

University of Gour Banga

Draft Syllabus for

FOUR-YEAR UNDERGRADUATE (HONOURS/ HONOURS WITH RESEARCH) COURSE IN

GEOGRAPHY (MAJOR)

Session: 2024-2025

UNDER NEP-2020

Semester (I, II, III, IV, V & VI)

University of Gour Banga P.O. – Mokdumpur District – Malda West Bengal PIN - 732103

Descriptive Type Question Pattern

For Discipline Specific Course/ Major Core (DC-MJ) in Geography (GEODC-MJ)

Total Marks: 75 (Each Course)

Theory (Semester End Written Examination)

Full Marks = 30

(6 Marks × 4 Questions) + (1 Mark (MCQ) x 6 Questions)

Question(s) containing 6 marks will be divided into two parts

Internal Assessment

Full Marks = 25

(Tentative Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5 marks; Class Attendance 5 marks and Classroom Activities 5 marks)

Practical (Semester End Laboratory Based Test)

Full Marks = 20

(07 Marks x 1 Question) + (05 Marks x 1 Question) + (04 Marks x 1 Question) + (04 Marks for Laboratory Notebook (2) & Viva-voce (2))

Word limits for descriptive type questions (Theory)

6 marks: 350 – 400 Words **Duration of Examination**

Theory paper of 30 marks: 2 hours Practical paper of 20 marks: 2 hours

SEMESTER WISE COURSE STRUCTURE

for

4-Year Undergraduate Programme under NEP (2020) 2024-25 onwards

Seme ster	Discipline Specific Course/ Major Core (DC-MJ)	Disciplinary Minor Course (IDC/DC- MN)	Multidisci plinary Course (MDC)	Ability Enhanceme nt Course (AEC)	Skill Enhanceme nt Course (SEC)	Value Added Course (VAC)	Internship / Apprenticeshi p/Project/ Community Engagement	Total Credits
I	DC-MJ-101 (4)	IDC/DC- MN-101 (4)	MDC-101 (3)	AEC-1 (2)	SEC-1 (3)	VAC-1 (2)	IAPC-1 (2)	20
п	DC-MJ-201 (4)	IDC/DC- MN-201 (4)	MDC-201 (3)	AEC-2 (2)	SEC-2 (3)	VAC-2 (2)	IAPC-2 (2)	20
ш	DC-MJ-301 (4) DC-MJ-302 (4)	IDC/DC- MN-301 (4)	MDC-301 (3)	AEC-3 (2)	SEC-3 (3)		IAPC-3 (2)	22
IV	DC-MJ-401 (4) DC-MJ-402 (4) DC-MJ-403 (4)	IDC/DC- MN-401 (4)		AEC-4 (2)		VAC-3 (2)		20
V	DC-MJ-501 (4) DC-MJ-502 (4) DC-MJ-503 (4) DC-MJ-504 (4)	IDC/DC- MN-501 (4)						20
VI	DC-MJ-601 (4) DC-MJ-602 (4) DC-MJ-603 (4) DC-MJ-604 (4)	IDC/DC- MN-601 (4)						20
VII	DC-MJ-701 (4) DC-MJ-702 (4) DC-MJ-703 (4) DC-MJ-704 (4)	IDC/DC- MN-701 (4)						20
VIII	DC-MJ-801 (4)	IDC/DC- MN-801 (4)				Research Proj	ect/Dissertation 12)	20
Total						162		

Semester-Wise Course Structure Under NEP (2020)- 2024 For B.A./B.Sc. (Honours/ Honours with Research) in Geography

Semester-wise Distribution of Credits/ Marks

SEMESTER-I				
Course Ture	Course Code-Co	Total	Manlar	
Course Type	Theory	Practical	Credits	warks
Discipline Specific Course/	GEO-DC-MJ-101A:	GEO-DC-MJ-101B:	04	75
Major Core (DC-MJ)	Geotectonics (03)	Geotectonic (01)		
Disciplinary Minor Course	IDC/DC-MN-101 (04)		04	75
(IDC/DC-MN)				
Multidisciplinary Course	MDC-101 (03)		03	50
(MDC)				
Ability Enhancement	AEC-1 (02)		02	25
Compulsory (AEC)				
Skill Enhancement Course	SEC-1 (03)		03	50
(SEC)				
Value Added Course (VAC)	VAC-1 (02)		02	25
Internship /	IAPC-1 (02)		02	25
Apprenticeship/Project/				
Community Engagement				
Total 20 325				

SEMESTER-II				
OT	Course Code-Course	Total		
Course Type	Theory	Practical	Credits	Marks
Discipline Specific Course/ Major Core (DC-MJ)	GEO-DC-MJ-201A: Geomorphology (03)	GEO-DC-MJ-201B: Geomorphology (01)	04	75
Disciplinary Minor Course (IDC/DC-MN)	IDC/DC-MN-201 (04)		04	75
Multidisciplinary Course (MDC)	MDC-201 (03)		03	50
Ability Enhancement Compulsory (AEC)	AEC-2 (02)		02	25
Skill Enhancement Course (SEC)	SEC-2 (03)		03	50
Value Added Course (VAC)	VAC-2 (02)		02	25
Internship / Apprenticeship/Project/ Community Engagement	IAPC-2 (02)		02	25
Total 20 325				

SEMESTER-III					
Correct Trees	Course Code-Cours	Tedal Carellar			
Course Type	Theory	Practical	Total Credits	Marks	
	GEO-DC-MJ-301A:	GEO-DC-MJ-301B:	04	75	
Discipline Specific Course/	Climatology (03)	Climatology (01)			
Major Core (DC-MJ)	GEO-DC-MJ-302A: Human	GEO-DC-MJ-302B:	04	75	
	Geography (03)	Human Geography (01)			
Disciplinary Minor Course (IDC/DC-MN)	IDC/DC-MN-301 (4)		04	75	
Multidisciplinary Course (MDC)	MDC-301 (3)		03	50	
Ability Enhancement Compulsory (AEC)	AEC-3 (02)		02	25	
Skill Enhancement Course (SEC)	SEC-3 (03)		03	50	
Internship / Apprenticeship/Project/ Community Engagement	IAPC-3 (02)		02	25	
Total 22 375					

SEMESTER-IV				
C T	Course Code-Course	Total		
Course Type	Theory	Practical	Credits	Marks
Discipline Specific Course/ Major Core (DC-MJ)	GEO-DC-MJ-401A: Geography of India (03)	GEO-DC-MJ-401B: Geography of India (01)	04	75
	GEO-DC-MJ-402A: Population Geography (03)	GEO-DC-MJ-402B: Population Geography (01)	04	75
	GEO-DC-MJ-403A: Soil & Biogeography (03)	GEO-DC-MJ-403B: Soil & Biogeography (01)	04	75
Disciplinary Minor Course (IDC/DC-MN)	IDC/DC-MN-401 (04)		04	75
Ability Enhancement Compulsory (AEC)	AEC-4 (02)		02	25
Value Added Course (VAC)	VAC-3 (02)		02	25
	Total		20	350

SEMESTER-V						
Course Ture	Course Code-Cour	Total				
Course Type	Theory	Practical	Credits	WIAI KS		
	GEO-DC-MJ-501A: Social & Cultural Geography (03)	GEO-DC-MJ-501B: Social & Cultural Geography (01)	04	75		
Discipline Specific	GEO-DC-MJ-502A: Fundamentals of Surveying and Mapping (03)	GEO-DC-MJ-502B: Fundamentals of Surveying and Mapping (01)	04	75		
Course/ Major Core (DC-MJ)	GEO-DC-MJ-503A: Quantitative Techniques in Geography (03)	GEO-DC-MJ-503B: Quantitative Techniques in Geography (01)	04	75		
	GEO-DC-MJ-504A: Economic and Political Geography (03)	GEO-DC-MJ-504B: Economic and Political Geography (01)	04	75		
Disciplinary Minor Course (IDC/DC- MN)	IDC/DC-MN-501 (4)		04	75		
	Total 20 375					

SEMESTER-VI						
С Т	Course Code-Cour	Total				
Course Type	Theory	Practical	Credits	Marks		
	GEO-DC-MJ-601A: Regional Planning & Development (03)	GEO-DC-MJ-601B: Regional Planning & Development (01)	04	75		
Discipline Specific Course/ Major	GEO-DC-MJ-602A: Evolution of Geographical Thought (03)	GEO-DC-MJ-602B: Evolution of Geographical Thought (01)	04	75		
Core (DC-MJ)	GEO-DC-MJ-603A: Basics of Remote Sensing & GIS (03)	GEO-DC-MJ-603B: Basics of Remote Sensing & GIS (01)	04	75		
	GEO-DC-MJ-604A: Field work in Geography (04)			75		
Disciplinary Minor Course (IDC/DC- MN)	IDC/DC-MN-601 (4)		04	75		
Total 20 375						

SEMESTER-I							
Course Type	Course Code-Cours	Total	Monka				
Course Type	Theory	Practical	Credits	IVIALKS			
Discipline Specific Course/	GEO-DC-MJ-101A:	GEO-DC-MJ-101B:	04	75			
Major Core (DC-MJ)	Geotectonics (03)	Geotectonics (01)					
Disciplinary Minor Course	IDC/DC-MN-101 (04)		04	75			
(IDC/DC-MN)							
Multidisciplinary Course	MDC-101 (03)		03	50			
(MDC)	_						
Ability Enhancement	AEC-1 (02)		02	25			
Compulsory (AEC)	_						
Skill Enhancement Course	SEC-1 (03)		03	50			
(SEC)							
Value Added Course (VAC)	VAC-1 (02)		02	25			
Internship /	IAPC-1 (02)		02	25			
Apprenticeship/Project/							
Community Engagement							
(IAPC)							
Total			Total 20 325				

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -101 for UG Program

Paper Name: GEOTECTONICS

Title of the Course:	GEOTECTONICS (THEORY)
Discipline Specific Minor	GEO-DC-MJ-101A (Theory)
Paper Code:	
	Semester = I (THEORY)
	Credit = 03
Objectives of the Course:	i) To provide comprehensive understanding of the origin and evolution of the universe, solar system, and Earth.
	ii) To examine Earth's internal structure through seismological evidence and explain mineral and rock formation processes.
	iii) To analyze isostatic principles, plate tectonics, and continental drift theories with their global implications.
	iv) To evaluate the causes and consequences of endogenetic processes and their resulting landforms.
Learning Outcomes of the	i) Learners will be able to explain the major theories related to the origin and
Course	evolution of the Earth through geological time.

	ii) Learners will be able to interpret seismological data to understand the interior
	structure of the Earth and identify various types of rocks and minerals.
	:::) I company will be able to analyze incentation with similar and evaluate the theories
	of continental drift plate tectonics, and mountain building processes
	or continental unit, plate tectorics, and mountain-bunding processes.
	iv) Learners will be able to assess the causes and consequences of earthquakes,
	volcanic activities, and tectonic processes along with the associated
	landforms.
	Course Content
Module: -1:	i) Tidal hypothesis
Origin of the universe, solar	ii) Big Bang theory
system and Earth's	iii) Tectonic and structural evolution of the earth with special reference to
evolution	the geological time scale
Module: -2:	i) Understanding earth's interior with the help of seismological
Earth's Interior, Minerals	evidences
and Rocks	ii) Concept of Mineral and rocks: types, formation and characteristics
Module: -3:	i) Isostasy: Theory of Airy and Pratt; Isostatic adjustments, and
Dynamic Earth	distribution of gravity anomalies.
	ii) Continental drifting (Alfred Wegener), and seafloor spreading
	iii) Plate tectonics; concept of neo-tectonics;
	iv) Mountain building theories: Kober and A. Holmes
Module: -4:	i) Earthquake: causes and consequences
Endogenetic process and	ii) Volcanoes: causes, types and consequences
landforms	iii) Folding and faulting: concept, components, types and resulting
	landforms.
Suggestive Readings:	1. Blij, H. J., Muller, P. O., & Williams, R. S. (2022). Physical geography: The global
88 8	environment (7th ed.). Oxford University Press.
	2. Grotzinger, J., & Jordan, T. H. (2023). Understanding Earth (9th ed.). W. H. Freeman.
	3. Husain, M. (2021). Fundamentals of physical geography (5th ed.). Rawat Publications
	4. Leong, G. C. (2020). Physical geography (4th ed.). Oxford University Press.
	5. Marshak, S. (2023). Essentials of geology (7th ed.). W. W. Norton & Company.
	6. Singh, S. (2021). Physical geography (6th ed.). Prayag Pustak Bhawan.
	7. Strahler, A. H. (2021). Introducing physical geography (7th ed.). Wiley.
	8. Anderson, R. S., & Anderson, S. P. (2022). Geomorphology: The mechanics and chemistry of landscapes (2nd ed.). Cambridge University Press.
	9. Christopherson, R. W., & Birkeland, G. (2021). Geosystems: An introduction to
	physical geography (11th ed.). Pearson.
	10. Hamblin, W. K., & Christiansen, E. H. (2023). Earth's dynamic systems (14th ed.).
	11. Kale, V. S., & Gupta, A. (2021), Geomorphology of the Indian subcontinent (2nd ed.).
	Springer.
	12. Plummer, C. C., Carlson, D. H., & Hammersley, L. (2022). Physical geology (17th ed.). McGraw-Hill Education.
	13. Summerfield, M. A. (2020). Global geomorphology (2nd ed.). Routledge.
	14. Thornbury, W. D. (2021). Principles of geomorphology (3rd ed.). Wiley.
	15. Tarbuck, E. J., Lutgens, F. K., & Tasa, D. (2023). Earth: An introduction to physical
	geology (13th ed.). Pearson.

	16. Valdiya, K. S. (2021). Dynamic Himalaya (2nd ed.). Universities Press.		
	17. Wicander, R., & Monroe, J. S. (2022). Historical geology: Evolution of Earth and life		
	through time (9th ed.). Cengage Learning.		
Method of Assessment,	Semester End Examination: 30 Marks		
Measurement, &	Mode: Written Examination		
Evaluation:	Exam duration: 2 Hours		
	Question Pattern: Students shall answer 4 questions carrying 6 marks out		
	of 8 given questions (2 questions from each module); 6 MCQ types questions		
	carrying 1 mark. Questions carrying 6 marks will have at least two parts.		
	Internal Assessment: 25 Marks		
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and		
	Presentation 5 marks; Class Attendance 5 marks and Classroom Activities		
	5 marks.		

