagrams				
PAR	AT C - LEARNIN					
		Text Books, Reference Books, Other Resources				
ТЕХ	T BOOKS Recom	mended: सिद्धान्त— डॉ. अंबिका प्रसाद अग्रवाल				
		सिद्धान्त— ७. जीवयी प्रसाद अभ्रयोल सिद्धान्त— ए. जी. झिंगरन				
	· · ·	es of Petrology-G.W. Tyrell				
		y-H.William, F.J. Turner & E.M. Gilbert				
		y of Igneous & Metamorphic rocks of India- S.C. Chattarjee				
		ook of Sedimentary Petrology -Verma & Prasad				
		rphism & Metamorphic rocks of India- S.Ray				
	(8) Sedimer	tary rocks -F.J. Pettijohn				
		tion of Sedimentology - S.Sengupta				
	• •	tary environment -H.G. Readings				
		e- Resources/ e- Books/ e- Learning Portals)				
1.		iflibnet.ac.in/Home				
2.		e.org/details/in.ernet.dli.2015.233340/page/n15/mode/2up				
3.	https://egyanl	•				
4. 5.		oogle.com/ignou.ac.in/bscgeology				
5. 6.	-	s://swayam.gov.in/explorer?searchtext libraryhttps://ndl.iitkgp.ac.in				
5. 7.		MHRD)portal,https://egpg.inflibnet.ac.in				
_		ENT AND EVALUATION				
		Evaluation Methods:				
<u> </u>	ximum Marks: 50					
(Wi	ll include Internal	assessment, Lab records and End Semester Viva/Voce and performance)				
Sen	ester End Exam (S	EE) Laboratory performance: As per Dept. (LOCF)				
	Chairperson /H.O.D	Subject Expert Subject Expert Subject Expert				
	Senior Professor of	Science Faculty Departmental members Alumnus Student				

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PART	A: INTRODUC	TION				
Pr	ogram: B.Sc.	Class: Semester - III	Session:2024-2025			
1	Course Code	BGL302				
2	Course Title	Elements of Geology DSE-				
3	Course Type					
	Course	This Course will enable the students to):			
	Learning	1. Explain the scope and importance of g	eology			
	Outcome	2. Describe earth surface processes.				
	(CLO)	3. Discuss the Earth's spheres. Describe				
4		Ŭ 1 1	and demarcate their distributions in			
		India. Discuss various coal fields and				
		4. Evaluate the principles of Stratigraphy5. Explain the fundamental concept of for				
		· · · · · · · · · · · · · · · · · · ·				
5	Credit Value		urs – Learning and Observation			
6	Total Marks	Maximum Marks :100	Minimum Passing Marks:40			
PAR		OF THE COURSE	• 1. (AF II			
	Total	no. of Teaching/ Learning Periods = 45 P	No. of			
Unit		Topics (COURSE CONTENTS)				
Ι	subdiscipline Surface Proc	to Geology and its relation to other branche es of Geology, importance of Geology, Geo esses: Significance of geological processes tic Processes.Mass wasting.	logy in daily life.Earth 9			
II Earth's Lithosphere. Minerals.Cla cycle, Ocean		Spheres: Hydrosphere, Atmos Lithosphere: Materials of the Earth's assification of rocks and minerals. Rock cyc In Floor and Relief Features.Convections metic field.	Crust: Rocks and ele.Hydrosphere: Water 9			
III	Classification evolution of	ilding and its causes; Evidences of mount n ofMountains.Mountain building and pla Himalaya.Classification of the Himalayan ge, Ice age: causes of ice age.	te tectonics.Origin and 9			
IV Ore Geolog specification iron, copper,		y: Ores, gangue and industrial minera s. Resources and reserves; classification of manganese and gold deposits in India.Distr ution of petroleum fields in India.	reserves.Distribution of o			
V	Stratigraphy: Physiograph	Definition, basic principles of stratigraphy ic and tectonic divisions of India.Introduc ossils and index fossils.Mode of preservat	tion to Palaeontology:			

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Subject Expert

Senior Professor of Science Faculty

Departmental members Alumnus

	RNING RESOURCES Text Books, Reference Books, Other Resources						
TEXT BOOKSRe							
	of Engieneering Geology – K. M.Bangar						
Textbook of Physical Geology - G. B. Mahapatra. CBS Publishers and Distributers, India. Text							
	ok of Geology- P. K. Mukherjee. World Press Private Ltd.						
	of Geology - G. B. Mahapatra. CBS Publishers and Distributers, India.						
Reference Book							
	ology – Evolution and animal distribution- Jain,P.C., and Anantharaman, M.S., Vish						
Publicatio							
	ntals of Historical Geology and Stratigraphy of India.RavindraKumar, Wiley Easte						
Ltd.	indio of inscortal decregy and contracting of the instantian states ,						
	c Geology Economic Mineral Deposits- Umeshwar Prasad. CBS Publishers a						
Distribute							
	Geomorphology- Savindra Singh. Prayag Pustak Bhavan, Allahabad.						
	nology- Jaymula Jingh. I layag i ustak bhayan, Ananabau.						
Principles	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. ces: (e- Resources/ e- Books/ e- Learning Portals)						
Principles Online Resourc	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. c es: (e- Resources/ e- Books/ e- Learning Portals)						
Principles Online Resource https://ope	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. c es: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/						
Principles Online Resourc https://ope https://ope	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. c es: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/ entextbc.ca/geology/						
Principles Online Resourc https://ope https://ope	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. c es: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/						
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Principles Online Resource https://ope https://ope https://egy PART D: ASSI Suggested Conte Maximum Man Continuous Co	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. ces: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/ entextbc.ca/geology/ yankosh.ac.in/ ESSMENT AND EVALUATION tinuous Evaluation Methods: rks: 100 Marks omprehensive Evaluation (CCE): 20 Marks						
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Principles Online Resource https://ope https://ope https://egy PART D: ASSE Suggested Conte Maximum Man Continuous Co Semester End D Internal Assess	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. ces: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/ entextbc.ca/geology/ yankosh.ac.in/ ESSMENT AND EVALUATION tinuous Evaluation Methods: rks: 100 Marks omprehensive Evaluation (CCE): 20 Marks Exam (SEE): 80 Marks						
Principles Online Resource https://ope https://ope https://egy PART D: ASSE Suggested Conte Maximum Man Continuous Co Semester End D Internal Assess	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. ces: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/ entextbc.ca/geology/ yankosh.ac.in/ ESSMENT AND EVALUATION tinuous Evaluation Methods: rks: 100 Marks omprehensive Evaluation (CCE): 20 Marks Exam (SEE): 80 Marks sment: prehensive Evaluation (CCE) Internal Test of 20 Marks each and Assignment of 20 Marks						
Principles Online Resource https://ope https://ope https://egy PART D: ASSH Suggested Conte Maximum Man Continuous Conserver End D Internal Assess Continuous Comp Semester End	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. ces: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/ entextbc.ca/geology/ yankosh.ac.in/ ESSMENT AND EVALUATION tinuous Evaluation Methods: rks: 100 Marks omprehensive Evaluation (CCE): 20 Marks Exam (SEE): 80 Marks sment: Internal Test of 20 Marks each and						
Principles Online Resource https://ope https://ope https://egy PART D: ASSE Suggested Conte Maximum Man Continuous Content Semester End D Internal Assess Continuous Comp	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. ces: (e- Resources/ e- Books/ e- Learning Portals) engeology.org/textbook/ entextbc.ca/geology/ yankosh.ac.in/ ESSMENT AND EVALUATION tinuous Evaluation Methods: rks: 100 Marks omprehensive Evaluation (CCE): 20 Marks Exam (SEE): 80 Marks sment: Internal Test of 20 Marks each and Assignment of 20 Marks sment: Internal Test of 20 Marks each and Assignment of 20 Marks Pattern -FOUR Questions (A, B, C, D)from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 5 = 20 Marks Question - C: Short answer type question 05 x 5 = 25 Mark						
Principles Online Resource https://ope https://ope https://egy PART D: ASSH Suggested Conte Maximum Man Continuous Conserver End D Internal Assess Continuous Comp Semester End	s of Physical Geology- Holmes, A. Doris L Holmes. VanNostrandReinhold. ces: (e- Resources/e- Books/e- Learning Portals) engeology.org/textbook/ entextbc.ca/geology/ yankosh.ac.in/ ESSMENT AND EVALUATION tinuous Evaluation Methods: rks: 100 Marks omprehensive Evaluation (CCE): 20 Marks Exam (SEE): 80 Marks sment: Internal Test of 20 Marks each and Assignment of 20 Marks prehensive Evaluation (CCE) Internal Test of 20 Marks each and Assignment of 20 Marks Pattern -FOUR Questions (A, B, C, D)from each Unit Question - A & B: (Compulsory) Very short answer type (02 each) 04 x 5 = 20 Marks						

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Subject Expert

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Senior Professor of Science Faculty

Departmental members

Student

Lab Course

PA.	RT A:	INTROD	UCTION				
Pı	rogran	n: B.Sc.	Class:	Semester - III	Session:2024-2025		
1	Cour	rse Code	BGLL-302				
2	Cour	rse Title	ELF	EMENTS OF GEOI	LOGY LAB COURSE		
3	Cour	rse Type	¥	Practical	*		
4	Cour	rse	This Course will enable the students to:				
Learning			1. Demarcate coal fields in the map of India and Chhattisgarh.				
	Oute			oilfields in the map of I			
	(CL0	D)			and mention their uses.		
				cks in hand specimen an			
				najor mountain ranges in			
			6. Plot various localities of Iron ore, Copper ore, Manganese ore and Gold				
			deposits in outline map of India.				
		×	7. Plot physiographic and tectonic divisions on outline map of India.				
5	Cre		1Credit 1 credit =15 Hours – Learning and Observation				
6	Val		Marine Mark	Minimum Dessing Merilar20			
	6 Total Marks		Maximum Marks: 50 Minimum Passing Marks:20				
					Minimum Passing Marks:20		
_	ART E		NT OF THE COU	URSE	5		
_		B: CONTE	NT OF THE COU	URSE List of Experim	ents		
S.	ART E	B: CONTE	NT OF THE COU	URSE	ents		
S.	ART E No.	3: CONTE Identificat	NT OF THE COU	URSE List of Experim	ents ns.		
S.	ART E No. 1	B: CONTE Identificat Demarcat	NT OF THE COU	URSE List of Experim hinerals in hand specime	ents ns. tline of India.		
S.	ART H No. 1 2	B: CONTE Identificat Demarcat Delineatic	NT OF THE COU tion of economic m tion of major mou on of various parts o	U RSE List of Experim ninerals in hand specime ntain ranges in map ou of Himalayan Mountain	ents ns. tline of India. range.		
S.	ART H No. 1 2	B: CONTE Identificat Demarcat Delineatic Demarcat	NT OF THE COU tion of economic m tion of major mou on of various parts o	URSE List of Experim hinerals in hand specime ntain ranges in map ou of Himalayan Mountain lities showing Iron ore, 0	ents ns. tline of India.		
S.	ART H No. 1 2 3	B: CONTE Identificat Demarcat Delineatic Demarcat deposits in	NT OF THE COU tion of economic m tion of major mou on of various parts tion of various local n outline map of In	URSE List of Experim hinerals in hand specime ntain ranges in map ou of Himalayan Mountain lities showing Iron ore, 0	ents ns. tline of India. range. Copper ore, Manganese ore and gold		
S.	ART I No. 1 2 3 4	B: CONTE Identificat Demarcat Delineatic Demarcat deposits in Demarcat	NT OF THE COU tion of economic m tion of major mou on of various parts of ion of various local in outline map of In ion of coal fields at	URSE List of Experime hinerals in hand specime ntain ranges in map ou of Himalayan Mountain lities showing Iron ore, o dia.	ents ns. tline of India. range. Copper ore, Manganese ore and gold ap of India.		

Chairperson /H.O.D

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Subject Expert

Senior Professor of Science Faculty

Departmental members Alumnus

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0	PART C - LEARNING RESOURCES
	Text Books, Reference Books, Other Resources
\cap	TEXT BOOKS Recommended
0	Textbook of Physical Geology - G. B. Mahapatra. CBS Publishers and Distributers, India.Text
	Book of Geology- P.K.Mukherjee. World Press Private Ltd.
0	Textbook of Geology - G. B. Mahapatra. CBS Publishers and Distributers, India.
	Geology: Principles and Practical Manual – R. Guhey. New India Publishing Agency
\cap	Principle of Engieneering Geology - K. M.Bangar
~	Reference Books
0	Fundamentals of Historical Geology and Stratigraphy of India. Ravindra Kumar, Wiley Eastern
0	Ltd.
1	Economic Geology Economic Mineral Deposits- Umeshwar Prasad. CBS Publishers and
0	Distributers, India.
	Geomorphology- Savindra Singh. PrayagPustak Bhavan, Allahabad.
0	Online Resources: (e- Resources/ e- Books/ e- Learning Portals)
0	https://opengeology.org/textbook/
2	https://opentextbc.ca/geology/
0	https://egyankosh.ac.in/
0	PART D: ASSESSMENT AND EVALUATION
0	Suggested Continuous Evaluation Methods:
	Maximum Marks: 50 Marks
0	(Will include Internal assessment, Lab records and End Semester Viva/Voce and performance)
Ó.	Semester End Exam (SEE) Laboratory performance: As per Dept. (LOCF)

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Chairperson /H.O.D

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Subject Expert

Senior Professor of Science Faculty

Subject Expert

Departmental members

Alumnus

GOVT. V.Y.T.PG AUTONOMOUS COLLEGE DURG

FOUR YEAR UNDERGRADUATE PROGRAM

DEPARTMENT OF GEOLOGY

COURSE CURRICULUM 2024-25

PART	A: INTRODUC	TION		-	
Pr	ogram: B.Sc.	Class: Semest	er - IV	Session:2024-2025	
1	Course Code	BGL401			
2	Course Title	STRUCTURAL GEOLOGY			
3	Course Type	DSC			
4	Course	This Course will enable the students to:			
	Learning	1. Demonstrate the use of clinometer compass and Brunton compass i			
	Outcome	measuremen	t of attitude of rock bed.		
	(CLO)	2.Explain ab	out parts of fold and classif	y various folds	
		3. Recognize	e and classify the faults in the	ne field and on geological map	
		4. Identify a	4. Identify and classify Unconformities		
		5. Discuss al	oout various types of Joints		
		6. Explain various types of foliations and lineations			
		7. Identify th	e top and bottom of rock be	eds in a series of rocks	
5	Credit Value	3Credits	1 credit =15 Ho	urs – Learning and Observation	
6	Total Marks	Max	imum Marks :100	Minimum Passing Marks:40	

PART	B: CONTENT OF THE COURSE			
Total no. of Teaching/ Learning Periods = 45 Periods (45 Hours)				
Unit	Topics (COURSE CONTENTS)	No. of Periods		
I	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 rock. Unconformity: Definition & types. Outlier and inlier. Overlap & offlap. Recognition of unconformity.	9		
Π	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.	9		
III	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.	9		
IV	Joint: Definition, geometric & genetic classification of joints. Significance of joints. Foliation: terminology, kinds, origin and relation to major structures. Lineation: terminology, Kinds, origin and relation to major structures. Plutons; tectonics & emplacement. Recognition of top and bottom of beds.	9		
V	Concept of rock deformation. Stress and Stress Ellipsoids. Tectonic framework of India. Contours: Definition, patterns. Introduction to geological maps and their interpretation. Stereographic projection & it use in Structural geology.	9		

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PART C - LEAR	NING RESOURCES					
	Text Books, Reference Boo	ks, Other Resources				
TEXT BOOKS Re	commended :					
(1) संरचनात्मक व	मविज्ञान –डॉ. डी. के. श्रीवास्तव					
(2) भूवैज्ञानिक संरचनाएँ —डॉ. भरत सिंह राठौर (3) प्रायोगिक भूविज्ञान (भाग—2) —आर. पी. मांजरेकर						
(4) Structural						
	Structural Geology; Gokhale, N.W. CBS	5				
	on Geological maps and dip-Strike: Gok					
(7)Geological	maps- Chiplonkar and Pawar.					
Reference Book	· c					
	s uctural Geology. E.S. Hills.					
	cology- Hobbs. Means and Williams.					
	es: (e- Resources/ e- Books/ e- Lea	rning Portals)				
https://egyank						
(A) (A)	mn.edu/opentextbooks/textbooks/899					
	SSMENT AND EVALUATION					
00	inuous Evaluation Methods:					
Maximum Mar		Marks				
	mprehensive Evaluation (CCE): 20 N					
Semester End H		larks				
Internal Assess		Internal Test of 20 Marks e	ach and			
	prehensive Evaluation (CCE)	Assignment of 20 Marks				
Semester End	Pattern -FOUR Questions (A, B, C, J					
	Question - A & B: (Compulsory) Very					
Exam (SEE)	Question - C: Short answer type questi		$05 \ge 5 = 25$ Marks			
Exam (SEE)						
Exam (SEE)	Question -D: Long answer type question Total = 80 Marks	on	$07 \ge 5 = 35$ Marks			

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Lab Course

		ΓΙΟΝ				
Pr	rogram: B.Sc.	Class:	Semester - IV	Session:2024-2025		
1 0	Course Code		BG	LL-401		
2 0	Course Title	S	STRUCTURAL GE	OLOGY LAB-COURSE		
3 (
	Course Learning	ents to:				
	2. Complete the outcrop in a three-point problem.					
			npute the thickness of the			
				apparent dip through trigonometrical		
			ulation and graphical me			
		5. Con	struct geological cross :	section from given geological map and		
		6. Mea	sure attitude of rockusin	attitude of rockusingClinometer and Brunton compass.		
5	Credit Value	1Credit	1 credit =	15 Hours – Learning and Observation		
6	Total Marks	Maximum	Marks: 50	Minimum Passing Marks:20		
PAR	RT B: CONTENT	OF THE CO	URSE			
S.No	0.		List of Experin	ments		
01	Study of geolo	gical maps a	nd calculation of dip of r	ock beds.		
02	Study of geolo	gical structu	ıres like folds, faults an	d unconformities on geological map.		
03	Study of geolo	gical structur	res in block models, hand	d specimens and photographs.		
04	Construction of	of geological	cross section from given	geological map.		
05	Measurement	of attitude of	rock using Clinometer a	nd Brunton compass.		

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Text Books, Reference Books, Other Resources

TEXT BOOKS Recommended:

- (1) संरचनात्मक भूविज्ञान —डॉ. डी. के. श्रीवास्तव
- (2) भूवैज्ञानिक संरचनाएँ —डॉ. भरत सिंह राठौर
- (3) प्रायोगिक भूविज्ञान (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)Geological maps- Chiplonkar and Pawar.

Reference Books

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Outlineof structural Geology. E.S. Hills. Structural Geology- Hobbs. Means and Williams.