Title of the Course:	GEOTECTONICS (PRACTICAL)		
Discipline Specific Minor	GEO-DC-MJ-101B (PRACTICAL)		
Paper Code:			
	Semester = I (PRACTICAL)		
	Credit = 01		
Objectives of the Course:	i) To understand the concept of map scale and its importance in cartography.		
	ii) To utilise the notion of scale when examining topographical maps and		
	comprehend the data they provide.		
	iii) To identify, analyze and classify various types of rocks and minerals based on		
	their physical and chemical properties.		
	iv) To construct geological profiles or cross-sections along a given section of a		
	geological map.		
Learning Outcomes of the	1) Students will gain a solid foundation in map comprehension and application, as		
Course	well as skills in laboratory techniques for analysing and documenting rock and		
	mineral samples.		
	no incy will also gain a comprehensive understanding of geological maps and profiles their construction and interpretation which are required for		
	successfully reading and using maps in a variety of academic and professional		
	settings		
	Course Content		
Module: -1:	i) Concept and type of scale		
Introduction to Map Scale	ii) Scale conversion; statement scale, ratio Scale (R.F.), graphical Scale		
	(linear, comparative, diagonal and positive vernier);		
	iii) Enlargement and reduction of map (Mathematical)		
Module: -2:	i) Identification of Mineral Specimens and their characteristics		
Minerals and Rocks	(Megascopic study): quartz, bauxite, chalcopyrite, feldspar, galena,		
	calcite, hematite, magnetite, mica, and talc.		
	ii) Identification of Rock specimens and their characteristics (Megascopic		
	study): Sandstone, limestone, shale, basalt, granite, pegmatite, gneiss,		
	marble, quartzite, conglomerate,		

Module: -3:	i) Concepts of geological map		
Geological Maps	ii) Construction of geological section (horizontal, uniclinal and folded		
	structures with unconformities and intrusions)		
	iii) Interpretation of prepared geological section.		
Suggestive Readings:	1. Bennison, George, Moseley, and Keith (2013): An Introduction to Geological		
	Structures and Maps 7ed., Arnold Publication		
	2. Borradaile, Graham (2014): Understanding Geology through Maps, Elsevier, Inc.		
	3. Khan, MD.Z.A. (1998): Textbook of Practical Geography: Concept Publishing Company.		
	4. Maltman, A. (1990): Geological Map: An Introduction, Open University Press.		
	5. Monkhouse F. J and Wilkinson, H.R. (1971): Maps and Diagrams B.I. publications		
	private limited, new Delhi		
	6. Platt, J.I., Selected Exercises upon Geological Map, Part I, Unwin, Londan.		
	 Roy, A. K. (1966): Introduction to the study of geological maps, World Press Private Ltd 		
	8. Saha, P.K. and Basu P. (2014): Advanced Practical Geography: Books and Allied, Kolkata		
	9. Sarkar, A. (2015): Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.		
	10 Singh R L. Singh R P.B. (2018): Elements of Practical Geography Kalvani		
	Publishers.		
	11. Spencer, Edger W. (2016): Geologic Maps – A Practical Guide to Preparation and		
	Interpretation, Waveland Press, Inc.		
Method of Assessment	20 Marks		
Monsurement &	Mode: Laboratory-based Examination		
Measurement, &	Fyam duration: 2 Hours		
Evaluation:	Ouestion Pattern: Students shall perform One Practical carrying 7 marks:		
	One Practical carrying 5 marks: and One practical carrying 4 marks 4		
	marks for submission of the Laboratory Nataback duly signed by the		
	marks for submission of the Laboratory Notebook dury signed by the $T = 1$ () (11 = 11 = 1 = 0 = 1 = 1 = 1 = 1 = 0 = 1 = 1		
	leacher(s) followed by the performance in a viva-voce		

SEMESTER-II				
Course Type	Course Code-Cours	e Name (Credits)	Total	Marks
	Theory	Practical	Creatts	
Discipline Specific Course/	GEO-DC-MJ-201A:	GEO-DC-MJ-201B:	04	75
Major Core (DC-MJ)	Geomorphology (03)	Geomorphology (01)		
Disciplinary Minor Course	IDC/DC-MN-201 (04)		04	75
(IDC/DC-MN)				
Multidisciplinary Course	MDC-201 (03)		03	50
(MDC)				
Ability Enhancement	AEC-2 (02)		02	25
Compulsory (AEC)				
Skill Enhancement Course	SEC-2 (03)		03	50
(SEC)				
Value Added Course (VAC)	VAC-2 (02)		02	25
Internship /	IAPC-2 (02)		02	25
Apprenticeship/Project/				
Community Engagement				
(IAPC)				
Total	·	•	20	325

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -201 for UG Program

Paper Name: **GEOMORPHOLOGY**

Title of the Course:	GEOMORPHOLOGY (THEORY)	
Discipline Specific Minor	GEO-DC-MJ-201A (Theory)	
Paper Code:		
	Semester = II (THEORY)	
	Credit = 03	
Objectives of the Course:	 i) To introduce the fundamental concepts, nature, scope, and approaches of geomorphology with emphasis on Thornbury's principles ii) To examine different theoretical models of landscape development and slope evolution as proposed by Davis, Penck, King, and Hack iii) To analyze drainage networks, patterns, and landform development across various geological structures iv) To evaluate the diverse geomorphic processes (fluvial, glacial, aeolian, karst, coastal) and their resulting landforms 	
Learning Outcomes of the Course	 i) Learners will be able to define the fundamental concepts of geomorphology and apply them to interpret real-world physical landscapes. ii) Learners will be able to compare and critically evaluate various models of landscape evolution and theories of slope development. iii) Learners will be able to identify different types of drainage patterns and interpret their formation in relation to underlying geological structures. iv) Learners will be able to analyze fluvial, glacial, periglacial, aeolian, karst, and coastal processes and distinguish the landforms associated with each geomorphic agent. 	

<u>Course Content</u>		
Module: -1:	i) Geomorphology: Definition, Nature, Scope and Approaches of	
Introduction to	Geomorphology	
Geomorphology and	ii) Fundamental concepts in Geomorphology (Thornbury)	
Denudational processes	iii) Concept, classification and application of Applied Geomorphology	
-	iv) Concept of Denudation; Weathering and Mass Wasting: Processes and	
	resulting landforms	
Module: -2: Models of	i) Models of Landscape Development: Davis, Penck, King and Hack	
landscape development and	ii) Slope Evolution Theories: Davis, Penck, and King	
slope evolution		
Module 3: Development of	i) Drainage pattern: Concept and types	
river networks and	ii) Development of Drainage network and resultant landform: horizontal	
landforms	structure uniclinal structure folded structure faulted structure and	
Module: -4: Geomorphic	i) Geomorphic process and landforms: Fluvial, Glacial, Fluvio-glacial,	
processes and landforms	Periglacial, Aeolian, Fluvio-aeolian, Karst and Coastal processes	
- Suggestive Readings:	1. Bloom, A. L. (2011): Geomorphology - A Systematic Analysis of Late Cenozoic	
88 8	Landforms, Prentice-Hall of India, New Delhi.	
	2. Bridges, E. M. (1990): World Geomorphology, Cambridge University Press,	
	Cambridge.	
	3. Christopherson, Robert W. (2011): Geosystems - An Introduction to Physical Geography & Ed. Macmillan Publishing Company	
	4 Fairbridge, R W (1968): The encyclopaedia of geomorphology (Edge) Reinhold	
	Book, New York	
	5. Huggett, R.J. (2011): Fundamentals of Geomorphology. Routledge, New York	
	6. Kale, V. S. and Gupta A. (2011): Introduction to Geomorphology, Orient Longman,	
	Hyderabad.	
	7. Knighton, A. D. (1984): Fluvial Forms and Processes, Edward Arnold Publishers,	
	8 Selby M J (2015): Earth's Changing Surface Indian Edition OUP	
	9. Singh, S., (2018): Geomorphology, Pravalika Publications, Allahabad	
	10. Singh, S., (2020): Physical Geography, Pravalika Publications, Allahabad	
	11. Skinner, Brian J., and Stephen C.P (2010): The Dynamic Earth: An Introduction to	
	Physical Geology, 4th Edition, John Wiley, and Sons.	
	12. Summerfield, M.A. (1991): Global Geomorphology: An Introduction to the Study of	
	13 Tarbuck F I Jutgens F K Tasa D & Tasa D (2019): Earth: an introduction to	
	physical geology. Upper Saddle River: Pearson/Prentice Hall.	
	14. Thornbury, W. D. (1969): Principles of Geomorphology, Wiley.	
Method of Assessment,	Semester End Examination: 30 Marks	
Measurement, &	Mode: Written Examination	
Evaluation:	Exam duration: 2 Hours	
	Question Pattern: Question Pattern: Students shall answer 4 questions	
	carrying 6 marks out of 8 given questions (2 questions from each module);	
	6 MCQ types questions carrying 1 mark. Questions carrying 6 marks will	
	have at least two parts.	
	Internal Assessment: 25 Marks	
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and	
	Presentation 5 marks; Class Attendance 5 marks and Classroom Activities	
	5 marks,	

Title of the Course:	GEOMORPHOLOGY (PRACTICAL)	
Discipline Specific Minor	GEO-DC-MJ-201B (PRACTICAL)	
Paper Code:		
Semester = II (PRACTICAL)		
	Credit = 01	
Objectives of the Course:	i) To introduce students to the fundamentals of topographical maps, including their layout, symbols, and marginal information, with reference to the Survey of India (SOI) maps	
	 ii) To develop the skills required for interpreting and analysing topographical maps with emphasis on morphometric and relief features. iii) To enable students to conduct detailed relief analysis using SOI maps, 	
	including identification of physiographic divisions and construction of various types of topographical profiles (e.g., serial, composite, projected, long, and cross profiles).	
	iv) To train students in morphometric analysis through the delineation of watersheds and river basins, and the application of quantitative techniques to assess geomorphic characteristics.	
Learning Outcomes of the Course	 i) Learners will be able to demonstrate a comprehensive understanding of SOI topographical maps, including the skills required for map reading, interpretation, and application in geomorphological studies. 	
	ii) Learners will be able to identify and analyze physical features on SOI maps and understand their spatial interrelationships, applying these skills for both academic research and applied geography.	
	iii) Learners will be able to prepare and interpret different types of topographical profiles and relief representations, enhancing their understanding of landscape morphology.	
	iv) Learners will be able to conduct a morphometric analysis of drainage basins, including stream ordering, bifurcation ratio, drainage density, dissection index, and relative relief, gaining practical experience in quantitative geomorphology.	
	Course Content	
Module: 1: Introduction to	i) Lavout old and new scheme (Open Series)	
tonographical map (SOI)	i) Conventional symbols and marginal information	
Modulo: 2: Poliof analysis	i) Broad physiographic division Identification of relief features	
using SOI tonographical	i) Profile analysis (serial composite superimposed projected: long and	
Mon	(ross profile of river)	
Мар	iii) Measurement of gradient	
	iv) Transect chart Preparation	
Madula: 3: Marnhamatria	i Delineation of River basin	
analysis	i. Stream Ordering (Strehler) and Difurcation Datio	
	iii Measurement and Manning of Relative Relief (after Smith)	
	Dissection Index (after Doy Nir) Drainage Density and Average	
	Slope (after Wentwerth)	
Suggestive Deadings	Stope (after Wellworth)	
Suggestive Readings:	Delhi.	
	2. Mishra R.P. and Ramesh, A., (1989): Fundamentals of Cartography, Concept, New	
	Delhi.	
	3. Saha, P.K. and Basu, P. (2019): Advanced Practical Geography, Books and Allied (P) Ltd., Kolkata.	

	4. Sarkar, A. (2015): Practical geography: A systematic approach. Orient Black Swan		
	Private Ltd., New Delhi		
	5. Sen, P.K. (1989): Geomorphological Analysis of Drainage Basin: An Introduction to		
	Morphometric and Hydrological Parameters, University of Burdwan.		
	6. Singh, R.L. and Singh, P.B. (2019): Elements of Practical Geography, Kalyani		
	Publishers, New Delhi		
Method of Assessment,	20 Marks		
Measurement, &	Mode: Laboratory-based Examination Exam duration: 2 Hours		
Evaluation.			
Evaluation:	Question Pattern: Students shall perform One Practical carrying 7 marks; One		
	Practical carrying 5 marks; and One practical carrying 4 marks. 4 marks for		
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by		
	the performance in a viva-voce		

SEMESTER-III				
Course Type	Course Code-Course Name (Credits)		Total	Maalaa
Course Type	Theory	Practical	Credits	wiarks
	GEO-DC-MJ-301A:	GEO-DC-MJ-301B:	04	75
Discipline Specific Course/	Climatology (03)	Climatology (01)		
Major Core (DC-MJ)	GEO-DC-MJ-302A:	GEO-DC-MJ-302B:	04	75
	Human Geography (03)	Human Geography (01)		
Disciplinary Minor Course	IDC/DC-MN-301 (04)		04	75
(IDC/DC-MN)				
Multidisciplinary Course	MDC-301 (03)		03	50
(MDC)				
Ability Enhancement	AEC-3 (02)		02	25
Compulsory (AEC)				
Skill Enhancement Course	SEC-3 (03)		03	50
(SEC)				
Internship /	IAPC-3 (02)		02	25
Apprenticeship/Project/				
Community Engagement				
(IAPC)				
Total			22	375

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -301 for UG Program

<u>Paper Name: CLIMATOLOGY</u>

Title of the Course:	CLIMATOLOGY (THEORY)	
Discipline Specific Minor	GEO-DC-MJ-301A (Theory)	
Paper Code:		
	Semester = III (THEORY)	
	Credit = 03	
Objectives of the Course:	i) To introduce students to the origin, structure, and composition of the atmosphere.	
	ii) To provide an understanding of energy flow and temperature distribution in the atmosphere, including concepts like heat budget and temperature inversion.	
	i) To explain key atmospheric processes such as stability, cloud formation, and precipitation mechanisms.	
	iv) To develop an understanding of atmospheric circulation patterns, climatic classification systems, and major weather disturbances such as air masses, fronts, and cyclones.	
Learning Outcomes of the	i) Learners will be able to describe the origin, structure, and composition of	
Course	the atmosphere, as well as the distribution of temperature across different regions	
	 ii) Learners will be able to explain the processes of atmospheric stability and instability, alongside cloud development and precipitation mechanisms. 	

	iii) Learners will be able to interpret global atmospheric circulation systems,	
	including pressure belts, jet streams, and the Indian monsoon system.	
	iv) Learners will be able to identify and analyze various weather disturbances	
	such as air masses, fronts, and tropical and mid-latitude cyclones.	
	<u>Course Content</u>	
Module: -1:	1) Atmosphere: Origin, structure and composition.	
Atmosphere, energy and	11) Energy and Temperature in the Atmosphere: Insolation, heat budget,	
temperature	111) Horizontal and vertical distribution of temperature;	
	iv) Inversion of temperature- concept, types, causes and consequences.	
Module: -2:	1) Atmospheric stability and instability	
Stability, Cloud	11) condensation, and precipitation-processes and forms;	
development and	111) mechanisms of precipitation- Bergeron-Findelsen theory, and collision	
precipitation	and coalescence theory.	
Module: -3: Atmospheric	i) Pressure belts and Planetary winds, jet streams	
Circulation and climatic	ii) Indian monsoon: mechanisms (Thermal Engine theory and Jet Stream	
classification	Theory) and impacts	
	iii) Ocean- atmosphere interaction (El-Nino, La-Nina, ENSO, MJO).	
	iv) Climatic classification: Basis and scheme after Köppen and	
	Thornthwaite (1931 &1948).	
Module: -4: Weather	i) Air mass: Concept, origin and classification;	
Disturbances	ii) Fronts- frontogenesis and frontolysis, typology, and associated weather	
	conditions.	
	111) Cyclone: Origin, characteristics, and impacts (tropical and mid-latitude	
	cyclones), Super cyclones in Bay of Bengal (Aila and Amphan).	
Suggestive Readings:	1. Anrens, C. D. (2012). Essentials of meteorology: An invitation to the atmosphere (9th ed.) Cengage Learning	
	 Barry, R. G., & Carleton, A. M. (2011). Synoptic and dynamic climatology. Routledge. 	
	3. Barry, R. G., & Chorley, R. J. (1998). Atmosphere, weather and climate. Routledge.	
	4. Critchfield, H. J. (1987). <i>General climatology</i> . Prentice-Hall of India.	
	5. Lal, D. S. (2012). Climatology. Sharda Pustak Bhawan. 6. Lutgens F.K. Tarbuck F. L. & Tasa D. (2019). The atmosphere: An introduction to	
	meteorology. Prentice-Hall.	
	7. Oliver, J. E., & Hidore, J. J. (2012). Climatology: An atmospheric science. Pearson	
	Education.	
	8. Siddhartha, K. (2016). Climatology: Atmosphere, weather & climate. Kitab Mahal. 9. Tarbuck F. I. (1998). The atmosphere: An introduction to meteorology (9th ed.)	
	Prentice Hall Inc.	
	10. Trewartha, G. T., & Horne, L. H. (1980). An introduction to climate. McGraw-Hill.	
Method of Assessment,	Semester End Examination: 30 Marks	
Measurement, &	Fyam duration: 2 Hours	
Evaluation:	Question Pattern: Question Pattern: Students shall answer 4 questions carrying	
	6 marks out of 8 given questions (2 questions from each module); 6 MCQ types	
	questions carrying 1 mark. Questionscarrying 6 marks will have at least two parts.	
	Internal Assessment: 25 Marks	
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5	
	marks; Class Attendance 5 marks and Classroom Activities 5 marks ,	