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

https://egyankosh.ac.in/handle/123456789/53279

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

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

Semester End Exam (SEE) Laboratory performance: As per Dept. (LOCF)

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GOVT. V.Y.T.PG AUTONOMOUS COLLEGE DURG FOUR YEAR UNDERGRADUATE PROGRAM **DEPARTMENT OFGEOLOGY**

COURSE CURRICULUM 2024-25

PAR	ГА:]	INTRODUC'				
Program: B.Sc. 1 Course Code			Class: Semest		Session:2024-20	25
1	Co	urse Code		BGL402		
2	Cou	urse Title		Fuel Geo	ogy	
3	Co	urse Type	1+1	DSE	н	
4 Course Learning Outcome (CLO)			 This Course will enable the students to: 1. Describe origin, mode of occurrence and distribution of coal in India and Chhattisgarh. 2. Explain the fundamental concept of maturation of coal bed methane. 3. Classify kerogen into various types. 4. Explain origin, mode of occurrence and distribution of petroleum in India and World. 5. Discuss origin, mode of occurrence and distribution of radioactive minerals in India. 			
5	C	redit Value	3Credits	1 credit =15 Ho	ours – Learning and Obser	vation
6	Te	otal Marks	Max	ximum Marks :100	Minimum Passing Ma	arks:40
PAF	RT B:		OF THE COU			
		Total	no. of Teaching	g/ Learning Periods = 45 P	eriods (45 Hours)	NI. C
Uni	t	_	-	ics (COURSE CONTENTS		No. of Periods
I		Grade and ty	pe of coal. Chem acroscopic ingre	Rank of coal. Peat lignite, bit nical characterization of coal: edients and microscopic c	proximate and ultimate	09
П	[Geographical	distribution of	lrogenation. Coal carbonizati coal deposits in India. Geolo		09
п	I	deposits in India. Problems of coal industry in India.Role of geologist in coal industry. Coal bed methane: a new energy resource. maturation of coal and generation of methane coal beds.Transformation of organic matter into kerogen. Classification of				
IV	IV Origin, nature and migration of oil and gas. Composition of petroleum and its different fractions. Characteristics of reservoir rocks and traps (structural, stratigraphic and combination). Oil bearing basins of India. Geological and Geographical distribution of oilfields in India.					
V	7	minerals as s	ource of energy ons of the co	association of atomic mine 7. Methods of prospecting of a ountry and future prospe	atomic minerals. Nuclear	09

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PART C - LEARNING RESOURCES

Text Books, Reference Books, Other Resources

TEXT BOOKS Recommended :

- Principle of Engieneering Geology K. M. Bangar
- Text Book of Geology- P.K. Mukherjee. World Press Private Ltd.
- Text Book of Geology G. B. Mahapatra. CBS Publishers and Distributers, India.
- Economic Geology Economic Mineral Deposits- Umeshwar Prasad. CBS Publishers and Distributers, India.
- Principles of Nuclear Geology. Aswathanarayana. U. BalkemaPublisher.

Reference Books

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Textbook of Coal (Indian Context).Chandra, D., Singh, R.M. and Singh, M.P., Tara Book Agency, Varanasi. Introduction to Petroleum Geology. Holson and Tiratsoo,E.N.Gulf. Publ. Houston, Texas.Elements of Petroleum Geology.Selley, R.C. Academic Press.

Radioactivity in Geology. Principles and Applications. Durrance, E.M. Ellis Hoorwool.

Reference Books

Geology of Petroleum. Levorsen, A. I.CBS Publishers & Distributors.

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

https://ocw.tudelft.nl/courses/petroleum-geology/subjects/1-intro-to-petro-geo/

PART D: ASSE	PART D: ASSESSMENT AND EVALUATION							
Suggested Conti	Suggested Continuous Evaluation Methods:							
Maximum Mar	ks: 100	Marks						
Continuous Con	Continuous Comprehensive Evaluation (CCE): 20 Marks							
Semester End E	Exam (SEE): 80 N	larks						
Internal Assess	ment:	Internal Test of 20 Marks each and						
Continuous Comp	rehensive Evaluation (CCE)	Assignment of 20 Marks						
Semester End	Pattern -FOUR Questions (A, B, C,	D)from each Unit						
Exam (SEE)	Question - A & B: (Compulsory) Very	short answer type (02 each)	04 x 5 = 20 Marks					
	Question - C: Short answer type quest	05 x 5 = 25 Marks						
	Question -D: Long answer type question	on	07 x 5 = 35 Marks					
	Total = 80 Marks							

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Lab Course

DA1	RT A: INTRODUC	TION				
_	Program: B.Sc.	Class:	Semester - IV	Session:2024-2025		
1	Course Code			1-402		
2	Course Title			GY LAB COURSE		
2 3		Practical				
3	Course Type Course Learning	This Cours	e will enable the stude			
	Outcome (CLO)		entify various types of coa			
			stinguish macroscopic cor			
			· ·	map of India and Chhattisgarh.		
4				orld map and map of India.		
				of atomic minerals on the map of India.		
			marcate Nuclear power st	-		
		7. Delineate barren zone in a geological map.				
-	C. PATA	10	1 and it -1	5 House Learning and Observation		
5	Credit Value	1Credit Maximum M		5 Hours – Learning and Observation Minimum Passing Marks:20		
6	Total Marks			Winnmum Passing Wiarks:20		
_	ART B: CONTENT	OF THE COU				
	No.	List of Experiments aracterization of banded coals. Proximate analysis of coal.				
		of coal fields in m	given map and calculation	on of coal reserves.		
		of oilfields in ma				
		of oilfields in maj				
			al deposits in India.			
_			r station in India.			
1	8. Identification	of barren zone in	n a geological map.			
PAF	RT C - LEARNING					
			Reference Books, Oth	er Resources		
	T BOOKS Recomm					
P:	rinciple of Engienee		K. M. Bangar	T ()		

Text Book of Geology- P.K. Mukherjee. World Press Private Ltd.

Text Book of Geology - G. B. Mahapatra. CBS Publishers and Distributers, India.

Economic Geology Economic Mineral Deposits- Umeshwar Prasad. CBS Publishers and Distributers, India.

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

https://ocw.tudelft.nl/courses/petroleum-geology/subjects/1-intro-to-petro-geo/

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

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

Semester End Exam (SEE) Laboratory performance: As per Dept. (LOCF)

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		MTRODUC' m: B.Sc.	Class:	Semester -	V ·	Session:2024-202	.5		
1	<u> </u>	e Code			BGL	50			
2		se Title			Stratigra	ohy			
<u>2</u> 3		se Type			DSC				
4	Course Learning This Course will enable the					0:			
•		ome (CLO)	1.	Understand the	geologic time scale	and place important geolog	gic events		
	Outer	(020)		in a temporal framework.					
			2. Explain the principles of stratigraphy and various types of str						
				units.	-tuiluution alogsifi	nation and economic impo	ortance of		
			3.	Describe the dis	oterozoic rocks of	ation and economic impo India	frunce of		
				Archaean and pr	etribution classific	cation and economic impo	ortance o		
			4.	Palaeozoic rocks					
			5.	Describe the di	stribution, classific	cation and economic impo	ortance o		
			0.	Mesozoic rocks	of India.				
5	Cre	dit Value	1	Credits	1 credit =15 H	lours – Learning and Obse	rvation		
6	Tota	al Marks	Maxi	mum Marks :75		Minimum Passing Marks	:30		
P	ART B	CONTENT	OF TH	E COURSE					
		Total	no. of T	eaching/ Learni	ing Periods = 45 H	Periods (45 Hours)	No. of		
U	Init			-	RSE CONTENTS		Period		
		Introductor	y idea a	bout: Principles	of stratigraphy: Ge	ological time scale. Basic			
	I	concept of	lithostratigraphic chronostratigraphic & biostratigraphic units.						
	1	Structural	& physical subdivision and characteristic features of Indian						
		subcontinent. Stratigraphic correlation. Introductory idea about: Distribution, classification & economic importance of							
		Introductory	rchaeozoic rocks of South India, Central India, Bastar, Rajasthan, Bundelkhand and						
	TT	Archaeozoic	rocks of	South India. Centr	al India, Bastar, Ra	ajasthan, Bundelkhand and	9		
	п	Singhbhum r	egion.		ral India, Bastar, Ra	ajasthan, Bundeikhand and	9		
	п	Singhbhum r	egion. widea a	hout:Distributio	ral India, Bastar , Ra	Economic Importance of			
	п ш	Singhbhum r Introductor	egion. y idea a Idanah S	about: Distributio	ral India, Bastar , Ra n, Stratigraphy & nyan Supergroup, (Economic Importance of Chhattisgarh Supergroup,	9		
		Singhbhum r Introductor rocks of Cuc	egion. Ty idea a Idapah S oup Dell	bout: Distributio upergroup, Vindl	ral India, Bastar , Ra n, Stratigraphy & nyan Supergroup, (d their equivalent f	Economic Importance of Chhattisgarh Supergroup, formations.			
		Singhbhum r Introductor rocks of Cuc Indravati Gr	egion. Ty idea a Idapah S oup, Dell Ty idea a	bout: Distributio upergroup, Vindl ni Supergroup and	ral India, Bastar , Ra n, Stratigraphy & nyan Supergroup, (d their equivalent f ny. Palaeoclimate, (ajastnan, Bundelkhand and Economic Importance of Chhattisgarh Supergroup, Formations. Geographical distribution	9		
	ш	Singhbhum r Introductor rocks of Cuc Indravati Gr Introductor	egion. y idea a ldapah S oup, Dell y idea a	about:Distributio upergroup, Vindl ni Supergroup an about:Stratigraph	ral India, Bastar, Ra n, Stratigraphy & nyan Supergroup, (d their equivalent f ny, Palaeoclimate, (pergroup, Stratigrap	Economic Importance of Chhattisgarh Supergroup, Formations. Geographical distribution ohy. Distribution & age of			
		Singhbhum r Introductor rocks of Cuc Indravati Gr Introductor & economic Deccan Tra	egion. y idea a ldapah S oup, Dell y idea a aspects	about:Distributio upergroup, Vindl ni Supergroup an about:Stratigraph of Gondwana Sup atigraphy. Distrib	ral India, Bastar, Ra n, Stratigraphy & nyan Supergroup, (<u>d their equivalent f</u> ny, Palaeoclimate, (pergroup.Stratigrap oution & fossil col	Economic Importance of Chhattisgarh Supergroup, formations. Geographical distribution ohy, Distribution & age of ntents of Bagh &Lameta	9		
	ш	Singhbhum r Introductor rocks of Cuc Indravati Gr Introductor & economic Deccan Tra Rad Distribu	egion. y idea a ldapah S oup, Dell ry idea a aspects ps. Stra ttion Stra	about:Distributio upergroup, Vindl ni Supergroup an about:Stratigraph of Gondwana Sup atigraphy, Distrib atigraphy &Palae about:Stratigrap	ral India, Bastar, Ra on, Stratigraphy & nyan Supergroup, (d their equivalent f ny, Palaeoclimate, (pergroup.Stratigrap oution & fossil con ontology of Salt Ra hy, Distribution, F	Economic Importance of Chhattisgarh Supergroup, Formations. Geographical distribution ohy, Distribution & age of ntents of Bagh &Lameta nge group of rocks. Fossil content of Triassic	9		
	ш	Singhbhum r Introductor rocks of Cuc Indravati Gr Introductor & economic Deccan Tra Bed.Distribu Introductor	egion. y idea a ldapah S oup, Dell ry idea a aspects ps. Stra ition, Stra ry idea	about:Distribution upergroup, Vindle ni Supergroup and about:Stratigraph of Gondwana Sup atigraphy, Distributigraphy &Palae about:Stratigraphy atigraphy &Palae	ral India, Bastar, Ra on, Stratigraphy & nyan Supergroup, (d their equivalent f ny, Palaeoclimate, (pergroup.Stratigrap oution & fossil con ontology of Salt Ra hy, Distribution, F	Economic Importance of Chhattisgarh Supergroup, Formations. Geographical distribution ohy, Distribution & age of intents of Bagh &Lameta inge group of rocks. Fossil content of Triassic uchirapalli, Stratigraphy,	9		
	III IV	Singhbhum r Introductor rocks of Cuc Indravati Gr Introductor & economic Deccan Tra Bed.Distribu Introductor rocks of Sp Distribution	egion. y idea a ldapah S oup, Dell ry idea a aspects ps. Stra ition, Stra ry idea piti valle Fossil	about:Distributio upergroup, Vindl ni Supergroup and bout: Stratigraph of Gondwana Sup atigraphy, Distrib atigraphy &Palae about: Stratigrap ey and Cretace content & Econo	ral India, Bastar, Ra n, Stratigraphy & nyan Supergroup, (d their equivalent f ny, Palaeoclimate, (pergroup.Stratigrap oution & fossil con ontology of Salt Ra hy, Distribution, F cous rocks of Tir mic importance of	Economic Importance of Chhattisgarh Supergroup, Formations. Geographical distribution ohy, Distribution & age of Intents of Bagh &Lameta Inge group of rocks. Fossil content of Triassic uchirapalli, Stratigraphy, Jurassic rocks of Kutch-	9		
	ш	Singhbhum r Introductor rocks of Cuc Indravati Gr Introductor & economic Deccan Tra Bed.Distribu Introductor rocks of Sy Distribution Region Dist	egion. y idea a ldapah S oup, Dell ry idea a aspects ps. Stra ition, Stra ry idea piti valle h, Fossil o ribution	about:Distribution upergroup, Vindlen in Supergroup and about:Stratigraph of Gondwana Sup atigraphy, Distribution atigraphy & Palae about:Stratigraph ey and Cretace content & Econo Stratigraphy, Econo	ral India, Bastar, Ra n, Stratigraphy & nyan Supergroup, (d their equivalent f ny, Palaeoclimate, (pergroup.Stratigrap oution & fossil con ontology of Salt Ra hy, Distribution, F cous rocks of Tir mic importance of conomic importance	Economic Importance of Chhattisgarh Supergroup, Formations. Geographical distribution ohy, Distribution & age of intents of Bagh &Lameta nge group of rocks. Fossil content of Triassic uchirapalli, Stratigraphy, Jurassic rocks of Kutch- ice of Tertiary rocks of	9		
	III IV	Singhbhum r Introductor rocks of Cuc Indravati Gr Introductor & economic Deccan Tra Bed.Distribu Introductor rocks of Sy Distribution Region Dist	egion. y idea a Idapah S oup, Dell ry idea a aspects ps. Stra ition, Stra ry idea piti valle h, Fossil o ribution, on.Distrib	about:Distribution upergroup, Vindle ni Supergroup and about:Stratigraph of Gondwana Sup atigraphy, Distribution atigraphy & Palae about:Stratigraph ey and Cretace content & Econo Stratigraphy, E- bution, Stratigraph	ral India, Bastar, Ra n, Stratigraphy & nyan Supergroup, (d their equivalent f ny, Palaeoclimate, (pergroup.Stratigrap oution & fossil con ontology of Salt Ra hy, Distribution, F cous rocks of Tir mic importance of conomic importance	Economic Importance of Chhattisgarh Supergroup, Formations. Geographical distribution ohy, Distribution & age of intents of Bagh &Lameta inge group of rocks. Fossil content of Triassic uchirapalli, Stratigraphy,	9		

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	NING RESOURCES Text Books, Reference Books, Other Resources	
FEXT BOOKS Re	commended:	
01. Boggs Sam	Jr., 1995: Principles of Sedimentology and Stratigraphy. Prentice Hall.	
.02. Kumar, Rav	rindra,1985 : Fundamentals of Historical Geology and Stratigraphy of In	ndia. Wiley Eastern Ltd
03. Naqvi, S.M.	and Rogers, J.J.W,1987: Precambrian Geology-of India. Oxford Universi	ty Press.
Reference Book	S:	
Geology of India	volume I and II – M. Ramakrishnan and R. Vaidyanathan	
Online Resource	es: (e- Resources/ e- Books/ e- Learning Portals)	
https://egyank	osh.ac.in/	
PART D: ASSE	SSMENT AND EVALUATION	
Suggested Conti	nuous Evaluation Methods:	
Maximum Mar		
	nprehensive Evaluation (CCE): 15Marks	
Semester End E		·
Internal Assess		signment of 15 Marks
A	rehensive Evaluation(CCE)	
Semester End	Pattern -FOUR Questions (A, B, C, D)from each Unit	$0.2 \times 5 - 10$ Marks
Exam (SEE)	Question - A & B: (Compulsory) Very short answer type (01each)	$02 \times 5 = 10$ Marks 03 x 5 = 15 Marks
	Question - C: Short answer type question	$05 \times 5 = 15$ Marks 07 x 5 = 35 Marks
	Question -D: Long answer type question Total = 60 Marks	UT X 5 55 WAIKS

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Senior Professor of Science Faculty

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Subject Expert

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Lab Course

PAI	RT A: INTRODUC	FION	8					
]	Program: B.Sc.	Class:	Semester - V	Session:2024-2025				
			DCLA	501				
1	Course Code	BGL1-501						
2	Course Title	Stratigraphy labcourse						
3	Course Type							
4	Course Learning	ourse Learning On completion of Course, the students will be able to						
	Outcome (CLO)	utcome (CLO) 1. Prepare the geologic time scale and place important geologic events in a temporal framework.						
		2. Correlatevarious ofrock formations of India.						
				erozoic rocks on outline map of India.				
				on the outline map of India.				
		5. Plot the distrib	oution of Mesozoic rocks.	Deccan trap and Siwalik rocks on the				
		outline map of						
5	Credit Value	1Credit		ours – Learning and Observation				
6	Total Marks	Maximum Marl	ks :25	Minimum Passing Marks:10				
PAF	RT B: CONTENT O	F THE COURSE	C					
S.N			List of Experiment					
1	Preparation of the	e geologic time scale	e and place important geol	ogic events in a temporal framework.				
2	Correlation ofvar	ious rock formation	s of India.					
3	Plotting the distri	bution of Archaean	and proterozoic rocks on c	outline map of India.				
4	Plotting the distri	bution of Palaeozoio	c rocks on the outline map	of India.				
5	Plotting the distri	bution of Mesozoic	rocks, Deccan trap and Siv	walik rocks on the outline map of India.				

PART C - LEARNING RESOURCES

Text Books, Reference Books, Other Resources

TEXT BOOKS Recommended

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Kumar, Ravindra,1985 : Fundamentals of Historical Geology and Stratigraphy of India. Wiley Eastern Ltd. Naqvi, S.M. and Rogers, J.J.W,1987: Precambrian Geology of India. Oxford University Press**Online Resources: (e- Resources/ e- Books/ e- Learning Portals)**

PART D: ASSESSMENT AND EVALUATION

Subject Expert

 Suggested Continuous Evaluation Methods:

 Maximum Marks:
 25 Marks

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

 Semester End

 Exam. (SEE)

Chairperson /H.O.D

lotteral, Subject Expert

Subject Expert

Senior Professor of Science Faculty

Departmental members

Alumnus

PA	RT A:	INTRODUC	ΓΙΟΝ							
	Progra	am: B.Sc.	Class:	Ser	nester - V		Session:2024-20	25		
1	Cour	se Code			B	GL	502			
2	Cour	se Title			Palae	onto	logy			
3	Cour	se Type		DSE						
4	Cour	se Learning	This Course will enable the students to:							
	Outco	ome (CLO)) 1. Understand the modes of preservation of fossils.							
		2. Describe morphology and geological distribution of Brachiop								
		Lamellibranches, Trilobites, Gastropods, Graptolites and Echinoids.								
							of plant fossils and their sig	inificance		
					various applications of					
=	Crea	dit Value		Credits			pts of Micropalaeontology Iours – Learning and Obse			
5				mum Mar		131	Minimum Passing Marks			
6		al Marks					Willing Wiatks			
P A	AKT B	CONTENT				45 D	Denieda (15 Wound)			
		10(a)	10. 01 1	eaching/	Learning Periods =	43 I		No. of		
U	nit			Topics	(COURSE CONTE	NTS	5)	Periods		
	I	fossilization,	modes pplicati	of fossi on of F	lization.Uses of foss Palaeontology in th	sils;	finition, Essentials for Index fossils & their study of Stratigraphy,	9		
	Π	Elementary i	dea abo	outmorpho	logy & geological raptolite fossils.	distr	ibution of Brachiopoda	9		
]	III	Elementary i Cephalopoda	dea abo and Ech	out morp inoidea fo	hology & geological ossils.		ribution of Gastropoda,	9		
	IV	Elementary i Anthozoa and				istri	bution of Foraminifera,	9		
	V		dea abo	ut Micro		signi	ficance. Study of plant	9		