Title of the Course:	CLIMATOLOGY (PRACTICAL)		
Discipline Specific Minor	GEO-DC-MJ-301B (PRACTICAL)		
Paper Code:			
	Semester = III (PRACTICAL)		
	Credit = 01		
Objectives of the Course:	i) To provide the basic skills of handling manual weather instruments and		
	collection of weather information.		
	representation		
	iii) To give comprehensive knowledge about the analysis and interpretation of		
	weather maps so that learners can understand the spatial behaviour and		
	relationships of weather phenomena.		
Learning Outcomes of the	i) Learners will gain the basic skills of handling manual weather instruments		
Course	and the collection of weather information.		
	ii) Learners will be able to construct climatic graphs for the representation of		
	climatic data. iii) Learners will be able to analyse and interpret weather maps and will		
	understand the spatial behaviour and relationships of weather phenomena.		
	<u>Course Content</u>		
Module -1: Measurement of	i) Hygrometer,		
weather elements by	ii) Maximum-minimum thermometer,		
meteorological instruments	iii) Fortin's barometer,		
	iv) Rain gauge (Simon's),		
	v) Anemometer and wind vane.		
Module -2:	i) Taylor's Climograph, and Hythergraph		
Preparation of climatic	ii) Star Diagram		
graphs and charts	iii) Ergograph		
	iv) Synoptic station model		
Module-3:	i) Pre-monsoon, Monsoon and Post-monsoon: Temperature, pressure,		
Interpretation of Indian	Sky condition, wind direction and speed, Sea condition and		
daily weather map	other weather phenomena.		
Suggestive Readings			
	1. Ahmed, I. (1994): Practical Geography, Jawahar Publishers and Distributors, New		
	Delni 2 Aspani G. C. De U.S. Hatwar, H. R. and Mazumdar, A. R. (2012).		
	MonsoonMonograph, Indian Meteorological Department		
	3. Das, P.K. (2018): The Monsoons, The National Book Trust of India		
	4. Harrison, G. (2014): Meteorological measurements and instrumentation. John Wiley &		
	Sons.		
	5. Khan, MD.Z.A. (1998): Textbook of Practical Geography: Concept Publishing		
	Company. 6 Khullar D. (2014): King's Practical Geography Educational Publisher Delhi		
	7. Monkhouse, F. J and Wilkinson, H.R. (1971): Maps and Diagrams B.L. publications		
	private limited, new Delhi		
	8. Saha, P.K. and Basu, P. (2019): Advanced Practical Geography, Books and Allied (P)		
	Ltd., Kolkata.		
	9. Sarkar, A. (1997): Practical Geography: A systematic approach, Orient Longman Ltd, Hyderabad		
	10. Vazquez, T. (2018): Weather Map Handbook 2 nd ed.		

Method of Assessment,	20 Marks	
Measurement, & Evaluation:	Mode: Laboratory-based Examination	
,	Exam duration: 2 Hours	
	Question Pattern: Students shall perform One Practical carrying 7 marks; One	
	Practical carrying 5 marks; and <i>One</i> practical carrying 4 marks. 4 marks for	
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by	
	the performance in a viva-voce	

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -302 for UG Program

Paper Name: HUMAN GEOGRAPHY

Title of the Course:	HUMAN GEOGRAPHY (THEORY)	
Discipline Specific Minor	GEODC-MJ-302A (Theory)	
Paper Code:		
Semester = III (THEORY)		
	Credit = 03	
Objectives of the Course:	i) To develop an understanding of the nature, scope, approaches, and elements	
	of Human Geography, along with recent trends.	
	ii) To explore the concept of race and ethnicity, including the classification of major human races of the world and India.	
	iii) To trace the evolution of human societies from hunting and gathering to	
	industrial and urban forms, and understand the associated cultural	
	developments.	
	iv) To examine patterns of human adaptation to diverse environments and study the population-resource relationship through global and Indian perspectives.	
	v) To introduce key indicators of human development, including HDI, GDI,	
	and GII, and their application in assessing regional disparities.	
Learning Outcomes of the	i) Learners will be able to demonstrate knowledge of the fundamental concepts,	
Course:	scope, and methodologies of Human Geography.	
	ii) Learners will be able to identify and explain the classification of human races	
	and analyse their historical and cultural evolution.	
	111) Learners will be able to understand the stages of human societal development and interpret the significance of cultural hearths and cultural regions	
	iv) Learners will be able to analyse how human communities adopt to diverse	
	anvironmental settings through specific asso studies such as the Eskim	
	Masai Gond Jarawa Toda and Khasi	
	y) Learners will be able to evaluate the relationship between population and	
	resources, and interpret development indicators such as HDL GDL and GI	
	in both global and Indian contexts.	
	<u>Course Content</u>	
Module: -1: Introduction to	i) Nature, scope, approaches, elements, and recent trends.	
Human Geography and	ii) Concept of space and society	
	iii) Concept of race and ethnicity, evolution; major human races of	
	the World (Huxley) and India (Guha & Risley).	
Module: -2: Evolution of	i) Hunting and food gathering, pastoral nomadism, subsistence	
human societies and	farming industrial and urban societies.	
Culture	ii) Culture: Concept and types	
	iii) Cultural hearth and Cultural regions (language and religion).	

Module: -3: Human	i) Eskimo, Masai		
adaptation to the	ii) Gond, Toda, Jarawa, and Khasi.		
environment			
Module: -4: Population-	i) Underpopulation, overpopulation, optimum population;		
Resource Relationship &	population-resource region of the World (Ackerman) and India		
Human Development	(P. Sen Gupta).		
L. L	ii) HDI, GDI and GII: Concept and measure		
Suggestive Readings:	1. Craig, J. (1972). Population potential and population density. Area, 4(1), 10-12.		
	http://www.jstor.org/stable/20100603		
	2. Craig, J. (1987). Population potential and some related measures. Area, 19(2), 141–		
	146. <u>http://www.jstor.org/stable/20102432</u>		
	3. Eroje, M. A., Faweninmi, H. B., Jaja, B. N., & Yaakor, L. (2010). Cephalic index of Oghia triba of Payalas State. International Journal of Mounhology, 28(2), 280, 202		
	bttps://doi.org/10.4067/S0717-95022010000200024		
	4 Gave A Klugman I Kovacevic M Twigg S & Zambrano E (2010) Measuring		
	kev disparities in human development: The Gender Inequality Index (UNDP Human		
	Development Research Paper No. 46).		
	https://hdr.undp.org/system/files/documents/hdrp_2010_46.pdf		
	5. Omotoso, D. R. (2019). Anthropometric evaluation of nasal height, nasal breadth and		
	nasal index among Bini children in Southern Nigeria. Journal of Clinical and		
	Experimental Research, 7(2), 1–6. <u>https://doi.org/10.4103/jcer.jcer_1_19</u>		
	6. Pal, S. K. (1998). <i>Statistics for geoscientists</i> . Tata McGraw Hill.		
	7. Rajakumar, R. N., & Selvamani, M. (2015). Evaluation and establishment of norms		
	for facial index in Kerala population: A cross-sectional study. <i>International Journal of</i>		
	Medical Research & Health Sciences, 4(2), 345–350.		
	8. Sarkar, A. (2013). Quantitative geography: Techniques and presentations (1st ed.).		
	9 United Nations Development Programme (2021) Technical notes: Calculating the		
	human development indices—Graphical presentation		
	https://hdr.undp.org/system/files/documents/technical-notes-calculating-human-		
	development-indices.pdf		
	10. United Nations Development Programme (2023). Human development report 2023/24		
	- Interactive Data Tools. https://hdr.undp.org/data-center		
Method of Assessment,	Semester End Examination: 30 Marks		
Measurement, & Evaluation:	Mode: Written Examination		
	Exam duration: 2 Hours		
	Question Pattern: Question Pattern: Students shall answer 4 questions carrying		
	6 marks out of 8 given questions (2 questions from each module); 6 MCQ types		
	questions carrying 1 mark. Questionscarrying 6 marks will have at least two parts.		
	Internal Assessment: 25 Marks		
	Node: Iutorial/Assignment/ Ierm paper Preparation 10 marks and Presentation 5		
	marks; Class Attendance 5 marks and Classroom Activities 5 marks.		

Title of the Course: HUMAN	HUMAN GEOGRAPHY (PRACTICAL)	
Discipline Specific Minor GEODC-	GEODC-MJ-302B (PRACTICAL)	
Paper Code:		
Sem	nester = III (PRACTICAL)	
	Credit = 03	
Objectives of the Course: i) To	o identify Human Races Using Anthropometric Indices.	
ii) T	o Explore Population Potential and Distribution.	
iii) Te	o Compute Human Development Indices.	
iv) C	critically assess the evolution of human development indices and their role	
in	n shaping policy and international development agendas	
Learning Outcomes of the i) L	earners will be able to identify the different human races by using	
Course: di	ifferent human body measurement index.	
ii) L	earners will be able to identify and analyse the spatial dynamics of human	
p	opulation and able to apply the techniques of population potential, mean	
aı	nd median centres of population.	
iii) L	earners will gain proficiency of the various indicators and measures of	
h	uman development and able to calculate human development indices, and	
g	ender inequality index.	
	Course Content	
Module: -1: Identification i)	Cephalic Index	
of human race	Nasal Index	
	Facial Index	
Module: -2: Measures of i)	Population potential	
spatial distribution and ii)	Mean centre of population.	
interaction	1 1	
Module: -3: Measures of i)	HDI (UNDP 2014)	
Human Development ii)	GDI (UNDP 2014)	
iii)	Gender Inequality Index (GII).	
, , , , , , , , , , , , , , , , , , , ,		
Suggestive Readings: 1. En	roje, M. A., Fawehinmi, H. B., Jaja, B. N., & Yaakor, L. (2010). Cephalic index	
of 2 C	Ogbia tribe of Bayesla state. Int J Morphol, $28(2)$, $389-392$.	
2. Cr	tr://www.istor.org/stable/20100603	
3. Cr	raig, J. (1987): Population Potential and Some Related Measures. Area, 19(2),	
14	1-146. http://www.jstor.org/stable/20102432	
4. Ga	aye, A., Klugman, J., Kovacevic, M., Twigg, S., & Zambrano, E. (2010):	
	uman development research paper, 46(10).	
5. Or	motoso, D. (2019). Anthropometric evaluation of nasal height, nasal breadth and	
na	sal index among Bini children in Southern Nigeria.	
6. Pa	II S. K. (1998): Statistics for Geography Techniques And Presentations, 1st.	
/. Sa Ed	lition, Orient Blackswan	
8. UI	NDP technical notes (2021):	
I I I.	(2021).	

Method of Assessment,	Semester End Examination: 30 Marks
Measurement, & Evaluation:	Mode: Written Examination
,	Exam duration: 2 Hours
	Question Pattern: Students shall answer One question carrying 10 marks out of
	<i>Two</i> given questions; <i>Three</i> questions carrying 5 marks each out of given <i>Six</i>
	questions; <i>Five</i> MCQ types questions carrying 1 mark. Questions carrying 10
	marks will have at least three parts and questions carrying 5 marks will have at
	least two parts.
	Internal Assessment: 25 Marks
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
	marks; Class Attendance 5 marks and Classroom Activities 5 marks.

SEMESTER-IV				
Comme Torres	Course Code-Cour	Total		
Course Type	Theory	Practical	Credits	Marks
Discipline Specific Course/	GEO-DC-MJ-401A:	GEO-DC-MJ-401B:	04	75
Major Core (DC-MJ)	Geography of India (03)	Geography of India (01)		
	GEO-DC-MJ-402A:	GEO-DC-MJ-402B:	04	75
	Population Geography (03)	Population Geography		
		(01)		
	GEO-DC-MJ-403A: Soil	GEO-DC-MJ-403B: Soil	04	75
	& Biogeography (03)	& Biogeography (01)		
Disciplinary Minor Course	IDC/DC-MN-401 (04)		04	75
(IDC/DC-MN)				
Ability Enhancement	AEC-4 (02)		02	25
Compulsory (AEC)				
Value Added Course (VAC)	VAC-3 (02)		02	25
Total			20	350

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -401 for UG Program

Paper Name: GEOGRAPHY OF INDIA

Title of the Course:	GEOGRAPHY OF INDIA (THEORY)	
Discipline Specific Minor	GEO-DC-MJ-401A (Theory)	
Paper Code:		
	Semester = IV (THEORY)	
	Credit = 03	
Objectives of the Course:	i) To provide detailed ideas about the physiography, drainage, soil and climate of India.	
	 To gain a knowledge of India's regional geography, consider their population and economy. 	
	iv) To learn about the schemes of regionalisation for better understanding to regional development of India.	
Learning Outcomes of the	i) Learners will understand our country's geography, including the	
Course	 ii) They will also learn about India's various physiographic, economic, and agricultural regions, as well as a solid understanding of the concept of region and its importance in planning and development. 	
	iii) Learners will understand different mineral and power resources and become aware of the resources and their conservation.	
	iv) Learners will understand the various regionalisation scheme so the that they would better understand about the regional development of India.	

<u>Course Content</u>			
Module: -1: Geology and	i) Tectonic and stratigraphic provinces		
physiography	ii) Physiographic divisions		
Module: -2: Climate,	i) Controlling factors of Indian climate and Climatic regions of		
Vegetation, Soil and	India after Köppen		
Drainage system	ii) Classification of natural vegetation after Champion & Seth		
	iii) Soil zones in India after ICAR and importance in agriculture		
	iv) Himalayan drainage system (Indus and Ganga) and Peninsular		
	drainage system (Godavari)		
Module: -3: Agriculture,	i) Characteristics, problems, and prospects of Indian agriculture;		
Power, and mineral	Green revolution and its consequences.		
resources	ii) Distribution of coal and petroleum, natural gas, and non-		
	conventional energy sources (solar, wind, and geothermal).		
	iii) Distribution of iron ore and manganese		
Module: -4: Regionalisation	i) Physiographic (R. L. Singh)		
	ii) Socio-cultural (D. Sopher)		
	iii) Economic (P. Sengupta)		
	iv) Agricultural regions (ICAR) and Agroclimatic regions		
	(Planning Commission of India).		
Suggestive Readings:	1. Chatteriee, A., (2021): Bharat O Paschimbanger Bhugol, Nabodaya Publication.		
Suggestive Readings.	Kolkata, 1st ed.		
	2. Deshpande C. D. (1992): India - A Regional Interpretation, ICSSR, New Delhi.		
	3. Guha G.S. and Basu D.N. and Kashyap S.P. (ed.) (1996): Agro-Climatic Regional		
	Planning in India, Concept Publishing Company Pvt. Ltd.		
	4. Johnson, B. L. C., (ed.) (2011): Geographical Dictionary of India. Vision Books, New Dath:		
	5. Khullar, D. R. (2018): India a Comprehensive Geography. Kalvani Publishers. New		
	Delhi		
	6. Mandal R. B. (ed.) (1990): Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective.		
	7. Mondal K.C. (2023): Geography India, West Bengal and World, Oriental book company private limited		
	 Pathak, C. R. (2013): Spatial Structure and Processes of Development in India. Regional 		
	9. Pattrea M. and Chakraborty G. (2023): Know Your State West Rengal Arihant		
	Publications; Eighth edition.		
	10. Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of		
	India		
	11. Sharma, T.C. (2013): Economic Geography of India. Rawat Publication, Jaipur.		
	12. Singh R. L. (1971): India: A Regional Geography, National Geographical Society of India		
	13. Singh, Jagdish (2013): India - A Comprehensive & Systematic Geography, Gyanodaya		
	Prakashan, Gorakhpur.		
	14. Spate O. H. K. and Learmonth A. T. A. (1967): India and Pakistan: A General and Regional Geography. Methuen		
	15. Tirtha, Ranjit (2012): Geography of India, Rawat Pubs., Jaipur & New Delhi.		
	16. Tiwari, R.C. (2017): Geography of India. Prayag Pustak Bhawan, Allahabad		
Method of Assessment,	Semester End Examination: 30 Marks		
Measurement, &	Mode: Written Examination		
Evaluation:	Exam uuration: 2 Hours Ouestion Pattern: Ouestion Pattern: Students shall answer 4 questions corruing		
	Question I attern. Question I attern. Students shall allower 4 questions callying		

6 marks out of 8 given questions (2 questions from each module); 6 MCQ types
questions carrying 1 mark. Questionscarrying 6 marks will have at least two parts.
Internal Assessment: 25 Marks
Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
marks; Class Attendance 5 marks and Classroom Activities 5 marks.