PART C - LEARNING RESOURCES Text Books, Reference Books, Other Resources

Subject Expert

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Chairperson /H.O.D

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Subject Expert

Alumnus

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Subject Expert

Senior Professor of Science Faculty

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Departmental members

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TEXT BOOKS Re	commended:							
01. Clarkson, I	Clarkson, E.N.K.,1998: Invertebrate Palaeontology and Evolution. IV Ed. Blackwell.							
02. 02. Jain,P.0	. 02. Jain, P.C., and Anantharaman, M.S., 1996 : Palaeontology – Evolution and animal distribution.							
Vishal Publication	Vishal Publications.							
03. Prothero, I	. Prothero, D.R., 1998: Bringing fossils to life- An Introduction to Palaeobiology. McGrawHill.							
04. Stearn, C.V	Stearn, C.W. and Carrol, R.L., 1989: Palaeontology- the record of life. John Wiley.							
05. Henry Wo	Henry Woods: Palaeontology Invertebrate. CBS Publishers.							
06. Twenhofe	6. Twenhofel and Shrock : Principles of Invertebrate Paleontology. CBS Publishers							
Reference Books	5:							
Treatise on Inver	tebrate Paleontology, edited by	R. C. Moore, 24 volumes. Publish	hed by the Geological					
Society of Americ	a and University of Kansas Pres	S						
Online Resource	es: (e- Resources/ e- Books/ e-	Learning Portals)						
1. https://egyanko	osh.ac.in/							
PART D: ASSES	SSMENT AND EVALUATION							
	nuous Evaluation Methods:							
Maximum Marl		75 Marks						
	aprehensive Evaluation (CCE):	15Marks						
Semester End E		60 Marks	(C15) (1					
Internal Assessm	nent: rehensive Evaluation(CCE)	Internal Test of 15 Marks and Ass	ignment of 15 Marks					
Semester End	Pattern -FOUR Questions (A, H	C D)from each Unit						
Exam (SEE)		Very short answer type (01each)	$02 \ge 5 = 10$ Marks					
Laum (SLL)	Question - C: Short answer type		$03 \ge 5 = 15$ Marks					
	Question -D: Long answer type q		$07 \ge 5 = 35$ Marks					
	Total = 60 Marks							

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Chairperson /H.O.D

Senior Professor of Science Faculty

Subject Expert

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Subject Expert

Departmental members

Student

PART A: INTRODUCTION Session:2024-2025 Program: B.Sc. **Class:** Semester - V BGLL-502 **Course Code** Palaeontology Labcourse **Course Title** 2 Practical **Course Type** 3 On completion of Course, the students will be able Course 4 1. Identify various Brachiopoda and Lamellibranchia fossils on the basis of their Learning morphological characters Outcome 2. Identify various Trilobite and Graptolite fossils on the basis of their (CLO)morphological characters 3. Identify various Cephalopoda and Echinoidea fossils on the basis of their morphological characters 4. Identify various Gastropoda fossils on the basis of their morphological characters 5. Identify various plant fossils on the basis of their morphological characters 1 credit =15 Hours - Learning and Observation 1Credit **Credit Value Minimum Passing Marks:10** Maximum Marks :25 **Total Marks** PART B: CONTENT OF THE COURSE List of Experiments S.No. Study of morphological characters of Brachiopoda and Lamellibranchia fossils 1 Study of morphological characters of Trilobite and Graptolite fossils 2 Study of morphological characters of Cephalopoda and Echinoidea fossils. 3 Study of morphological characters of & geological distribution of Gastropoda fossils 4

5 Study of morphological characters of plant fossils

PART C - LEARNING RESOURCES

Text Books, Reference Books, Other Resources

Text Books Recommended:

Jain, P.C., and Anantharaman, M.S., 1996 : Palaeontology - Evolution and animal distribution. Vishal Publications.

K. Subramani. Palaeontology Practical Manual. Vishal Publications.

Henry Woods: Palaeontology Invertebrate. CBS Publishers.

Twenhofel and Shrock : Principles of Invertebrate Paleontology. CBS Publishers

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

Subject Expert

https://egyankosh.ac.in/

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:

25 Marks **Maximum Marks:** (Will include Internal assessment, Lab records and End Semester Viva/Voce and performance) Laboratory performance: As per Dept. (LOCF) Semester End

Exam (SEE) Chairperson /H.O.D

Delatipag Subject Expert

Subject Expert

Senior Professor of Science Faculty

Student

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GOVT. V.Y.T.PG AUTONOMOUS COLLEGE DURG FOUR YEAR UNDERGRADUATE PROGRAM DEPARTMENT OF GEOLOGY

COURSE CURRICULUM 2024-25

: B.Sc. Code Title Type Learning e (CLO) Value Marks ONTENT O Total n	1. Understa 2. Describe 3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	rse will enable and the distribute the mode of o about the scope ate the geologic ate the distribute its n Marks :75 OURSE	BGL5 and Mineral Reso DSE the students to: ution of geologic occurrence of mine for mineral bas cal formations in tion of mineral 1 credit =15 g Periods = 45	ources of Chhattisgarh	h state rh state rh ttisgarh ervation s:30
Title Type Learning e (CLO) Value Value Marks ONTENT	1. Understa 2. Describe 3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	rse will enable and the distribute the mode of o about the scope ate the geologic ate the distribute its	and Mineral Reso DSE the students to: ution of geologic occurrence of min e for mineral bas cal formations in tion of mineral 1 credit =15 g Periods = 45	Durces of Chhattisgarh E cal formationsof Chhattisgar neral deposits in Chhattisgar sed industries in Chhattisgar the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	rh state rh ttisgarh ervation s:30
Title Type Learning e (CLO) Value Value Marks ONTENT	1. Understa 2. Describe 3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	rse will enable and the distribute the mode of o about the scope ate the geologic ate the distribute its	and Mineral Reso DSE the students to: ution of geologic occurrence of min e for mineral bas cal formations in tion of mineral 1 credit =15 g Periods = 45	Durces of Chhattisgarh E cal formationsof Chhattisgar neral deposits in Chhattisgar sed industries in Chhattisgar the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	rh state rh ttisgarh ervation s:30
Type Learning e (CLO) Value Value Marks ONTENT	1. Understa 2. Describe 3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	rse will enable and the distribute the mode of o about the scope ate the geologic ate the distribute its	DSE e the students to: ution of geologic occurrence of min e for mineral bas cal formations in ition of mineral 1 credit =15 g Periods = 45	E cal formationsof Chhattisgar neral deposits in Chhattisgar sed industries in Chhattisgan the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	rh state rh ttisgarh ervation s:30
Learning e (CLO) Value Marks ONTENT	1. Understa 2. Describe 3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	and the distribute the mode of o about the scope ate the geologic ate the distribute the distribute the distribute of th	e the students to: ution of geologic occurrence of min e for mineral bas cal formations in ution of mineral 1 credit =15 g Periods = 45	al formationsof Chhattisgar neral deposits in Chhattisgar sed industries in Chhattisgar the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	rh state rh ttisgarh ervation s:30
Learning e (CLO) Value Marks ONTENT	1. Understa 2. Describe 3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	and the distribute the mode of o about the scope ate the geologic ate the distribute the distribute the distribute of th	ution of geologic occurrence of mine e for mineral bas cal formations in <u>ttion of mineral</u> <u>1 credit =15</u> g Periods = 45	al formationsof Chhattisgar neral deposits in Chhattisgan sed industries in Chhattisgan the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	rh state rh ttisgarh ervation s:30
Value Marks ONTENT	2. Describe 3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	e the mode of o about the scope ate the geologic ate the distribu its	ccurrence of min e for mineral bas cal formations in ition of mineral 1 credit =15 g Periods = 45	neral deposits in Chhattisgan sed industries in Chhattisgan the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	rh state rh ttisgarh ervation s:30
Marks ONTENT (3. Discuss a 4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	about the scop ate the geologic ate the distribu its n Marks :75 OURSE hing/ Learnin	e for mineral bas cal formations in ition of mineral 1 credit =15 g Periods = 45	sed industries in Chhattisgan the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	rh ttisgarh ervation s:30
Marks ONTENT (4. Demarca 5. Demarca 3Credi Maximun OF THE Co 10. of Teach	ate the geologic ate the distribu its n Marks :75 OURSE hing/ Learnin	cal formations in tion of mineral 1 credit =15 g Periods = 45	the map of Chhattisgarh deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	ttisgarh ervation s:30
Marks ONTENT (5. Demarca 3Credi Maximun OF THE Co 10. of Teach	ate the distribu its n Marks :75 OURSE hing/ Learnin	tion of mineral 1 credit =15 g Periods = 45	deposits in the map of Chha Hours – Learning and Obse Minimum Passing Marks	ervation s:30
Marks ONTENT (3Credi Maximun OF THE C 10. of Teach	its n Marks :75 OURSE hing/ Learnin	1 credit =15 g Periods = 45	Hours – Learning and Obse Minimum Passing Marks	ervation s:30
Marks ONTENT (Maximun OF THE C 10. of Teacl	n Marks :75 OURSE hing/ Learnin	g Periods = 45	Minimum Passing Marks	s:30
ONTENT O	OF THE Contract	OURSE hing/ Learnin			
	10. of Teacl	hing/ Learnin		Periods (45 Hours)	NT . P
Total n				Periods (45 Hours)	NT . P
	Т	opics (COUR	SE CONTENT		
				(S)	No. of Periods
nhattisgarh. roups, Bhop	Archaeozo alpatnam G	ic formations Franulite Belt,	of Chhattisgar Bailadila Group	rh. Geological map of rh: Sukma and Bengpal , Kotri- Dongargarh Belt.	9
nakhan Group, Abujhmar Group, Khairagarh Group, Nandgaon Group, Kanker anite and Dongargarh Granite.					
hhattisgarh S	upergroup, In	ndravati Group,		s of Gondwana Supergroup,	9
auxite depo	osits of Chl	hattisgarh. Tir	res of Iron ore n deposits of C	deposits of Chhattisgarh. Chhattisgarh, Radioactive	9
nhattisgarh, recious and	coal depos	sits of Chhat	tisgarh, mica d	leposits of Chhattisgarh,	9
lineral spec dustry, Coa dustry, Fer	al industry,	Cement indu	stry, Precious	and Semi-precious stone	9
	hattisgarh S naria and M cology, mir auxite depo- inerals and cology, mine- hattisgarh, ecious and hattisgarh ineral spec- dustry, Coa	hattisgarh Supergroup, I naria and Manendragarh cology, mineralogy an auxite deposits of Ch inerals and REE in Chl cology, mineralogy and hattisgarh, coal depo ecious and semipreci hattisgarh ineral specifications a dustry, Coal industry, dustry, Fertilizer ind	hattisgarh Supergroup, Indravati Group, naria and Manendragarh marine beds, D cology, mineralogy and salient featur auxite deposits of Chhattisgarh. Tin inerals and REE in Chhattisgarh cology, mineralogy and salient featur hattisgarh, coal deposits of Chhat ecious and semiprecious minerals hattisgarh ineral specifications and mineral b dustry, Coal industry, Cement indu dustry, Fertilizer industry, Dimen	hattisgarh Supergroup, Indravati Group, Rock formations naria and Manendragarh marine beds, Deccan Trap eology, mineralogy and salient features of Iron ore nuxite deposits of Chhattisgarh. Tin deposits of C inerals and REE in Chhattisgarh eology, mineralogy and salient features of limestone thattisgarh, coal deposits of Chhattisgarh, mica d ecious and semiprecious minerals in Chhattisgarh ineral specifications and mineral based industries dustry, Coal industry, Cement industry, Precious and dustry, Fertilizer industry, Dimension stone an dustry.	hattisgarh Supergroup, Indravati Group, Rock formations of Gondwana Supergroup, naria and Manendragarh marine beds, Deccan Trap eology, mineralogy and salient features of Iron ore deposits of Chhattisgarh. auxite deposits of Chhattisgarh. Tin deposits of Chhattisgarh, Radioactive inerals and REE in Chhattisgarh eology, mineralogy and salient features of limestone and dolomite deposits of hattisgarh, coal deposits of Chhattisgarh, mica deposits of Chhattisgarh, ecious and semiprecious minerals in Chhattisgarh, fertilizer minerals in hattisgarh ineral specifications and mineral based industries in Chhattisgarh : Steel dustry, Coal industry, Cement industry, Precious and Semi-precious stone dustry, Fertilizer industry, Dimension stone and construction material