Title of the Course:	GEOGRAPHY OF INDIA (PRACTICAL)
Discipline Specific Minor	GEO-DC-MJ-401B (PRACTICAL)
Paper Code:	
	Semester = IV (PRACTICAL)
	Credit = 01
Objectives of the Course:	i) To provide the knowledge about the different types of maps and their uses in different fields.
	ii) To know the concept, typology, terminologies, uses and properties of
	different types of Map projections. And also to choose the right one for specific mapping tasks.
	iii) To provide the knowledge about the different cartograms and thematic mapping.
Learning Outcomes of the	i) The learners will be able to use of different types of maps in their livelihood as well as academic purposes
	ii) Learners will be able to applied different types of map projection for map making in their academic purposes
	iii) Learners will be able to represents the different physical and socio-
	cultural data using different cartograms and thematic mapping.
	<u>Course Content</u>
Module: -1: Map pointing	i) Physical (physiographic divisions, mountain peaks, pass, major
	rivers, lake, coast, soil, and vegetation zones)
	ii) Political and cultural features (major cities, ports, highways,
	major producing centres-coal, petroleum and iron ore)
Module: -2: Map projection	i) Planar projection (Polar Zenithal Gnomonic Projection)
	ii) Conical projection (Simple Conical Projection with One Standard Parallel)
	iii) Cylindrical projection (Cylindrical Equal Area Projection)
Module: -3: Representation	i) Line, Bar, Dot and proportional sphere diagram
of socio-economic data	ii) Proportional circle, pie and proportional divided circle diagram
	iii) Thematic mapping using isopleth, choropleth and
	chorochromatic map.
Suggestive Readings:	1. Das, D.C & Roy, P. (2024): An Analytical Study of Map Projections, Bharti Publication, New Dolhi
	2 Kennedy M Kopp S (2011): Understanding Map Projections Esti Press
	 Khan, Z.A. (1998): Text Book Of Practical Geography, Concept Publishing
	Company,New Delhi
	4. Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. (2011): Map Use:
	 Reading, Analysis, Interpretation, 7th ed, Esri Press. Monkhouse, F.L. Wilkinson, H.R. (1971): Many and Diagrams: Their Compilation
	and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata. Pearson II,

	6. Pearson, F. (1990): Map Projections: Theory and Applications 2nd ed, CRC Press.		
	7. Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. (1995):		
	Elements of Cartography, 6th ed, Wiley.		
	8. Saha, P.K. and Basu P. (2014): Advanced Practical Geography: Books and Allied,		
	Kolkata		
	9. Sarkar, A. (2015): Practical Geography: A Systematic Approach, 3rd ed, Orient		
	Blackswan Private Ltd.		
	10. Singh, R.L., Singh, R.P.B. (2018): Elements of Practical Geography, Kalyani		
	Publishers.		
Method of Assessment,	20 Marks		
Measurement, & Evaluation:	Mode: Laboratory-based Examination		
	Exam duration: 2 Hours		
	Question Pattern: Students shall perform One Practical carrying 7 marks; One		
	Practical carrying 5 marks; and <i>One</i> practical carrying 4 marks. 4 marks for		
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by		
	the performance in a viva-voce.		

Curriculum of Discipline Specific Course/ Major Core (DC-MJ)-402 for UG Program

Paper Name: POPULATION GEOGRAPHY

Title of the Course:	POPULATION GEOGRAPHY (THEORY)	
Discipline Specific Minor	GEO-DC-MJ-402A (Theory)	
Paper Code:		
	Se	emester = IV (THEORY)
		Credit = 03
Objectives of the Course:	i)	To know the concept of population geography and different theories, concepts related to population dynamics.
	ii)	To study about the determinants and measures of human population.
	iii)	It will help in knowing various kinds of demographic problems and to
		understand the population policies in developed & developing
		countries.
Learning Outcomes of the Course	i)	Learners will gain the concept of population geography and will be able to understand the distribution of population and its problems, population dynamics over space and time.
	ii)	Learners could understand different population policies & its importance and the contemporary population issues, and mitigation strategies.
		Course Content
Module: -1: Introduction to	i)	Definition, scope, contents, and development of population.
Population Geography &		geography; Population geography and demography relations.
Population Dynamics	ii)	Sources of population data.
	i)	Fertility, mortality and migration.

Module: -2: Spatial pattern	i) Growth, density, and distribution in World and India.
of population and	ii) Age, sex, social and economic composition of population.
population composition	
Module: -3: Population	i) Malthusian and Marxian theories, Demographic Transition
theory, model and policy	Model, Ravenstein's Laws of migration, and Mobility Transition
	Model (Zelinisky).
	ii) Fertility influencing policies (Pro-natalist and Anti-natalist).
	migration influencing policies: National Population Policy of
	India-2010: Population Policy of China (One Child Policy).
Module: -4: Contemporary	i) Poverty, malnutrition and unemployment.
nonulation issues in India	i) Maternal and child health issues labour migration and diaspora
Suggestive Readings:	1 Baneriee Guba S. ed. (2014): Space Society & Geography Rawat Publication. Delhi
Suggestive Readings.	2. Bardhan, P. (2013): Poverty, Age Structure & Political Economy in India, Oxford
	University Press.
	3. Barrett H. R. (1995): Population Geography, Oliver and Boyd.
	4. Bhende A. & Kanitkar T. (2010): Principles of Population Studies, Himalaya
	Publishing House.
	5. Chandna R. C. & Sidhu M. S. (1980): An Introduction to Population Geography,
	6 Clarke I I (1965): Population Geography Pergamon Press Oxford
	7. Fellmann, J. D., Getis, A., & Getis, J. (2010): Human Geography- Landscape of Human
	Activity, McGraw Hill.
	8. Hussain, M. (2017): Models in Geography, Rawat Publication.
	9. Jones, H. R. (2010): Population Geography, 3 rd ed. Paul Chapman, London.
	10. Jhingan, M.L., Bhat, B.K. Desai, J.N. (2016): Demography (3 rd .), Vrinda Publication, Delhi.
	11. Lutz W., Warren C. S. & Scherbov S. (2014): The End of the World Population Growth
	in the 21 st Century, Earthscan.
	12. Newbold, K. B. (2019): Population Geography- Tools and Issues, Rowman and
	Littlefield Publishers.
	13. Pacione, M. (1986): Population Geography- Progress and Prospect, Taylor, and
	14 Wilson M G A (1968): Population Geography Nelson
Method of Assessment.	Semester End Examination: 30 Marks
Measurement. & Evaluation:	Mode: Written Examination
,	Exam duration: 2 Hours
	Question Pattern: Question Pattern: Students shall answer 4 questions carrying
	6 marks out of 8 given questions (2 questions from each module); 6 MCQ types
	questions carrying 1 mark. Questionscarrying 6 marks will have at least two parts.
	Internal Assessment: 25 Marks
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
	marks; Class Attendance 5 marks and Classroom Activities 5 marks.

Title of the Course:	POPULATION GEOGRAPHY (PRACTICAL)	
Discipline Specific Minor	GEO-DC-MJ-402B (PRACTICAL)	
Paper Code:		
	Semester = IV (PRACTICAL)	
	Credit = 01	
Objectives of the Course:	 i) To understand key demographic indicators such as growth rate, population projection, density, fertility, and mortality. ii) To develop skills to interpret population data through tools like age-sex pyramids and life tables. iii) To apply basic statistical techniques such as trend extrapolation to analyse population trends and forecasts. 	
Learning Outcomes of the Course	 i) Learners will be able to analyse the population data, determine the projected population and measure the densities of population. ii) Learners will be skilled in various measurements of vital statistics of the human population. iii) Learners can use life table data to determine survival probabilities, death rates, and life expectancy for various age intervals. 	
	<u>Course Content</u>	
Module: -1: Population data	i) Decadal growth rate	
analysis	 ii) Population projection (trend extrapolation: linear, geometric). iii) Population density (arithmetic and agricultural). iv) Age-sex pyramid (developed, developing and under developed countries). 	
Module: -2: Measures of	i) Fertility (CBR, ASFR, TFR)	
fertility and mortality	ii) Mortality (CDR, IMR, MMR)	
Module: -3: Life Table	i) Age interval (x), Number of survivors (lx), Number of deaths	
Preparation	(dx), Probability of dying (qx), Probability of surviving (px), Life expectancy (ex)	
Suggestive Readings:	 Alvi, Z: Statistical Geography (2012): Methods and Applications, Rawat Pub. Caselli, G., Wunsch, G., & Vallin, J. (2015): Demography. Analysis and synthesis, a treatise in population (Four volume set). Oxford: Academic. Mahmood, A. (1999): Statistical Methods in Geographical Studies: Student Edition, Rajesh; New Edition. Monkhouse, F. J. and Wilkinson, H. R., (1973): Maps and Diagrams, Methuen, London. Jhingan, M.L., Bhat, B.K. Desai, J.N. (2016): Demography (3rd.), Vrinda Publication, Delhi Sarkar, A. (2015): Practical geography - A systematic approach. Orient Black Swan Private Ltd., New Delhi Singh, L.R. (2010): Fundamentals of Practical Geography, Sarada Pustak Bhavan, Allahabad. Singh, R. L. & Singh, R. P. B. (2015): Elements of Practical Geography, Kalyani Publishers. Thomas, R. K. (2018): Concepts, Methods, and Practical Applications in Applied Demography: An Introductory Textbook. springer publication. Das, N. G. (2008). Statistical methods (Combined Vol). Tata McGraw-Hill Publishing Company Ltd. Sinha, V. C., & Zacharia, E. (1984). Elements of Demography (2nd ed.). Allied Publishers. 	

Method of Assessment,	20 Marks
Measurement, &	Mode: Laboratory-based Examination
Evaluation	Exam duration: 2 Hours
Evaluation:	Question Pattern: Students shall perform <i>One</i> Practical carrying 7 marks; <i>One</i>
	Practical carrying 5 marks; and <i>One</i> practical carrying 4 marks. 4 marks for
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by
	the performance in a viva-voce

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -403 for UG Program

Paper Name: SOIL & BIOGEOGRAPHY

Title of the Course:	SOIL & BIOGEOGRAPHY (THEORY)
Discipline Specific Minor	GEO-DC-MJ-403A (Theory)
Paper Code:	
	Semester = IV (THEORY)
	Credit = 03
Objectives of the Course:	i) To provide knowledge on the various Pedogenetic processes for the
	development of soil.
	11) 10 inculcate fundamental knowledge of the different physical and chemical properties of soil
	iii) To properly understand the interaction between all the elements of the
	environment.
	iv) Analysing environmental issues related to flora and fauna to find the right
	environmental protection strategy.
Learning Outcomes of the	1) Learners will gain a comprehensive understanding of the Pedogenesis.
Course	different types of soils.
	iii) Learners will perceive the physical environment and organisms of the
	planet clearly.
	iv) Learners will acquire the ability to solve environmental problems related
	to the habitats of organisms
	<u>Course Content</u>
Module: -1: Soil and Soil	1) Soil: Concept, components and significance
properties	11) Soil forming factors
	iii) son properties: Physical, chemical and biological.
Module: _2: Pedogenetic	i) Laterization podzolization calcification salinization and
nracesses and soil	gleization.
classification	ii) Soil classification by USDA
Modulo: 3. Introduction to	i) iBiogeography: concept scope and content
Biogeography Concept of	i) Biogeographical regions of the world and India
Biogeography, Concept of	iii) Ecosystem: Concept, components, types, structures (trophic levels,
Ecosystem and blodiversity	food chain, and food web), hierarchy (biosphere, biomes, ecosystem,
	and biotope), and ecological pyramids (Energy, number, and
	biomass); Ecological succession;
	iv) iv). Biodiversity: concept and types.

Module: -4: Biogeochemical	i) Biogeochemical Cycle: Carbon, Phosphorus and Nitrogen cycle
cycles and Major biomes of	and their significance.
the World	ii) Biome: Tropical rainforest, hot desert, mangrove.
Suggestive Readings:	1. Chapman, J.L. and Rens, M.J. (1993): Ecology: Principle and Applications,
	Cambridge University Press, Cambridge.
	Delhi.
	3. Huggett, R. (1998): Fundamentals of Biogeography, Routledge, London:
	4. Joy, T. et al. (1989): Human Impact on The Ecosystem, Oliver and Boyd, London.
	5. Kendeigh, S.C. (1975): Ecology with Special Reference to Man and animals, Prentice Hall
	6. Khinchi, Shyam S. (editor) (2015): Biodiversity Distribution and Conservation,
	Pointer
	7. Kormondy, E.J. (1996): Concept of Ecology, 4 th ed., Prentice- Hall, India, New Delhi
	8. Myers, A. A. and Giller, P.S. (editors) (1988): Analytical Biogeography: An
	Integrated Approach to the Study of Animal and Plant Distribution. Chapman and
	Hall, London 9 Nebel I.B. (1981): Environmental Science, Prentice Hall, New York
	10. Odum, E.P. (1971): Fundamentals of Ecology, W.B. Sanders, Philadelphia.
	11. Sharma, P. D. (1996): Ecology and Environment, 7 th edition, Rastogi Publications,
	Meerut.
	New Delhi.
	13. Simmons, I. G. (1981): The Ecology of Natural Resources, ELBS/ Edward Arnold,
	London.
	14. Simmons, I.G. (1980): Bio-geographical Processes, George Allen and Unwin, London.
	15. Spellerberg, I. F. and Sarwyer, J. W. D. (1999): An Introduction to Applied
	Biogeography, University Press, Cambridge.
	16. Brady, N.C. and Weil, R.K. (1996): The Nature and Properties of Soil, 11th edition, Longman London: Cambridge University Press, Cambridge
	17. Daji, J.A., Kadam, J.R., Patil, N.D. 1996. A Textbook of Soil Science, Media
	Promoters and Publishers.
	18. Duchaufour, P. (1982). Pedology:Pedogenesis and classification. Springer Dordrecht. <u>https://doi.org/10.1017/978-94-011-6003-2</u> .
	19. Franzmeier, D.P., McFee, W.W., Graveel, J.G., Kohnke, H. 2016. Soil Science
	20 Gummireddy S (2021) A Textbook of Agronedology AGROBIOS (INDIA)
	21. Morgan, R.P.C. 1995. Soil Erosion and Conservation, 2nd edition, Longman.
	22. Weil, R.R. and Brady, N.C. 2016. The Nature and Properties of Soil, 15th edition,
	Pearson. 23 White P 2016 Principles and Practice of Soil Science: The Soil as a Natural
	Resource, Blackwell.
Method of Assessment,	Semester End Examination: 30 Marks
Measurement, &	Node: Written Examination
Evaluation:	Ouestion Pattern: Ouestion Pattern: Students shall answer 4 questions carrying
	6 marks out of 8 given questions (2 questions from each module): 6 MCO types
	questions carrying 1 mark. Questionscarrying 6 marks will have at least two parts.
	Internal Assessment: 25 Marks
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
	marks; Class Attendance 5 marks and Classroom Activities 5 marks.

Title of the Course:	SOIL & BIOGEOGRAPHY (PRACTICAL)
Discipline Specific Minor	GEO-DC-MJ-403B (PRACTICAL)
Paper Code:	
	Semester = IV (PRACTICAL)
	Credit = 01
Objectives of the Course:	i) To provide the idea about the standard classification of soil texture and its
	graphical presentation.
	ii) To analyse and interpret the particle size of soil aggregate.
	111) To provide the idea about the graphical presentation of soil properties along the different horizons of soil profile
	iv) To provide a quantitative method of land evaluation
	v) To measure biodiversity and to determine the temporal loss of species using
	living planet index and red list index.
	vi) To assess the ecological footprint
Learning Outcomes of the	i) Learners will be able to know about the methodological knowledge about
Course	diagrammatic presentation of pedological data and they will be able to
	evaluate land quality quantitatively.
	ii) Learners will be able to calculate and determine the temporal loss of
	different species.
	iv) Learners will be able to measure the level of ecological footprint.
	<u>Course Content</u>
Module: -1: Soil type and	i) i). Determination of soil type by ternary diagram
particle size determination	ii) Particle size distribution analysis by sieving method
Module: -2: Measurement	i) Measurement of soil nutrient (NPK) and
of soil nutrient and soil pH	ii) Soil pH by using soil kit
Module: -3: Measures of	i) Simpson's evenness index and Shannon-Weiner diversity index
biodiversity	ii) Living planet index (WWF) and Red List Index (RLI). Ecological
	footprint (Global Footprint Network)
Suggestive Readings:	1. Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Ed). (2022): Living
	Planet Report 2022 – Building a nature-positive society, WWF, Gland, Switzerland.
	2. Lon, J., Green, K. E., Ricketts, I., Lamoreux, J., Jenkins, M., Kapos, V., & Randers, J. (2015). The Living Planet Index: using species population time series to track trends
	in biodiversity. Philosophical Transactions of the Royal Society B: Biological
	Sciences, $360(1454)$, 289-295.
	the Use of Natural Capital with the Ecological Footprint: Applications in Sweden and
	Subregions. Ambio, 28(7), 604–612. http://www.jstor.org/stable/4314966
	4. Westveer, J, Freeman, R., McRae, L., Marconi, V., Almond, R.E.A, and Grooten, M.
	(2022): A Deep Dive into the Living Planet Index: A Technical Report. wwF, Gland, Switzerland
	(https://www.livingplanetindex.org/documents/LPR_2022_TechnicalSupplement_De
	epDiveLPI.pd)
	5. World Wildlife Fund Hong Kong. (2013): Hong Kong Ecological Footprint Report 2013 (Appendix) WWF Hong Kong
	http://awsassets.wwfhk.panda.org/downloads/hong_kong_ecological_footprint_report
	t_2013_appendix.pdf
	6. Andrews, S. S., Karlen, D. L., & Mitchell, J. P. (2012). A comparison of soil quality indexing methods for vegetable production systems in Northern California
	Agriculture, Ecosystems & Environment, 90(1), 25–45. doi:10.1016/s0167-
	8809(01)00174-8.
	7. USDA: United States Department of Agriculture. 2014. Soil Survey and Laboratory Methods Manual Soil Survey Investigations Penort No. 51
	 Biswas, T.D. and Mukherjee, S.K. (1997): Textbook of Soil Science, Tata McGraw
	Hill.

	9. Brady, N.C. and Weil, R.R. (1996): The Nature and Properties of Soil, 11th edition,
	Longman, London: Cambridge University Press, Cambridge.
Method of Assessment,	20 Marks
Measurement, &	Mode: Laboratory-based Examination
	Exam duration: 2 Hours
Evaluation:	Question Pattern: Students shall perform One Practical carrying 7 marks; One
	Practical carrying 5 marks; and <i>One</i> practical carrying 4 marks. 4 marks for
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by
	the performance in a viva-voce

SEMESTER-V				
Course Type	Course Code-Course Name (Credits)			Morke
Course Type	Theory	Practical	Credits	
	GEO-DC-MJ-501A: Social & Cultural	GEO-DC-MJ-501B: Social &	04	75
	Geography (03)	Cultural Geography (01)		
Discipline	GEO-DC-MJ-502A: Fundamentals of	GEO-DC-MJ-502B: Fundamentals of	04	75
Specific Course/	Surveying and Mapping (03)	Surveying and Mapping (01)		
Major Core	GEO-DC-MJ-503A: Quantitative	GEO-DC-MJ-503B: Quantitative	04	75
(GEOMJ)	Techniques in Geography (03)	Techniques in Geography (01)		
	GEO-DC-MJ-504A: Economic and	GEO-DC-MJ-504B: Economic and	04	75
	Political Geography (03)	Political Geography (01)		
Disciplinary	IDC/DC-MN-401 (04)		04	75
Minor Course				
Total			20	375

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -501 for UG Program

Paper: Social and Cultural Geography (GEO-DC-MJ-501)

SOCIAL AND CULTURAL GEOGRAPHY (THEORY)
GEO-DC-MJ-501A
Semester = V (THEORY)
Credits = 03
 i. To understand the foundational concepts, scope, and evolution of Social and Cultural Geography, including major approaches and contemporary trends. ii. To analyse the spatial dimensions of social elements such as class, caste, ethnicity, race, and gender, with special emphasis on their distribution and impacts in the Indian context. iii. To interpret cultural processes such as diffusion, regionalization, and identity formation through the lens of geography, and evaluate how these processes shape cultural landscapes and regions. iv. To assess components of social well-being (housing, health, and education) and examine the spatial patterns of social problems (slums, crime) and policy responses in post-independence India. v. To explore the diversity and distribution of world and Indian cultural patterns—language, religion, folk traditions, and rituals—with specific reference to cultural ecology and folk geography.
On completion of the course, students are able to
 Identify and critically analyse the key concepts, approaches, and contemporary trends in Social and Cultural Geography, with an understanding of their historical evolution and relevance to modern geographical studies. Examine the spatial distribution of social elements such as class, caste, race, additional evolution and relevance to historical elements such as class, caste, race, and contemporary the spatial elements and evolution and relevance to historical elements.

	iii. Demonstrate an understanding of cultural processes such as cultural diffusion,
	landscape formation, and identity creation, and how these processes are spatially
	organized within cultural regions and realms in India and globally.
	education) and social problems (slums, crime) in India, and evaluate the role of
	social policies and planning in addressing these issues.
	v. Analyse the role of language, religion, folk traditions, and rituals in shaping cultural
	identities and regions, with a special focus on the cultural ecology and folk
	geography of West Bengal.
	<u>Course Content</u>
Module: -1: Introduction	i. Social Geography: Concept, scope, content, approaches and evolution.
to social Geography and its	11. Social Elements: Class, caste, race, and ethnicity with special reference to India.
elements	111. Concept and types of Society, social space, social groups and social processes.
Module: -2:	1. Social Well-being: Concept and Components.
Social wellbeing and	11. Concept of Social inclusion and exclusion.
issues in Social	iii. Social segregation in India (Urban and Rural) and Social Problems in India:
Geography	dowry, child marriage, Domestic violence and crime.
Module: -3: Introduction	i. Cultural Geography: Meaning, scope, content and contemporary trends.
to Cultural Geography	ii. Culture: Concept and type (material and non-material)
and its elements	iii. Concept of cultural diffusion, cultural landscape, Cultural space, cultural
	region (India, after Sopher), Cultural Hearth and Realm, cultural diversity
	(India).
Module: -4: Issues in	i Language and major linguistic groups in India: Language extinction
Cultural Geography	i Religion: Major religious groups in World and India
Cultural Geography	iii Cultural applaces, falls sulture and rituals with special references to West
	m. Cultural ecology, lock culture and rituals with special reference to west
	Bengal.
	iv. Concept of Globalization and cultural change.
Suggestive Readings:	1. Ahmad, A. (1999). Social Geography. Rawat Publications.
	Geography. London: Sage.
	3. Duncan, J. S., & Ley, D. (1993). Place/Culture/Representation. London: Routledge.
	4. Jackson, P. (1989). Maps of Meaning: An Introduction to Cultural Geography. London:
	Koutledge. 5 Johnston R. J. Gregory D. Pratt G. & Watts M. (2000). The Dictionary of Human
	Geography (4th ed.). Blackwell.
	6. Knox, P., & Marston, S. (2016). Places and Regions in Global Context: Human
	Geography (6th ed.). Pearson.
	 Kuper, A. (1999). Culture: The Anthropologists Account. Harvard University Press. 8 Majid Husain (2012). Human Geography. Rawat Publications
	9. Mitchell, D. (2000). Cultural Geography: A Critical Introduction. Oxford: Blackwell.
	10. Price, M. (1995). The Cultural Geography Reader. Routledge.
	11. Raza, M., & Agarwal, Y. (1999). Cultural Geography of India. New Delhi: National
	12. Smith, D. M. (1977). Human geography: A welfare approach. Edward Arnold.
	13. Sopher, D. E. (1980). An Exploration of India: Geographical Perspectives on Society and
	Culture. Longman.
Method of Assessment,	Semester End Examination: 30 Marks
Measurement, &	From duration 2 Hours
Evaluation:	EXAMPLUTATION: 2 HOURS
	questions (2 questions from each module): 6 MCO types questions
	questions (2 questions from each module), 0 well types questions
	Internal Assessment: 25 Marks
	internal Assessment, 2.3 Wiarks

Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5	
marks; Class Attendance 5 marks and Classroom Activities 5 marks.	

Title of the Course:	SOCIAL AND CULTURAL GEOGRAPHY (PRACTICAL)
Discipline Specific	GEO-DC-MJ-501B
Major Paper Code:	
	Semester = V (PRACTICAL)
	Credit = 01
Objectives of the Course:	 i. To introduce key social indices used in human geography for evaluating development, equity, and well-being. ii. To develop analytical skills for interpreting and applying statistical measures. iii. To enable spatial visualization of socio-cultural characteristics using cartographic and thematic mapping techniques. iv. To train students in survey design and data collection techniques for assessing socio-economic conditions in real-world contexts. v. To promote critical thinking on spatial inequalities and social diversity across urban and rural settings in India.
Learning Outcomes of the Course	 By the end of this course, students will be able to: i. Identify and explain various social indices and their significance in human geography and development studies. ii. Calculate and interpret key social indicators using real or simulated data. iii. Design and execute basic socio-economic surveys using structured questionnaires in field-based or classroom settings. iv. Produce thematic and cartogram maps using socio-cultural data (e.g., language, caste, religion) for different regions of India. v. Critically analyze spatial patterns of inequality, segregation, and access to resources using both quantitative indices and maps. vi. Communicate findings effectively through reports, presentations, and visual tools combining statistical and spatial data.
	Course Content
Module-1: Social Indices	 i. Human Poverty Index (HPI) ii. Gender Parity Index (GPI) iii. Social Affinity Index (SAI) iv. Social Segregation Indices: Dissimilarity Index (DI) & Isolation Index (II).
Module-2: Spatial	i. Preparation of cartogram (Bar diagram and Proportional Divided Circle)
representation of Socio- cultural aspects	and thematic Map (Choropleth) of India using socio-cultural data (caste, religion and language).
Module-3: Framing of	i. Preparation of a questionnaire and Schedule regarding socio-economic
questionnaire &	status and access to basic amenities and services in rural or urban areas.
Schedule Suggestive Deadings	1. Concus of India (2011) Primary Concus Abstracts
Suggestive Keadings:	 Census of India. (2011). Primary Census Aostracts. Husain, M. (2008). Human Geography. Rawat Publications. Massey, D. S., & Denton, N. A. (1988). The dimensions of residential segregation. Social forces, 67(2), 281-315. Mitchell, D. (2000). Cultural Geography: A Critical Introduction. Blackwell Publishers. NFHS-5 (2021). India National Family Health Survey Reports. Sarkar A (2015) Practical geography: A systematic approach, Orient Black Swan Private Ltd., New Delhi. Singh, R.L. and Singh, R.P.B. (2008): Elements of Practical Geography, Kalyani Publishers.

	 Sopher, D. E. (1980). An Exploration of India: Geographical Perspectives on Society and Culture. Longman. UNDP (2023). Human Development Reports – Technical Notes and Indices. World Economic Forum. (2023). Global Gender Gap Report.
Method of Assessment,	20 Marks
Measurement, &	Mode: Laboratory-based Examination
Evaluation:	Exam duration: 2 Hours
	Question Pattern: Students shall perform <i>One</i> Practical carrying 7 marks; <i>One</i>
	Practical carrying 5 marks; and <i>One</i> practical carrying 4 marks. 4 marks for
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by the
	performance in a viva-voce

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -502 for UG Program

Paper: Fundamentals of Surveying and Mapping (GEO-DC-MJ-502)

Title of the Course:	FUNDAMENTALS OF SURVEYING AND MAPPING (THEORY)
Discipline Specific	GEO-DC-MJ-502A
Major Paper Code:	
	Semester = V (THEORY)
	Credits = 03
Objectives of the Course	i. To equip students with knowledge and skills in thematic cartography.
	ii. To develop understanding of mathematical map projections.
	111. To impart practical knowledge of compass and plane table surveying.
Learning Outcomes of	IV. To train students in field surveying techniques.
the Course	i Construct and interpret thematic maps using appropriate cartographic techniques
the Course	ii. Demonstrate proficiency in constructing and understanding mathematical map
	projections.
	iii. Conduct traverse surveys and apply surveying methods.
	iv. Execute levelling and contouring operations in the field.
M 1 1 1	<u>Course Content</u>
Module-1:	1) Surveying: definition, classification, and applications; Principles: plane and
Principles and	geodetic surveying, Bearing and triangulation.
techniques of	ii) Techniques of surveying by Plane table, Prismatic compass, theodolite.
surveying	iii)Concept and importance of topographic survey.
Module-2: Principles	i) Levelling: Concept, principles, types, procedure, and applications;
and techniques of	techniques of levelling by Dumpy level, Abney level, and Clinometer.
Levelling and	ii) Concept of contours and their topographic representation; methods and
contouring	techniques of contouring.
Module-3:	i) Cartography: Nature, scope and development, elements and applications.
Fundamentals of	ii) Map: Concept, components, classification, Importance and uses.
Mapping	iii)Thematic Mapping: Concept, Significance, types and applications in spatial
Module-4: Geodetic	i) Coordinate systems: Polar, Grid, rectangular and Geographic Coordinate
framework and man	system
nroigetion	ii) Shape of earth: Spheroid, Ellipsoid, Geoid and Datum (Everest and WGS-
projection	84)

	iii) Map projection: Concept, Classification, properties and uses; Concept and
	significance of UTM projection.
Suggestive Readings:	1. Anson R, Ormelling FJ (1994) Basic Cartography. Pregmen Press.
	2. Basak, N.N. (2017): Surveying & Levelling, 2ed., McGraw Hill Education (India).
	3. Iliffe, J., & Lott, R. (2008). Datums and map projections for remote sensing, GIS and
	surveying (2nd ed.). Whittles Publishing.
	4. Kanetkar, T.P. (2006): Surveying & Levelling Vol – I, Pune Vidyarthi Griha Prakashan
	5. Mishra RP, Ramesh A (1989): Fundamentals of Cartography, New Delhi.
	6. Robinson A. H. (2009): Elements of Cartography, John Wiley and Sons, New York.
	7. Sarkar A (2015): Practical geography: A systematic approach, Orient Black Swan Private
	Ltd., New Delhi.
	8. Singh, Gopal (2008): Map work and Practical Geography, Vikas Publishing House Pvt. Ltd.:
	New Delhi.
	9. Singh, R.L. and Singh, R.P.B. (2008): Elements of Practical Geography, Kalyani Publishers.
	10. Wolf, P. R., & Ghilani, C. D. (2012): <i>Elementary surveying: An introduction to geomatics</i>
	(13th ed.). Pearson.
Method of Assessment,	Semester End Examination: 30 Marks
Measurement, &	Mode: Written Examination
Evaluation:	Exam duration: 2 Hours
	Question Pattern: Students shall answer 4 questions carrying 6 marks out of 8 given
	questions (2 questions from each module); 6 MCQ types questions carrying 1 mark.
	Ouestionscarrying 6 marks will have at least two parts.
	Internal Assessment: 25 Marks
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
	marks: Class Attendance 5 marks and Classroom Activities 5 marks
	marks, class Attendance 5 marks and classioon Activities 5 marks.