Subject Expert

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Subject Expert

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Subject Expert

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	sor of Science Faculty NING RESOURCES	Departmental members	Alumnus	Studen
PARI C - LEAR		Reference Books, Othe	r Resources	
Text Books Reco				
Economic minera	l deposits of India- Ume	eshwar Prasad.		
Ore-deposit of In	lia- Gokhale & Rao			
Geology and Miner	al Resources of Chhattisg	arh: Geological Survey of I	ndia, Miscellaneou	s Publication No. 30.
Reference Book				
Geology and Mine	ral Resources of Chhattis	sgarh H. M. Ramachandra	and Avisekh Ghos	sh. Geological Society o
India,				
Online Resource	es: (e- Resources/ e- B	ooks/ e- Learning Por	tals)	
PART D: ASSE	SSMENT AND EVALU	JATION		
Suggested Cont Maximum Mar		ods: 75 Marks		
Suggested Cont Maximum Mar Continuous Cor	nuous Evaluation Meth ks: nprehensive Evaluation	nods: 75 Marks 1 (CCE): 15Marks		
Suggested Conti Maximum Mar Continuous Con Semester End E	nuous Evaluation Meth ks: nprehensive Evaluation xam (SEE):	nods: 75 Marks n (CCE): 15Marks 60 Marks	of 15 Marks andAs	signment of 15 Marks
Suggested Conti Maximum Mar Continuous Cor Semester End E Internal Assess	nuous Evaluation Meth ks: nprehensive Evaluation xam (SEE): nent: rehensive Evaluation(CC	nods: 75 Marks n (CCE): 15Marks 60 Marks Internal Test of CE)		signment of 15 Marks
Suggested Conti Maximum Mar Continuous Cor Semester End E Internal Assess	nuous Evaluation Methors: nprehensive Evaluation xam (SEE): nent: rehensive Evaluation(CC Pattern -FOUR Quest	nods: 75 Marks 60 Marks 60 Marks CE) Thermal Test of Thermal Test of	ach Unit	

Departmental members

Alumnus

Student

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GOVT. V.Y.T.PG AUTONOMOUS COLLEGE DURG FOUR YEAR UNDERGRADUATE PROGRAM **DEPARTMENT OF GEOLOGY**

COURSE CURRICULUM 2024-25

Lab Course

PA	RT A: I	NTRODUC	ΓΙΟΝ					
	Prograi	m: B.Sc.	Class:		Semester -	· V*	Session:2024-2025	
1	Course	e Code		BGL1-503				
2 Course Title				Geology and Mineral Resources of ChhattisgarhLabcourse				
3	Cours	е Туре		Practical				
4	4 Course Learning Outcome (CLO)				vill enable the studer		n the outline map of Chhattisgarh	
	Outco	me (CLO)					its on the outline map of Chhattisgarh	
			3.	List out	major and minor mi	nerals	occurring in Chhattisgarh	
			4.	Discuss	the specifications of	of min	erals used in various mineral based	
			industries					
5	Cred	it Value	1Cr	1Credit 1 credit =15 Hours – Learning and Observation				
6	Total	l Marks	Maxin	num Ma	arks :25		Minimum Passing Marks:10	
PA	ART B:	CONTENT	OF THE	E COUI	RSE			
S.]	No.		List of Experiments					
	1	Study of geo Chhattisgarl	-	nap of C	hhattisgarh and plot	ting of	various formations in outline map of	
	2	Plotting of va	arious me	tallic mi	neral deposits in the n	nap of	Chhattisgarh	
	3	Plotting of C	coal depo	sits& ge	m mineral occurrenc	ces in c	outline map of Chhattisgarh	
	4	inChhattisga	arh				pulation of their reserves	
	5						n Cement industry, Ferro-alloy amic and fertilizer industry	

IN Chairperson /H.O.D

Subject Expert

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Subject Expert

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Senior Professor of Science Faculty

Departmental members

Student

Alumnus

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PART C - LEARNING RESOURCES

Text Books, Reference Books, Other Resources

TEXT BOOKS Recommended:

Drury, S.A., 1987: Image interpretation in Geology. Allen and Unwin.

Lillesand, T.M. and Kieffer, R.W., 1987: Remote Sensing and Image Interpretation. John Wiley.

Pandey, S.N., 1987: Principles and Applications of Photogeology. Wiley Eastern. New Delhi.

Gupta, R.P., 1990: Remote Sensing Geology. Springer Verlag

Reference Books:

Miller, V.C., 1961: Photogeology. McGraw Hill.

Sabbins, F.F., 1985: Remote Sensing- Principles and Applications. Freeman

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

https://natural-resources.canada.ca/maps-tools-and-publications/satellite-imagery-elevation-data-and-air-photos/tutorial-fundamentals-remote-sensing/9309

PART D: ASSESSMENT AND EVALUATION

 Suggested Continuous Evaluation Methods:

 Maximum Marks:
 25 Marks

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

 Semester End

 Laboratory performance: As per Dept. (LOCF)

 Exam (SEE)

Chairperson /H.O.D

Subject Expert

Subject Expert

Subject Expert

Aplha

Senior Professor of Science Faculty

Departmental members

rs Alumnus

PAI	PART A: INTRODUCTION						
	Progra	m: B.Sc.	Class:	Sen	nester - VI	Session:2024-20	025
1	1 Course Code		<u>}</u>	BGL-1Gol			
2		se Title	ECONOMIC GEOLOGY				
3		se Туре			DSC		0
4		se Learning	This Cour	se will	enable the students to:		
		ome (CLO)			the formation of mineral d		
		. ,	2. Demons	trate t	he distribution of mineral	resources.	
					assification of the mineral	*	
					rious mineral resources of		
					oout the origin, occurrence		
					e and occurrences of the co	oal	
					the petrography of Coal		
					gin and occurrences of the		
5		lit Value	3Cred			lours – Learning and Obse	
6	Tota	l Marks	Maximur	n Mar	ks :75	Minimum Passing Mark	s:30
PA	RT B	CONTENT					
		Total r	10. of Teac	hing/]	Learning Periods = 45 P	eriods (45 Hours)	
Un	Unit		Т	opics	(COURSE CONTENTS	5)	No. of Periods
	resource. I		ology introduction & its perspectives; Global mineral deposit & stribution of mineral deposits in time & space. Classification of sits. Geological thermometers.Magmatic & Hydrothermal processes mation.			9	
	II		products & Residual deposits. Oxidation & supergene sulphide rocesses. Sedimentary processes of ore formation. Placer deposits.			9	
]	II	Geological ar	ical and Geographical distribution, mode of occurrence and mineralogy Manganese, Chromium, Copper, Lead, Zinc, Gold and Aluminium ore				9
		deposits of In	ganese, enronnuni,copper, Leud, Zine, Gora une manimum ere				
]	IV		and Fertilizer minerals. Minerals used in cement & chemical				
		industries.Co	al deposits:	Orig	in, Definition & stratigr , Bituminous & Anthracit	aphy. Fundamentals of	9
	V	Origin of Nat	ural-hydrod	carbon	s, migration & accumula	tion. Types of oil traps;	
		India.Radioad	tive minera	als: M	composite. Offshore & C ineralogy, Prospecting te dioative-minerals.		9

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Chairperson /H.O.D

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Subject Expert

Subject Expert

Subject Expert

Senior Professor of Science Faculty

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Departmental members Alumnus

PART C - LEARNING RESOURCES

Text Books, Reference Books, Other Resources

Fext Books Recommended:

- \bigcirc ((1) आर्थिकभूविज्ञान–कृष्णगोपालव्यास
 - (2) आर्थिक एवंव्यावहारिकभूविज्ञान–आर.पी. मांजरेकर
 - (3) प्रायोगिकभूविज्ञान भाग-3-गुप्ता, पुनवटकर
 - (4) Economic mineral deposits of India- Umeshwar Prasad.
 - (5) Economic mineral deposits- A.Bateman
 - (6) Ore-deposit of India- Gokhale & Rao

Reference Books:

india's Mineral Resource- S. Krishnaswami

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

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PART D: ASSE	SSMENT AND EVALUATION		
Duggested Conti	nuous Evaluation Methods:		
Maximum Mar	IS: 7:	'5 Marks	
Oontinuous Cor	prehensive Evaluation (CCE): 1	5Marks	
Semester End E	xam (SEE): 60	0 Marks	
internal Assessr	nent: I	Internal Test of 15 Marks and Assignment of 15 Marks	
Continuous Comp	rehensive Evaluation(CCE)		
Semester End	Pattern -FOUR Questions (A, B,	C, D)from each Unit	
Oxam (SEE)	Question - A & B: (Compulsory) V	Very short answer type (01each)	$02 \ge 5 = 10$ Marks
Question - C: Short answer type		lestion	03 x 5 = 15 Marks
0	Question -D: Long answer type que	estion	07 x 5 = 35 Marks
0	Total = 60 Marks		