Title of the Course:	FUNDAMENTALS OF SURVEYING AND MAPPING
	(PRACTICAL)
Discipline Specific Major	GEO-DC-MJ-502B
Paper Code:	
	Semester = V (PRACTICAL)
	Credit = 01
Objectives of the Course	i. To equip students with knowledge and skills in thematic cartography.
	11. To develop understanding of mathematical map projections.
	111. To provide hands-on experience in compass, plane table, dumpy level, and
Learning Outcomes of the	Upon successful completion of the course, students will be able to:
Course	i Construct and interpret thematic maps using appropriate cartographic
Course	techniques.
	ii. Demonstrate proficiency in constructing and understanding mathematical map
	projections.
	iii. Conduct traverse surveys and apply surveying methods.
	iv. Execute levelling and height measurement using dumpy levels and
	theodolites.
	<u>Course Content</u>
Module-1:	i) Conversion of Bearing (Between Whole Circle Bearing and
Bearing conversion and	Quadrantile/Reduced Bearing).
Prismatic Compass	ii) Traverse survey using Prismatic Compass (closed traverse) and Plane
	table (Intersection method).
Module-2:	i) Levelling by Dumpy Level and plotting of profile (Collimation and
	Rise & Fall method);

Dumpy Level and	ii) Determination of Height of objects using Transit Theodolite (Base
Theodolite	Accessible and base Inaccessible with same vertical plane) (Using
	stadia method and One degree method).
Module-3:	i) Thematic Mapping (On state/district/sub-district level Map of
Cartographic Techniques	India) using choropleth technique
and Map Projections	ii) Construction of Projections (Mathematical): Polar Zenithal
	stereographic projection, Polyconic projection and Mercator's
	Projection.
Suggestive Readings:	 Agor, R. (2015): A textbook of surveying and levelling (2nd ed.). Khanna Publishers. Anson R, Ormelling FJ (1994) Basic Cartographic. Pregmen Press. Basak, N.N. (2017): Surveying & Levelling, 2ed., McGraw Hill Education (India). Kanetkar, T.P. (2006): Surveying & Levelling Vol – I, Pune Vidyarthi Griha Prakashan Mishra RP, Ramesh A (1989) Fundamentals of Cartography, New Delhi. Robinson A. H. (2009): Elements of Cartography, John Wiley and Sons, New York. Sarkar A (2015) Practical geography: A systematic approach, Orient Black Swan Private Ltd., New Delhi. Singh, R.L. and Singh, R.P.B. (2008): Elements of Practical Geography, Kalyani Publishers. Wolf, P. R., & Ghilani, C. D. (2012): Elementary surveying: An introduction to geomatics (13th ed.). Pearson.
Method of Assessment,	20 Marks
Measurement, & Evaluation:	Mode: Laboratory-based Examination
	Exam duration: 2 Hours
	Question Pattern: Students shall perform <i>One</i> Practical carrying / marks; <i>One</i>
	Practical carrying 5 marks; and One practical carrying 4 marks. 4 marks for
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed
	by the performance in a viva-voce

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -503 for UG Program

Paper: Quantitative Techniques in Geography (GEO-DC-MJ-503)

Title of the Course:	QUANTITATIVE TECHNIQUES IN GEOGRAPHY (THEORY)
Discipline Specific	GEO-DC-MJ-503A
Major Paper Code:	
	Semester = V (THEORY)
	Credits = 03
Objectives of the Course:	i. To introduce students to fundamental statistical techniques used in geographical data analysis.
	ii. To develop proficiency in calculating and interpreting descriptive statistics for spatial data.
	iii. To build competence in analysing relationships between geographical variables through correlation and regression.
	iv. To enhance students' ability to identify temporal patterns using time series analysis methods.
	v. To familiarize students with basic probability concepts for spatial analysis and decision-making.
	vi. To develop practical skills in applying statistical methods to solve geographical problems.
Learning Outcomes of	Upon successful completion of this course, students will be able to:
the Course	i. Calculate and appropriately apply measures of central tendency and dispersion to analyze geographical data.
	ii. Create and interpret statistical graphs and plots to visualize spatial patterns.

	iii. Determine and evaluate relationships between geographical variables using
	correlation and regression techniques.
	iv. Analyze temporal trends in geographical data using time series analysis methods.
	v. Apply basic probability concepts to assess geographical phenomena and risks.
	vi. Make evidence-based interpretations of geographical data using appropriate
	statistical tools.
	vii. Demonstrate practical competence in using statistical methods for geographical research questions.
	<u>Course Content</u>
Module-1:	i. Importance and significance of quantitative techniques in geographical
Basics of Ouantitative	studies; concepts of data, parameter, constant, variable, population and
Techniques in	sample.
Coography	ii. Types of geographical data: discrete & continuous, spatial & non-spatial,
Geography	cross-sectional & time-series; Sources of data: primary and secondary.
	iii. Scales of measurement: nominal, ordinal, interval, ratio.
	iv. Data organization: tabulation, frequency distribution, cross-tabulation.
Module-2:	i. Measures of central tendency and partition value: concept, merits, demerits
Descriptive Statistics:	and uses.
Central Tendency and	ii. Measures of dispersion: concept, merits, demerits and uses.
Dispersion	
Module-3: Correlation.	i. Correlation: Product moment (Pearson's) and rank correlation (Spearman).
Regression and Time	ii. Linear regression: concept. regression equation. interpretation of
Sovios Analysis	coefficients and standard error of estimate.
Series Analysis	iii. Time series analysis: concept, methods and applications.
Module-4: Basics of	i. Introduction to Probability: Basic terms: experiment, outcome, event, sample
Probability	space; Simple event operations: union, intersection, complement.
	ii. Basic Rules of Probability: Addition, Multiplication, Conditional
	Probability.
Suggestive Readings:	1. Bhagabati, D. K., & Pillai, R. S. N. (2022). Practical Statistics. S. Chand Publishing.
	2. Burt, J. E., Barber, G. M., & Rigby, D. L. (2009). Elementary Statistics for Geographers (3rd ed.). Guilford Press
	3. Clark, W. A. V., & Hosking, P. L. (1986). Statistical Methods for Geographers. Wiley.
	4. Das, N. J. (2015). Statistical Method. Eastern Economy Edition.
	5. Ebdon, D. (1985). Statistics in Geography: A Practical Approach (2nd ed.). Blackwell.
	6. Gupta, S. C. (2021). Fundamentals of Statistics. Himalaya Publishing House. 7. Gupta, S. C. & Kappor, V. K. (2020). Fundamentals of Mathematical Statistics (12th ad.)
	7. Sultan Chand & Sons.
	8. Gupta, S. P. (2020). Statistical Methods (45th ed.). Sultan Chand & Sons.
	9. Hammond, R., & McCullagh, P. (1978). Quantitative Techniques in Geography: An
	Introduction (2nd ed.). Oxford University Press.
	10. John E. Freund (2010). Mathematical Statistics with Applications (7th ed.). Pearson.
	Age International.
	12. Kothari, C. R. (2009). Quantitative Techniques. Vikas Publishing House.
	13. Mahmood, A. (1998). Statistical Methods in Geographical Studies. Rajesh Publications.
	14. McGrew, J. C., & Monroe, C. B. (2009). An Introduction to Statistical Problem Solving in
	Geography (2nd ed.). Waveland Press. 15 Rogerson P. A. (2020). Statistical Methods for Geography: A Student's Guide (5th ed.).
	SAGE Publications.
	16. Sarkar, A. (2013). Quantitative Geography: Techniques and Presentations. Orient BlackSwan.
	17. Shaw, G., & Wheeler, D. (1994). Statistical Techniques in Geographical Analysis (2nd
	ed.). David Fulton Publishers.
	10. Sincidon Ross (2014). A First Course in Flobability (2011 cu.). Fearson. 19. William Feller (1968) An Introduction to Probability Theory and Its Applications, Vol. 1
	(3rd ed.). Wiley.

Method of Assessment,	Semester End Examination: 30 Marks
Measurement, &	Mode: Written Examination
Evaluation:	Exam duration: 2 Hours
	Question Pattern: Students shall answer 4 questions carrying 6 marks out of 8 given
	questions (2 questions from each module); 6 MCQ types questions carrying 1 mark.
	Questionscarrying 6 marks will have at least two parts.
	Internal Assessment: 25 Marks
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
	marks; Class Attendance 5 marks and Classroom Activities 5 marks.

Title of the Course:	QUANTITATIVE TECHNIQUES IN GEOGRAPHY (PRACTICAL)
Discipline Specific	GEO-DC-MJ-503B
Major Paper Code:	
	Semester = V (PRACTICAL)
	Credit = 01
Objectives of the Course	 i. To build hands-on skills in applying statistical techniques to geographical data. ii. To train students in computing descriptive statistics using real spatial datasets. iii. To develop competence in analysing spatial relationships through correlation and regression. iv. To guide students in constructing and interpreting time series for detecting geographical trends. v. To enhance graphical representation of spatial data using charts and diagrams. vi. To apply basic probability concepts in solving geography-related problems. vii. To prepare students for conducting quantitative geographical research.
Learning Outcomes of	Upon successful completion of this course, students will be able to:
the Course	 i. Understand and apply fundamental statistical concepts relevant to geographical data analysis. ii. Compute and interpret measures of central tendency and dispersion in spatial datasets. iii. Analyze relationships between geographical variables using correlation and regression techniques. iv. Identify and interpret temporal patterns in geographical data through time series analysis. v. Apply basic probability principles to assess geographical events and uncertainties. vi. Use statistical tools and graphical methods to visualize spatial data and trends. vii. Formulate and investigate geographical research questions using appropriate statistical techniques. viii. Interpret statistical results critically within the context of geographical theories and real-world applications.
	<u>Course Content</u>
Module-1: Descriptive Statistics: Central Tendency and Dispersion	 Measures of central tendency: mean (arithmetic mean), median, mode (Calculation and Graphical Plotting). Measures of dispersion: Quartile deviation, mean deviation, standard deviation and Coefficient of variation.
Module-2:	i) Correlation: Product moment correlation (Pearson's)
Correlation,	ii) Linear regression: Linear Regression Equation of Y on X.
Regression and Time Series Analysis	iii) Time series analysis: Semi-average and moving average method.
Module-3: Basics of	i) Event Operations: Union, intersection, and complement of events using
Probability	Venn diagrams.

ii) Probability Calculation: Addition Rule for mutually exclusive and non-
exclusive events, Multiplication Rule for independent and dependent
events, Conditional Probability.
1. Bhagabati, D. K., & Pillai, R. S. N. (2022). Practical Statistics. S. Chand Publishing.
2. Burt, J. E., Barber, G. M., & Rigby, D. L. (2009). Elementary Statistics for Geographers
(3rd ed.). Guilford Press.
3. Clark, W. A. V., & Hosking, P. L. (1986). Statistical Methods for Geographers. Wiley.
4. Das, N. J. (2015). Statistical Method. Eastern Economy Edition. 5. Ebdon D. (1985). Statistics in Geography: A Practical Approach (2nd ed.). Blackwell
6 Gunta S C (2021) Fundamentals of Statistics Himalaya Publishing House
7 Gupta, S. C. & Kanoor, V.K. (2020). Fundamentals of Mathematical Statistics (12th
ed.). Sultan Chand & Sons.
8. Gupta, S. P. (2020). Statistical Methods (45th ed.). Sultan Chand & Sons.
9. Hammond, R., & McCullagh, P. (1978). Quantitative Techniques in Geography: An
Introduction (2nd ed.). Oxford University Press.
10. Kothari, C. R. (2004). Research Methodology: Methods and Techniques (2nd ed.). New
Age International.
11. Kothari, C. R. (2009). Quantitative Techniques. Vikas Publishing House.
12. Mahmood, A. (1998). Statistical Methods in Geographical Studies. Rajesh Publications.
13. McGrew, J. C., & Monroe, C. B. (2009). An introduction to Statistical Problem Solving
III Geography (2nd ed.). Waveland Press. 14 Rogerson P.A. (2020) Statistical Methods for Geography: A Student's Guide (5th ed.)
SAGE Publications.
15. Sarkar, A. (2013). Quantitative Geography: Techniques and Presentations. Orient
BlackSwan.
16. Shaw, G., & Wheeler, D. (1994). Statistical Techniques in Geographical Analysis (2nd
ed.). David Fulton Publishers.
17. Sheldon Ross (2014). A First Course in Probability (9th ed.). Pearson.
18. William Feller (1968). An introduction to Probability Theory and its Applications, vol.
20 Marks
Mode: Laboratory-based Examination
Exam duration: 2 Hours
Ouestion Pattern: Students shall perform One Practical carrying 7 marks: One
Practical carrying 5 marks; and One practical carrying 4 marks. 4 marks for
submission of the Laboratory Notebook duly signed by the Teacher(s) followed by the
performance in a viva-voce

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -504 for UG Program

Paper: Economic and Political Geography (GEO-DC-MJ-504)

Title of the Course:	ECONOMIC AND POLITICAL GEOGRAPHY (THEORY)	
Discipline Specific	GEO-DC-MJ-504A	
Major Paper Code:		
Semester - V (THEORY)		
	Credits = 03	
Objectives of the	i. To acquire knowledge of the basic concepts of Economic Geography.	
Course	ii. To understand the different types of economic activities.	
	iii. To introduce the fundamental concepts, nature, and scope of Political Geography.	
	iv. To explain key ideas related to the State, Nation, Nation-State, Enclave, Exclave,	
	Territory, and Sovereignty, and understand the emergence of new states.	
	v. To develop an understanding of geopolitics and major geopolitical theories such as	
	the Heartland and Rimland theories.	

	vi. To examine and assess contemporary geopolitical challenges, especially those linked
	to resource distribution, water-sharing conflicts, and strategic vulnerabilities in the
	Indian subcontinent.
Learning Outcomes of	1. Learner will gain comprehensive understanding of the basic concepts of Economic Geography
the Course	ii Learner will also acquire knowledge about different types of economic activities
	iii. Understand the definition, nature, and scope of Political Geography as an academic
	discipline.
	iv. Explain key concepts of State, Nation, Nation-State, Enclave, Exclave, Territory, and
	Sovereignty, and interpret the emergence of new states.
	v. Analyze the concepts of Geopolitics and critically evaluate major geopolitical theories
	vi Apply geopolitical knowledge to critically assess current issues including resource
	conflicts, and India's geostrategic challenges
	Course Content
Module-1: Basics of	i) Economic Geography: Meaning and approaches.
Economic Geography	ii) Basic concepts: Goods, services, production, exchange and consumption.
	iii)Resource: Concept, nature, classification, creating factors and conservation.
Module-2: Economic	i) Economic activities: Concept and classification.
Sectors and Theories	ii) Primary activities: Agriculture (paddy, jute & tea), forestry (lumbering),
of Industrial Location	fishing (inland and coastal of India) and mining (coal, iron ore in India).
	iii) Secondary and Tertiary activities: Manufacturing (cotton textile and iron &
	steel): transport network connectivity and accessibility transportation and
	economic development (Golden quadrilateral PMGSV Freight corridor)
	iv) Theories of industrial location: Least cost theory (Weber) & Profit
	maximisation theory (Loseh)
Madula 2.	i) Political Cooperative Definition, notice and soone
Niodule-5:	i) Political Geography: Delimition, nature and scope.
Fundamentals of	1) Basic concepts: State, Buffer state, Nation and Nation-State, Frontiers,
Political Geography	Boundaries, Enclave and exclave.
Module-4:	i) Geopolitics and geopolitical theories: Concepts of geopolitics, theory of
Geopolitics and	Heartland and Rimland.
Contemporary	ii) Contemporary geopolitical issues: Water (Indus water treaty, Kaveri water
Geopolitical Issues	dispute); Geostrategic importance and vulnerability of Siliguri Corridor.
Suggestive Readings	1. Adhikari, S. (2001). <i>Fundamentals of Political Geography</i> . Rawat Publications, Jaipur and
	New Delhi. ISBN: 9788170336944. 2 Agnew J. (1998). <i>Geopolitics: Re-visioning World Politics</i> . Routledge, London and New
	York. ISBN: 9780415171455.
	3. Alexander J. W. (1963). <i>Economic Geography</i> . Prentice-Hall Inc., Englewood Cliffs, New
	Jersey. A Bagchi Sen S and Smith H. I. (2006). Economic Geography: Past. Present and Euture
	Taylor and Francis.
	5. Chand, M., & Puri, V. K. (2015, 8th Edition). Regional Planning in India. Allied
	Publishers Pvt. Ltd., New Delhi. ISBN: 9788170235063.
	6. Coe N. M., Kelly P. F. and Yeung H. W. (2007). Economic Geography: A Contemporary Introduction. Wiley Blackwell.
	7. Combes P., Mayer T. and Thisse J. F. (2008). <i>Economic Geography: The Integration of</i>
	Regions and Nations. Princeton University Press
	8. Dikshit, R. D. (1999). <i>Political Geography: The Spatiality of Politics</i> . Tata McGraw-Hill Education New Delhi ISBN: 0780074620068
	9. Dikshit, R. D. (2004). <i>Geopolitics: A Contemporary Perspective</i> . Tata McGraw-Hill
	Education, New Delhi. ISBN: 9780070588301.
	10. Flint, C. (2006, 3rd Edition). <i>Introduction to Political Geography: Space, Place and Politics</i> . Routledge, London and New York. ISBN: 9780415321225.

	11. Husain, M. (2019). Models in Geography (4th Edition). Rawat Publications, Jaipur and
	New Delhi. ISBN: 9788131609398.
	12. Husain, M. (2021, 8th Edition). <i>Geography of India</i> . McGraw Hill Education (India), New
	Delhi. ISBN: 9789354600853.
	13. Mitra, A. (2002). Resource Studies. Sreedhar Publishers.
	14. Pandey, R. (2007). Resource Conflicts and Governance: Exploring Solutions for Resource-
	Based Conflicts in India. Academic Foundation, New Delhi. ISBN: 978817188636.
	15. Roy, P. (2005). Economic Geography- A Study of Resources. New Central Book Agency
	Ltd.
	16. Singh, R. P. B. (1987). Political Geography: A Reader. Heritage Publishers, New Delhi.
	ISBN: 978817026005.
	17. Taylor, P. (2012, 5th Edition). Political Geography: World-Economy, Nation-State and
	Locality. Routledge, London and New York. ISBN: 9781408261714.
Method of Assessment,	Semester End Examination: 30 Marks
Measurement, &	Mode: Written Examination
Evaluation:	Exam duration: 2 Hours
	Question Pattern: Students shall answer 4questions carrying 6 marks out of 8 given
	questions (2 questions from each module); 6 MCQ types questions carrying 1 mark.
	Questions carrying 6 marks will have at least two parts
	Letternel A manufactor 25 Martin
	Internal Assessment: 25 Marks
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
	marks; Class Attendance 5 marks and Classroom Activities 5 marks.

Title of the Course:	ECONOMIC AND POLITICAL GEOGRAPHY (PRACTICAL)	
Discipline Specific Major	GEO-DC-MJ-504B	
Paper Code:		
	Semester -V (PRACTICAL)	
	Credit = 01	
Objectives of the Course	 i. To develop skill to measure agricultural efficiency. ii. To introduce transport network indices for understanding regional connectivity and accessibility. iii. To introduce key indices measuring political systems, including democracy and 	
	autocracy.iv. To explain the concept and significance of the Happiness Index in assessing societal well-being.v. To develop an understanding of methods for measuring voting behaviour and political participation.	
Learning Outcomes of the Course	 i. They will also be able to measure the agriculture efficiency of different regions. ii. Analyze transport networks using topological indices for evaluating accessibility. iii. Understand the concepts and methods behind the Democracy Index and Autocracy Index. iv. Explain the significance and interpretation of the Happiness Index in global and national contexts. v. Analyze voting behaviour patterns and methods of measuring political participation 	
	Course Content	
Module-1: Measures of Agricultural efficiency and concentration	 i) Kendall's Ranking Co-efficient. ii) Crop Combination by Weaver. iii)Dominant and Distinctive Analysis. 	
Module-2: Measures of Transport network connectivity and accessibility	i) Alpha, Beta and Gamma index.ii) Shimbel Index and Konig Number.	

Module-3: Measuring	i) Index of democracy.
Democracy, Governance,	ii) Index of autocracy.
and Political Bohaviour	iii) Happiness Index.
and I ontical Denaviour	iv) Measuring voting behaviour.
Suggestive Readings	1. Adhikari, S. (2001). <i>Fundamentals of Political Geography</i> . Rawat Publications, Jaipur and New Delhi. ISBN: 9788170336944.
	2. Dikshit, R. D. (1999). <i>Political Geography: The Spatiality of Politics</i> . Tata McGraw-Hill, New Delhi, ISBN: 9780074630068.
	3. Flint, C. (2006, 3rd Ed.). <i>Introduction to Political Geography: Space, Place and Politics</i> . Routledge, London and New York.
	 Husain, M. (Latest edition). <i>Geography of India</i>. McGraw Hill Education, New Delhi. ISBN: 9789354600853.
	5. Khullar, D. R. (2022). <i>India: A Comprehensive Geography</i> . Kalyani Publishers, New Delhi. ISBN: 9789327261545.
	 Mahmood, A. (2016). <i>Statistical methods in Geographical Studies</i>. Rajesh Publications. Marshall, M. G., & Gurr, T. R. (2020). Polity5: Political regime characteristics and transitions, 1800-2018. Center for Systemic Peace.
	8. Sanjay Kumar and Praveen Rai (2003). Measuring Voting Behaviour in India, New Delhi, SAGE Publications
	9. Sarkar, A. (2013). <i>Quantitative Geography: Techniques and Presentations</i> . Orient BlackSwan Publication.
	10. Singh, S. (1991). <i>Political Geography</i> . Rastogi Publications, Meerut. ISBN: 9788171330392.
	11. Unit, E. I. (2023). Democracy Index 2022: Frontline democracy and the battle for Ukraine. Economist Intelligence.
Method of Assessment,	20 Marks
Measurement. &	Mode: Laboratory-based Examination
Evaluation:	Exam duration: 2 Hours
	Question Pattern: Students shall perform One Practical carrying 7 marks; One
	Practical carrying 5 marks; and <i>one</i> practical carrying 4 marks. 4 marks for
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by
	the performance in a viva-voce

SEMESTER-VI				
Course Type	Course Code-Course Name (Credits)		Total	Monka
	Theory	Practical	Credits	IVIAI KS
	GEO-DC-MJ-601A: Regional Planning and Development (03)	GEO-DC-MJ-601B: Regional Planning and Development (01)	04	75
Discipline Specific Course/ Major Core (GEOMJ)	GEO-DC-MJ-602A: Evolution of Geographical Thought (03)	GEO-DC-MJ-602B: Evolution of Geographical Thought (01)	04	75
	GEO-DC-MJ-603A: Basics of Remote Sensing & GIS (03)	GEO-DC-MJ-603B: Basics of Remote Sensing & GIS (01)	04	75
	GEO-DC-MJ-604: Field work in Geography (04)		04	75
Disciplinary Minor Course	IDC/DC-MN-401 (04)		04	75
Total			20	375

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -601 for UG Program

Paper: Regional Planning and Development (GEO-DC-MJ-601)

Title of the Course:	REGIONAL PLANNING AND DEVELOPMENT (THEORY)
Discipline Specific	GEO-DC-MJ-601A
Major Paper Code:	
	Semester = VI (THEORY)
	Credits = 03
Objectives of the Course	i. To introduce students to the fundamental concepts, types, and delineation of
	regions used in regional planning.
	ii. To understand the significance and approaches of regional planning in the context
	of India.
	iii. To explore the concepts and indicators of regional development and disparities
	with specific reference to India.
	iv. To provide a theoretical grounding in the major models and theories of regional
	development.
	v. To assess regional development strategies and policy initiatives in India for
	achieving balanced and sustainable growth.
Learning Outcomes of the	i. Students will develop a conceptual understanding of regions, types of planning, and
Course	planning models used in India.
	ii. Learners will be able to distinguish between growth and development and evaluate
	regional disparities in India using relevant indicators.
	iii. Students will demonstrate comprehension of major regional development theories
	and apply them in geographical contexts.
	iv. Learners will be able to critically analyse India's regional planning strategies and
	the role of institutional frameworks like NITI Aayog.
	v. Students will gain insight into sustainable and inclusive regional development
	policies and practices.
Course Content	

Module-1: Introduction	i) Region: Concept, Types and delineation (Formal, functional, and
of region and regional	Planning).
planning	ii) Regional Planning: Concept, objectives and types.
	iii) Regional planning in India: Centralised and decentralised planning,
	Multilevel planning.
	iv) Classification of planning region in India: Schemes of Planning
	Commission (1969) and P. Sengupta (1980).
Module-2: Regional	i) Regional development: Concept and Indicators (Economic, social and
development and	environmental): SDG-10: Role of Planning commission (NITLAvog).
disnarities	i) Causes and consequences of regional inequality disparity and diversity in
uisparities	India
Module-3: Theories of	i) Stages of Economic Development (Rostow, 1960), Cumulative Causation
regional development	Theory (Myrdal, 1963).
	ii) Growth Pole Model (François Perroux, 1966), Core-Periphery Model
	(Friedmann, 1966).
Module-4: Regional	i) Need and measures for balanced development.
development strategies	ii) Drought Prone Area programme (DPAP) and Tribal Area Development
in India	Programme, and EAG states.
	iii) SEZs and industrial clusters.
Suggestive Readings:	1. Berry, B. J. L., & Horton, F. F. (1970). <i>Geographic perspectives on urban systems</i> .
	Prentice Hall.
	2. Bhat, L. S. (1972). <i>Regional planning in India</i> . Statistical Publishing Society.
	4. Chand, M., & Puri, V. K. (1983), <i>Regional planning in India</i> , Allied Publishers.
	5. Claval, P. (1998). <i>An introduction to regional geography</i> . Blackwell Publishers.
	6. Dickinson, R. E. (1964). <i>City and region</i> . Routledge.
	7. Friedmann, J., & Alonso, W. (Eds.). (1975). Regional policy: Readings in theory and applications MIT Press
	 B. Gore, C. G. (1984). <i>Regions in question: Space, development theory and regional policy</i>. Methuen
	9. Gore, C. G., Köhler, G., Reich, UP., & Ziesemer, T. (1996). <i>Questioning development:</i>
	<i>Essays on the theory, policies and practice of development intervention</i> . Metropolis-Verlag.
	10. Hall, P. (1992). Urban and regional planning. Routledge.
	11. Haynes, J. (2008). Development studies. Polity Press.
	 Johnson, E. A. J. (1970). The organization of space in developing countries. MIT Fless. Kulshetra, S. K. (2012). Urban and regional planning in India: A handbook for professional practitioners. Sage Publications.
	14. Kundu, A. (1992). Urban development and urban research in India. Khanna Publishers.
	15. Misra, R. P. (1992). Regional planning: Concepts, techniques, policies and case studies.
	Concept Publishing.
	<i>planning in India</i> . Vikas Publishing.
	17. Peet, R. (1999). Theories of development. The Guilford Press.
	18. UNDP. (2001–2018). <i>Human development report</i> (Various years). Oxford University
	19. World Bank. (2001–2015). World development report (Various years). Oxford University
	Press.
Method of Assessment,	Semester End Examination: 30 Marks
Measurement, &	Mode: Written Examination
Evaluation:	Exam duration: 2 Hours
	Question Pattern: Students shall answer 4 questions carrying 6 marks out of 8 given
	questions (2 questions from each module); 6 MCQ types questions
	carrying mark. Questions carrying o marks will have at least two parts.

Internal Assessment: 25 Marks
Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
marks; Class Attendance 5 marks and Classroom Activities 5 marks.