Alumnus

Chairperson /H.O.D

ect Expert

Senior Professor of Science Faculty

Subject Expert

Subject Expert

Departmental members

PART A: INTRODUCTION							
	Progra	m: B.Sc.	Class:	Semester - VI	Session:2024-2025		
1			BGL1=601				
2		e Title		Economic Geology Labcourse			
3		е Туре		Practic	al		
4		e Learning		of Course, the students will			
	Outco	me (CLO)		forming minerals in hand sp			
					ic importance in hand specimen.		
				ore deposits and economic	mineral deposits in Outline map of		
			India.				
				oal fields in outline map of I			
2			5.Demarcate petroleum fields in outline map of India.				
			6. Demarcate radioactive mineral deposits in outline map of India.				
5		it Value	1Credit 1 credit =15 Hours – Learning and Observation				
6	Total	Marks	Maximum Ma	arks :25	Minimum Passing Marks:10		
PA	RT B:	CONTENT O	OF THE COUR	RSE			
S.N	lo.		List of Experiments				
	1	Study of imp	portant metallic and nonmetallic minerals on the basis of physical properties.				
	2	Distribution of	of important metallic deposits within outline map of India.				
	3	Plotting of va	arious non metallic mineral deposits on the outline map of India.				
4 Plotting of various coal fields and petroleum field			arious coal fields	and petroleum field on the	eld on the outline map of India.		
	5 Plotting of various radioactive mineral deposits on the outline map of India.			utline map of India.			
PAF	RT C - I	LEARNING	RESOURCES	.65			
			Text Books, F	Reference Books, Other R	esources		

TEXT BOOKS Recommended:

प्रायोगिकभूविज्ञान भाग–3–गुप्ता, पुनवटकर

Economic mineral deposits of India- Umeshwar Prasad.

Ore-deposit of India- Gokhale & Rao

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

https //egyankosh.ac.in

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:Maximum Marks:25 Marks

(Will include Internal assessment, Lab records and End Semester Viva/Voce and performance)Semester End
Exam (SEE)Laboratory performance: As per Dept. (LOCF)

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Senior Professor of Science Faculty

Departmental members Alumnus

Program: B.Sc.		INTRODUC' am: B.Sc.	Class: Semester	- VI	Session: 2024-20	25	
1		se Code		BGL-602			
2	Course Title		APPLIED GEOLOGY				
3	Course Type		DSE 35				
4	Course Learning		This Course will enable the students to:				
	Outcome (CLO)		 Understand the basics of Environmental Geology. Evaluate the impact of human activities on soil, groundwater and other natural resources. 				
					ophysics and its applicatio	n.	
			4. Explain the various				
			5. Describe geophysica				
			6. Understand the met				
			7. Outline the basics of				
			the role of the hydrolo		lity of groundwater reso	esources and	
5	Cro	dit Value	3Credits		ours – Learning and Obse	rvation	
5 6		al Marks	Maximum Marks :75		Minimum Passing Marks		
_			OF THE COURSE		Transmit i upping transmit		
1 2	AIXT D			ning Periods = 45 Pe	eriods (45 Hours)		
Total no. of Teaching/ Learning Periods = 45 Periods (45 Hours)					No. of		
Unit			Topics (COURSE CONTENTS)		Period		
	Ĩ	Definition and scope of Environmental Geology. Fundamental concepts of				,	
	Ι	Environmental Geology. Introductory ideas about natural disaster: Flood, 9					
		Tsunami, Earthquake, Volcanism, Landslides; their causes and mitigation.					
		Definition and scope of Hydrogeology. Hydrologic cycle. Mode of occurrence of					
	II	ground water, quality of ground water. Definition and limitation of Darcy's law.					
	11	Hydrologic properties of rocks. Classification of Aquifers. Ground water provinces of					
	India.				round water provinces of	2	
-		Engineering		ce, Engineering prop	oerties of rocks. Dams:	,	
		Engineering classification	and elements of Dams	ce, Engineering prop 5. Geological condition	perties of rocks. Dams: ons for construction of		
	III	Engineering classification large Dams. 1	and elements of Dams Elements of tunnels. Ge	ce, Engineering prop s. Geological condition ological conditions fo	perties of rocks. Dams: ons for construction of or construction of large	9	
	III	Engineering classification large Dams. I Tunnels. Geo	and elements of Dams Elements of tunnels. Ge logical conditions for c	ce, Engineering prop s. Geological conditions for ological conditions for onstruction of Roads	perties of rocks. Dams: ons for construction of		
	III	Engineering classification large Dams. I Tunnels. Geo and remedies	and elements of Dams Elements of tunnels. Ge logical conditions for co in Dams Tunnels, Road	ce, Engineering prop s. Geological conditions ological conditions for onstruction of Roads s and Bridges.	perties of rocks. Dams: ons for construction of or construction of large and Bridges Problems		
		Engineering classification large Dams. I Tunnels. Geo and remedies Elementary	and elements of Dams Elements of tunnels. Ge logical conditions for co in Dams Tunnels, Road idea about prospectir	ce, Engineering prop s. Geological conditions for ological conditions for onstruction of Roads s and Bridges. ng and exploration	perties of rocks. Dams: ons for construction of or construction of large and Bridges Problems of mineral deposits.	9	
		Engineering classification large Dams. I Tunnels. Geo and remedies Elementary Introduction	and elements of Dams Elements of tunnels. Ge logical conditions for co in Dams Tunnels, Road idea about prospectir to Surface methods of j	ce, Engineering prop s. Geological conditions for ological conditions for onstruction of Roads s and Bridges. and exploration prospecting and expl	oerties of rocks. Dams: ons for construction of or construction of large and Bridges Problems of mineral deposits. oration. Introduction to		
		Engineering classification large Dams. I Tunnels. Geo and remedies Elementary Introduction subsurface m	and elements of Dams Elements of tunnels. Ge logical conditions for co- in Dams Tunnels, Road idea about prospectir to Surface methods of p ethods of prospecting a	ce, Engineering prop s. Geological conditions for ological conditions for onstruction of Roads s and Bridges. and exploration prospecting and expl	perties of rocks. Dams: ons for construction of or construction of large and Bridges Problems of mineral deposits.	9	
		Engineering classification large Dams. I Tunnels. Geo and remedies Elementary Introduction subsurface m Sampling: De	and elements of Dams Elements of tunnels. Ge logical conditions for co- in Dams Tunnels, Road idea about prospectir to Surface methods of p ethods of prospecting a finition and types.	ce, Engineering prop s. Geological conditions for ological conditions for onstruction of Roads s and Bridges. Ing and exploration prospecting and expl and exploration. Drilling	perties of rocks. Dams: ons for construction of or construction of large and Bridges Problems of mineral deposits. oration. Introduction to ng: Definition and types.	9	
	IV	Engineering classification large Dams. I Tunnels. Geo and remedies Elementary Introduction subsurface m Sampling: De Elementary i	and elements of Dams Elements of tunnels. Ge logical conditions for co- in Dams Tunnels, Road idea about prospectir to Surface methods of p ethods of prospecting at finition and types. dea about principle of 0	ce, Engineering prop s. Geological conditions for onstruction of Roads s and Bridges. Ing and exploration prospecting and expl nd exploration. Drilling Geophysical prospect	perties of rocks. Dams: ons for construction of or construction of large and Bridges Problems of mineral deposits. oration. Introduction to ng: Definition and types. ing techniques: Gravity,	9	
		Engineering classification large Dams. I Tunnels. Geo and remedies Elementary Introduction subsurface m Sampling: De Elementary i Electrical &	and elements of Dams Elements of tunnels. Ge logical conditions for co- in Dams Tunnels, Road idea about prospecting to Surface methods of p ethods of prospecting au finition and types. dea about principle of 0 Magnetic methods.	ce, Engineering prop s. Geological conditions for onstruction of Roads s and Bridges. Ing and exploration prospecting and expl and exploration. Drilling Geophysical prospect Aerial and seismic	perties of rocks. Dams: ons for construction of or construction of large and Bridges Problems of mineral deposits. oration. Introduction to ng: Definition and types.	9	

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PART C - LEAR	NING RESOURCES						
TEVT DOOLC D		ce Books, Other Resources					
TEXT BOOKS Recommended:							
	(1) भौमजल विज्ञान— एल.के. रिछारिया						
	(2) आर्थिक एवं व्यावहारिकभूविज्ञानआर.पी. मांजरेकर						
(3) प्रारंभिक खनिल	(3) प्रारंभिक खनिकी–बी.क`. सिंह						
(4) प्रायोगिक भूवि	ज्ञान भाग–3–गुप्ता, पुनवटकर एवं रघुवंशी						
(5) Principles	s of Engineering Geology & Geotech	niques- Krynine & Judd.					
(6) Geophysi	cal methods in Geology- P.V. Sharm	a.					
(7) Environm	ental Geology- K.S. Valdiya (1987).						
(8) Principle	of Engineering Geology – K.M. Bang	gar.					
(9) Engineeri	ng and General Geology – Parbin Si	ngh.					
Reference Book	s:						
(1) Groundw	ater Hydrology- D.K. Todd.						
(2) Courses i	n Mining Geology- R.N.P. Arogyasw	ami.					
(3) Ground w	vater- Assessment, Development &	Management- K.R. Karanth.					
Online Resource	es: (e- Resources/ e- Books/ e-	Learning Portals)					
https://egya	ankosh.ac.in/						
PART D: ASSE	SSMENT AND EVALUATION						
Suggested Conti	nuous Evaluation Methods:	17					
Maximum Mar		75 Marks					
	nprehensive Evaluation (CCE):	15Marks					
Semester End E		60 Marks					
Internal Assess		Internal Test of 15 Marks and Ass	signment of 15 Marks				
	rehensive Evaluation(CCE)						
Semester End	Pattern -FOUR Questions (A,]		$00 = 5 - 10 M_{\odot}$				
Exam (SEE)		Very short answer type (01each)					
	Question - C: Short answer type		$03 \ge 5 = 15$ Marks				
	Question -D: Long answer type of	question	$07 \ge 5 = 35$ Marks				
	Total = 60 Marks						

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Departmental members

Student

PART A: INTRODUCTION Program: B.Sc. **Class:** Semester - VI Session:2024-2025 BGLL602 **Course Code** 1 **Applied Geology** 2 **Course Title** Practical 3 **Course Type** On completion of Course, the students will be able 4 **Course Learning** 1. Demarcate the seismic zones in outline map of India. Outcome (CLO) 2. Demarcate the Earthquake and volcanic belts of the world. 3. Identify and classify the rocks on the basis of their engineering and hydrogeological properties. 4. Suggests about ideal dam, tunnel and road site selection. 5. Calculate hydraulic conductivity, porosity and permeability. 1 credit =15 Hours – Learning and Observation 5 **Credit Value** 1Credit **Minimum Passing Marks:10** Maximum Marks :25 **Total Marks** 6 PART B: CONTENT OF THE COURSE List of Experiments S.No. Demarcation of the seismic zones in outline map of India. 1 2 Demarcation of the Earthquake and volcanic belts of the world. Identification and classification of the rocks on the basis of their engineering properties. 3 Identification and classification of the basis of their hydrogeological properties. 4 Problems related to dam, tunnel and road site selection. 5 Calculation of hydraulic conductivity, porosity and permeability. 6

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Departmental members Alumnus

TAKI C - LEAK	NING RESOURCES
	Text Books, Reference Books, Other Resources
TEXT BOOKS Re (1) भौमजल विज्ञा	commended: न– एल.के. रिछारिया
(2) आर्थिक एवं व	यावहारिकभूविज्ञान—आर.पी. मांजरेकर
(3) प्रारंभिक खनि	की—बी.क`. सिंह
(4) प्रायोगिक भूवि	ज्ञान भाग–3–गुप्ता, पुनवटकर एवं रघुवंशी
(5) Principles	s of Engineering Geology & Geotechniques- Krynine & Judd.
(6) Geophysi	cal methods in Geology- P.V. Sharma.
(7) Environm	nental Geology- K.S. Valdiya (1987).
(8) Principle	of Engineering Geology – K.M. Bangar.
(9) Engineer	ing and General Geology – Parbin Singh.
Reference Book	s:
(1) Groundw	ater Hydrology- D.K. Todd.
(2) Courses i	n Mining Geology- R.N.P. Arogyaswami.
(3) Ground w	vater- Assessment, Development & Management- K.R. Karanth.
Online Resource	es: (e- Resources/ e- Books/ e- Learning Portals)
https://egyankos	sh.ac.in/
PART D: ASSE	SSMENT AND EVALUATION
Suggested Conti	inuous Evaluation Methods:
Maximum Mar	ks: 25 Marks
(Will include In	ternal assessment, Lab records and End Semester Viva/Voce and performance
Semester End Exam (SEE)	Laboratory performance: As per Dept. (LOCF)

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GOVT. V.Y.T.PG AUTONOMOUS COLLEGE DURG FOUR YEAR UNDERGRADUATE PROGRAM DEPARTMENT OF GEOLOGY

COURSE CURRICULUM 2024-25

Program: B.Sc.		NTRODUCT n: B.Sc.	Class: Semester - VI Session:2024-202		25	
1	Course	e Code		BGL60)3	
2	Course		Photogeology and Remote Sensing			
;	Course	511 F.I.	DSE			
			This Course will enable the students to:			
	Course Learning Outcome (CLO)		1. Explain basic 2. Understand the earth's sur	c principles of photogeology basic concepts of electroma face and atmosphere. I resolution properties to	and aerial photography. Agnetic radiation, its interac	
	remotely sensed images. 4. Explain about the GIS principles and applications. 5. Interpret geological features on aerial photographs.				olications.	
T	Credi	it Value	3Credits	1 credit =15 I	Iours – Learning and Obse	rvation
-		Marks	Maximum M	arks :75	Minimum Passing Marks	:30
P /			OF THE COU			
	IIII DI	Total	no, of Teaching	/ Learning Periods = 45 J	Periods (45 Hours)	
Unit I Types and g			Topics (COURSE CONTENTS)		No. of	
			-			Period
	I	photogramm	eometry of aeria	l photograph, tilt and relie y, stereovision, flight planni	f distortion. Elements of ng. Recognition of photo-	Period 9
	I I	photogramm elements and Photo-interpre glacial, fluvia	eometry of aeria etry, stereoscopy terrain element etation of structur 1, coastal, aeolia	I photograph, tilt and relie y, stereovision, flight planni is like tone, texture, pattern, al and landform elements, te n and denudation landforms be characteristics.	f distortion. Elements of ng. Recognition of photo- shape, size. ctonic features, features of c. Electromagnetic energy,	
	I II	photogramm elements and Photo-interpre glacial, fluvia electromagnet Space missi source, plat Sensing data	eometry of aeria etry, stereoscopy terrain element tation of structur l, coastal, aeolia ic spectrum, imag ons, Indian Re forms and sens a products, geo	Il photograph, tilt and relie y, stereovision, flight planni is like tone, texture, pattern, al and landform elements, te n and denudation landforms ge characteristics. emote Sensing Satellites. sors. Acquisition of remo ometric and radiometric co	f distortion. Elements of ng. Recognition of photo- shape, size. ctonic features, features of a. Electromagnetic energy, Remote Sensing: data te sensing data.Remote	9
	I III III III III	photogramm elements and Photo-interpre glacial, fluvia electromagnet Space missi source, plat Sensing data microwave r Remote Sens images. Tech	eometry of aeria etry, stereoscopy terrain element tation of structur l, coastal, aeolia ic spectrum, imag ons, Indian Re forms and sens a products, geo emote sensing. I sing techniques niques of image	I photograph, tilt and relie y, stereovision, flight planni is like tone, texture, pattern, al and landform elements, te n and denudation landforms ge characteristics. emote Sensing Satellites. fors. Acquisition of remo	f distortion. Elements of ng. Recognition of photo- shape, size. ctonic features, features of . Electromagnetic energy, Remote Sensing: data te sensing data.Remote corrections, thermal and	9 9

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Senior Professor of Science Faculty Departmental members

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PART C - LEARNING RESOURCES

Text Books, Reference Books, Other Resources

Text Books Recommended:

Drury, S.A., 1987: Image interpretation in Geology. Allen and Unwin.

Lillesand, T.M. and Kieffer, R.W., 1987: Remote Sensing and Image Interpretation. John Wiley.

Pandey, S.N., 1987: Principles and Applications of Photogeology. Wiley Eastern. New Delhi.

Gupta, R.P., 1990: Remote Sensing Geology. Springer Verlag

Reference Books:

Miller, V.C., 1961: Photogeology. McGraw Hill.

Sabbins, F.F., 1985: Remote Sensing- Principles and Applications. Freeman

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

https://natural-resources.canada.ca/maps-tools-and-publications/satellite-imagery-elevation-dataand-air-photos/tutorial-fundamentals-remote-sensing/9309

PART D: ASSES	SSMENT AND EVALUATION		
Suggested Conti	nuous Evaluation Methods:		
Maximum Marl	(S:	75 Marks	
Continuous Con	nprehensive Evaluation (CCE):	15Marks	
Semester End E	xam (SEE):	60 Marks	
Internal Assessm	nent:	Internal Test of 15 Marks and Assignment of 15 Marks	
Continuous Comp	rehensive Evaluation(CCE)		
Semester End	Pattern -FOUR Questions (A, I	B , C , D)from each Unit	
Exam (SEE)		Very short answer type (01each)	02 x 5 = 10 Marks
Question - C: Short answer type			$03 \ge 5 = 15$ Marks
Question -D: Long answer type of		luestion	07 x 5 = 35 Marks
	Total = 60 Marks		

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Lab Course

PAI	PART A: INTRODUCTION						
	Progran		Class:	Semester - VI	Session:2024-2025		
1	Course	Code		BGLL-603			
2	Course	Title		Photogeology and Remote sensing Labcourse			
3	Course	туре		Practic	al		
4		Learning		will enable the students to:			
		ne (CLO)	1. Identif	y terrain elements present o	on aerial photographs		
			2. Identif	y terrain elements present o	on satellite imageries		
			3. Visually interpret satellite imageries.				
			4. Apply the principles of remote sensing for solving various geological				
			problems				
5	Credi	t Value	1Credit	it 1 credit =15 Hours – Learning and Observation			
6	Total	Marks	Maximum M	arks :25	Minimum Passing Marks:10		
PA	RT B: O	CONTENT	OF THE COU	RSE			
S.I	No.		List of Experiments				
	1	Study of aer	rial photographs using pocket and mirror stereoscope.				
	2	Study of terra	ain elements present on aerial photographs and satellite imageries				
	3 Visual inter		pretation of satellite imageries.				
	4	Use of G.P.S.					
5 Using "Google Earth Pro, Practical exercises related to • Marking linear feature • Saving .kml and .kmz file				Marking location • Marking polygon			

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Departmental members Alumnus Student

Senior Professor of Science Faculty

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PART C - LEARNING RESOURCES

Text Books, Reference Books, Other Resources

TEXT BOOKS Recommended:

Drury, S.A., 1987: Image interpretation in Geology. Allen and Unwin.

Lillesand, T.M. and Kieffer, R.W., 1987: Remote Sensing and Image Interpretation. John Wiley,

Pandey, S.N., 1987: Principles and Applications of Photogeology. Wiley Eastern. New Delhi.

Gupta, R.P., 1990: Remote Sensing Geology. Springer Verlag

Reference Books:

Miller, V.C., 1961: Photogeology. McGraw Hill.

Sabbins, F.F., 1985: Remote Sensing- Principles and Applications. Freeman

Online Resources: (e- Resources/ e- Books/ e- Learning Portals)

https://natural-resources.canada.ca/maps-tools-and-publications/satellite-imagery-elevationdata-and-air-photos/tutorial-fundamentals-remote-sensing/9309

PART D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods: Maximum Marks: 25 Marks (Will include Internal assessment, Lab records and End Semester Viva/Voce and performance) Laboratory performance: As per Dept. (LOCF) Semester End Exam (SEE)

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