Title of the Course:	REGIONAL PLANNING AND DEVELOPMENT (PRACTICAL)
Discipline Specific	GEO-DC-MJ-601B
Major Paper Code:	
	Semester- VI (PRACTICAL)
	Credit = 01
Objectives of the Course	i. To train students in the techniques for delineating formal and functional regions using quantitative and spatial models.
	ii. To equip learners with skills to measure and interpret regional inequalities using statistical tools and indices.
Learning Outcomes of the Course	 i. Learners will be able to delineate Formal Regions Using Quantitative Techniques and Identify Functional Regions Using Spatial Interaction Models. ii. Students will able to measure and intermet regional disperities and intermet regults.
	for planning and policy
	Course Content
Module-1: Delineation of	i) Weighted Index Method
formal region	ii) Composite Z-Score Method.
Module-2: Delineation of	i) Gravity Analysis (Reilly's Law of Retail Gravitation).
functional region	ii) Breaking Point Analysis (Converse).
Module-3: Measuring	i) Lorenz Curve, Gini Coefficient.
regional disparity	ii) Shopher's Disparity Index.
	11) Coefficient of Geographical Association and Location Quotient.
Suggestive Readings	1. Converse, P. D. (1949). New laws of retail gravitation. Journal of Marketing, 14(3),
	3/9-384.
	 Manifood, A. (1998): Statistical methods in Geographical Studies Michro, P. P. (2002): Pagional Planning: Concents, Techniques, Policies and Case
	Studies Concept New Delbi
	4. Reilly, W.J. (1931): The Law of Retail Gravitation, Knickerbocker Press, New York.
	5. Rodrigue J. P. (2017): The Geography of Transport System, Routledge, New York.
	6. Sarkar, A. (2013): Quantitative Geography, Orient Black Swan
Method of Assessment,	20 Marks
Measurement, &	Mode: Laboratory-based Examination
Evaluation:	Exam duration: 2 Hours
	Question rattern: Students shall perform <i>One</i> Practical carrying / marks; <i>One</i>
	Practical carrying 5 marks; and One practical carrying 4 marks. 4 marks for
	submission of the Laboratory indebook dury signed by the reacher(s) followed by the
	performance in a viva-voce

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -602 for UG Program

Paper: Evolution of Geographical Thought (GEO-DC-MJ-602)

Title of the Course:	EVOLUTION OF GEOGRAPHICAL THOUGHT (THEORY)	
Discipline Specific	GEO-DC-MJ-602A	
Major Paper Code:		
	Semester = VI (THEORY)	
	Credits = 03	
Objectives of the Course	i) To understand the development of Geography as a discipline.	
	ii) To acquire knowledge about the contributions of School of Thought.	
	iii) To acquire knowledge about the changing methodologies and paradigms.	
	iv) To encourage critical thinking and theoretical awareness.	
Learning Outcomes of	i) Learners will gain a deeper theoretical understanding.	
the Course	ii) They will also gain enhanced critical thinking skills.	
	iii) Synthesize concepts from multiple geographical frameworks to analyze complex	
	problems	
	iv) Recognize the relevance of geographical theory to contemporary environmental	
	and social challenges.	
	Course Content	
Module-1: Basic concept	i) Geography as discipline: Definition, nature, scope and content.	
and evolution of	ii) Ancient Period: Greek, Roman and Indian geographers.	
geographical thought	iii) Medieval Period: Dark Age of Geography, Arab geographers.	
	iv) Modern Period: German, French, British and American geographers.	
Module-2: Dichotomies	i) Based on content: Physical vs. Human Geography.	
in Geography	ii) Based on approach: Determinism vs. Possibilism and Neo-Determinism.	
	iii) Based on methodology: General vs. Particular, Systematic vs. Regional	
	Geography.	
Module-3: Conceptual	i) Concept of Space, place and time in geography.	
Foundations and	ii) Quantitative Revolution in Geography.	
Paradigm Shifts in	iii) Behaviouralism, Humanistic Approach, Radicalism, Feminism.	
Geography	iv) Paradigm shifts in Geography.	
Module-4: Scientific	i) Approaches to Scientific enquiry: Inductive, Deductive, Abductive method.	
Approaches in	ii) Elements of Scientific methods: Observation, Hypotheses testing, validation,	
Geography	Theory, Model, Laws.	
	iii)Probability Theory: Concept and significance to geographical studies.	
Suggestive Readings	1. Bonnett, A. (2008). <i>What is geography?</i> Sage Publications.	
	2. Dikshit, R. D. (1997). Geographical thought: A contextual history of ideas. Prentice-Hall	
	01 India. 3 Dikshit P. D. (2006) The art and science of geography: Integrated readings. Prentice-	
	Hall of India	
	4. Hartshorne, R. (1959). Perspective on the nature of geography. Rand McNally &	
	Company.	
	5. Harvey, D. (1969). <i>Explanation in geography</i> . Edward Arnold.	
	6. Harvey, D. (1973). Social justice and the city. Edward Arnold.	
	7. Holt-Jensen, A. (2011). Geography: History and its concepts: A student's guide (4th ed.).	
	Sage Publications.	
	8. Husain, M. (2019). Models in geography (4th ed.). Rawat Publications.	

	9. Johnston, R. J. (2018). <i>Geography and geographers: Anglo-American human geography</i>	
	since 1945 (7th ed.). Routledge.	
	10. Johnston, R. J. (Ed.). (2010). <i>The dictionary of human geography</i> (5th ed.). Routledge.	
	11. Kapur, A. (2001). Indian geography: Voice of concern. Concept Publishing.	
	12. Martin, G. J. (2005). <i>All possible worlds: A history of geographical ideas</i> (4th ed.). Oxford	
	University Press.	
	13. Peet, R. (1998). Modern geographical thought. Blackwell Publishers.	
	14. Rana, L. (2013). Geographical thought: A systematic record of evolution. Concept	
	Publishing.	
Method of Assessment,	Semester End Examination: 30 Marks	
Measurement, &	Mode: Written Examination	
Evaluation:	Exam duration: 2 Hours	
	Question Pattern: Students shall answer 4 questions carrying 6 marks out of 8 given	
	questions (2 questions from each module); 6 MCQ	
	typesquestionscarrying1mark.Questionscarrying 6 marks will have at least two parts.	
	Internal Assessment: 25 Marks	
	Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5	
	marks; Class Attendance 5 marks and Classroom Activities 5 marks.	

Title of the Course:	EVOLUTION OF GEOGRAPHICAL THOUGHT (PRACTICAL)
Discipline Specific	GEO-DC-MJ-602B
Major Paper Code:	
	Semester -VI (PRACTICAL)
	Credit = 01
Objectives of the Course:	 i) To understand hypothesis testing. ii) To provide knowledge about the application of hypothesis testing in Real-World Problems. iii) To build the ability of the learners to choose and apply the appropriate test based on data type and research question. iv) To know the importance of correlation and probability in geographical studies.
Learning Outcomes of	 i) Learners will able to understand the hypothesis testing. ii) Learner will gain knowledge about the application of hypothesis testing in Real
the Course	 ii) Learner will gain knowledge about the application of hypothesis testing in Real-World Problems. iii) They will be able to choose the most appropriate hypothesis testing, based on data type and research question. iv) The students will be able to understand the use and procedure of correlation and probability.
	<u>Course Content</u>
Module-1: Correlation	i) Rank Correlation (Spearman).
& Probability	ii) Probability Distribution: Normal Distribution.
Distribution	
Module-2:	i) T- test
Parametric Test	ii) Z- test
	iii)One-way ANOVA
Module-3: Non-	i) Mann-Whitney Test
Parametric Test	ii) Chi-square Test
Suggestive Readings	 Das, N. J. (2015). Statistical Method. Eastern Economy Edition. Ebdon, D. (1985). Statistics in Geography: A Practical Approach (2nd ed.). Blackwell.

	3. Gomes, B., Jones III, J.P. (Eds) (2010): Research Methods in Geography: A Critical
	Introduction, Wiley- Blackwell.
	4. Gupta, S. C. (2021). Fundamentals of Statistics. Himalaya Publishing House.
	5. Gupta, S. C., & Kapoor, V. K. (2020). Fundamentals of Mathematical Statistics (12th ed.).
	Sultan Chand & Sons.
	6. Gupta, S. P. (2020). Statistical Methods (45th ed.). Sultan Chand & Sons.
	7. Hammond P. and McCullagh P. S. (1978): Quantitative Techniques in Geography: An
	Introduction, Oxford University Press.
	8. Khan, N. (1998): Quantitative Methods in Geographical Research, Concept Publishing
	Company, New Delhi
	9. Kothari, C. R. (2004). Research Methodology: Methods and Techniques (2nd ed.). New Age
	10 Kothari C P (2000) Quantitativa Techniques Vikas Dubliching House
	10. Koliari, C. K. (2007). Quantitative rechniques. Vikas rubinshing ribuse.
	12. Mahmood A. (1997). Statistical Methods in Geographical Studies, Concept.
	12. Infamiliood, A. (1996). Statistical Methods in Ocographical Studies. Rajesh Luoncations.
	14 Degarson D A (2020) Statistical Matheds for Geography: A Student's Guide (5th ed.)
	SAGE Publications.
	15. Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations, Orient
	BlackSwan, New Deini 16 W-lford N. (2011). Drestical Statistica for Caraman have and Farth Scientista. John Wilson &
	10. wallord, N. (2011): Practical Statistics for Geographers and Earth Scientisis, John wiley &
	Sons, New York
Method of Assessment,	20 Marks
Measurement, &	Mode: Laboratory-based Examination
Evaluation:	Exam duration: 2 Hours
	Question Pattern: Students shall perform <i>One</i> Practical carrying 7 marks; <i>One</i>
	Practical carrying 5 marks; and <i>One</i> practical carrying 4 marks. 4 marks for
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed by the
	performance in a viva-voce

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -603 for UG Program

Paper: Basics of Remote Sensing and GIS (GEO-DC-MJ-603)

Title of the Course:	BASICS OF REMOTE SENSING AND GIS (THEORY)	
Discipline Specific	GEO-DC-MJ-603A	
Major Paper Code:		
	Semester = VI (THEORY)	
	Credits= 03	
Objectives of the Course:	i. To familiarize students with GIS software interfaces and basic functionalities.	
	ii. To gain foundational knowledge of Remote Sensing (RS) and GIS tools and	
	techniques.	
	iii. To develop skills in geospatial phenomenon analysis.	
Learning Outcomes of	i. Analyse spatial data for applications in virous phenomenon.	
the Course	ii. Design geospatial workflows for disaster risk assessment and resource	
	management.	
	iii. Interpret satellite imagery and create actionable insights.	
<u>Course Content</u>		
Module-1:	i. Remote Sensing: Definition, principles, stages, applications, and	
Introduction and	limitations	
Principal of Remote	ii. Source of Energy and radiation principles: EMR, EMS and laws of	
Sensing (RS)	radiation; interactions with atmosphere and earth's surface.	

	iii. Types of RS: Based on platform, energy sources, EMS regions, and
	number of bands.
	iv. Orbit and Satellite: Different types of satellite orbits, Sun-synchronous and
	geosynchronous satellites.
Module-2: RS Data	i. Resolutions: Spatial, spectral, temporal, radiometric resolutions.
Acquisition &	ii. Types of sensors and their applications: Landsat series (TM, ETM, OLI)
Interpretation	and IRS series (Cartosat-1, 2, & 3, Resourcesat-1 & 2).
··· F ·····	iii. False Colour Composite (FCC): Concept and generation of FCC using IRS
	LISS-IV and Landsat-OLI data.
	iv. Elements of visual image interpretation: LULC Mapping principle:
	Preparation of land use/land cover (LULC) inventories from satellite
	images (IRS LISS-IV and Landsat-OLI)
Module-3. Introduction	i GIS: Concepts components Functions application and advantages
to GIS	i. One concepts, components, Functions, application and advantages.
	n. Kaster and vector data structure. Concept, principal, types, advantages,
	and limitations.
	111. Attribute data structure: Concept of DBMS, RDBMS, principles of
	preparing attribute tables.
Module-4: GIS Data	i. Data Attachment: linking spatial and non-spatial/attribute data.
Integration, Analysis, and	ii. Data manipulation: Joins, queries, calculations.
GNSS Applications	iii. GNSS: Concepts of GNSS; principles of positioning and data collection,
	Application, advantages, and limitations.
Suggestive Readings:	1. Bhatta, B. (2011). <i>Remote sensing and GIS</i> (2nd ed.). Oxford University Press.
	2. Burrough, P. A., & McDonnell, R. A. (1998). Principles of geographical information
	systems for land resource assessment (2nd ed.). Oxford University Press.
	Press.
	4. Cuff, J. D., & Mattson, M. T. (1982). <i>Thematic maps: Their design and production</i> .
	Methuen Young Books.
	5. Demers, M. N. (1997). Fundamentals of geographic information systems. Wiley.
	6. Dent, B. D., Torguson, J. S., & Holder, T. W. (2008). <i>Cartography: Thematic map design</i>
	(6th ed.). McGraw-Hill Higher Education.
	<i>information systems</i> (4th ed.) Pearson Education
	8. Jensen, J. R. (2013). <i>Remote sensing of the environment: An earth resource perspective</i>
	(2nd ed.). Pearson Education.
	9. Joseph, G. (2005). Fundamentals of remote sensing (2nd ed.). University Press (India) Pvt.
	Ltd.
	10. Laurini, R., & Thompson, D. (1992). Fundamentals of spatial information systems.
	11 Lillesand T M Kiefer R W & Chinman I W (2004) Remote sensing and image
	interpretation (5th ed.). Wiley.
	12. Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2015). Geographic
	information systems and science (4th ed.). Wiley.
	13. Nag, P., & Kudra, M. (1998). <i>Digital remote sensing</i> . Concept Publishing.
	14. Narayan, L. K. A. (1999). <i>Remote sensing and its application</i> . Universities Press (India).
	13. Sloculli, I. A., Michasler, K. B., Kessler, F. C., & Howard, H. H. (2008). <i>Thematic</i> cartography and geovisualization (3rd ed.). Prentice Hall
Method of Assessment.	Semester End Examination: 30 Marks
Measurement, &	Mode: Written Examination
Evaluation	Exam duration: 2 Hours
	Question Pattern: Students shall answer 4 questions carrying 6 marks out of 8 given

questions (2 questions from each module); 6 MCQ types questions carrying 1 mark.
Questionscarrying 6 marks will have at least two parts.
Internal Assessment: 25 Marks
Mode: Tutorial/Assignment/Term paper Preparation 10 marks and Presentation 5
marks; Class Attendance 5 marks and Classroom Activities 5 marks.

Title of the Course:	BASICS OF REMOTE SENSING AND GIS (PRACTICAL)	
Discipline Specific Major	GEO-DC-MJ-603B	
Paper Code:		
Semester = VI (PRACTICAL)		
	Credit = 01	
Objectives of the Course	i. To familiarize students with GIS software interfaces and basic functionalities.	
	ii. To enable students to import and visualize spatial data (raster and vector).	
	iii. To develop skills in thematic map preparation.	
Learning Outcomes of the	i. Students will install QGIS and identify its main components.	
Course	ii. Analyse spatial data for applications in virous phenomenon.	
	iii. Design geospatial workflows for disaster risk assessment and resource	
	management.	
	iv. Interpret satellite imagery and create actionable insights.	
<u>Course Content</u>		
Module-1: Introduction to	i. Q-GIS & Interface: Introduction to Q-GIS; Navigation through Q-GIS	
Q-GIS Software	main interface: menus, toolbars, panels, and map canvas.	
	ii. Importing and Loading Spatial Data: Download satellite image;	
	visualizing bands and understanding metadata; other raster (Geo-TIFF)	
	and vector (Shapefile) layers Import.	
	iii. Geo-referencing: Scanned maps/ images georeferencing and assigning	
	projection.	
Module-2: Data	i. Digitization: Point, line, and polygon layers creation; Edit vertexes and	
Management &	geometry topology and save edits.	
composition	ii. Attribute Joins & Field Calculations: Join external CSV/Excel tables to	
	spatial layers; Use Field Calculator for spatial and non-spatial	
	calculations.	
	iii. Preprocessing and Analysis of Raster Data: Extracting an area of	
	interest (AOI); False colour composition (FCCs) generation using	
	Landsat: adjust colour ramps, stretch types, and transparency.	
Module-3: Thematic	i. Preparation of thematic map and output generation: Choropleth, Bar,	
Cartography and Spatial	Pie map layout preparation.	
Analysis Techniques		
Suggestive Readings:	1. Bhatta, B. (2011). Remote sensing and GIS (2nd ed.). Oxford University Press.	
	2. Burrough, P. A., & McDonnell, R. A. (1998). Principles of geographical	
	information systems for land resource assessment (2nd ed.). Oxford University Press.	
	3. Campbell, J. B., & Wynne, R. H. (2011). <i>Introduction to remote sensing</i> (5th ed.).	
	Guillord Press. 4 Cuff I.D. & Mattson M.T. (1982) Thematic many: Their design and production	
	Methuen Young Books.	
	5. Demers, M. N. (1997). Fundamentals of geographic information systems. Wiley.	

	6. Dent, B. D., Torguson, J. S., & Holder, T. W. (2008). Cartography: Thematic map
	design (6th ed.). McGraw-Hill Higher Education.
	7. Heywood, I., Cornelius, S., & Carver, S. (2011). An introduction to geographical
	information systems (4th ed.). Pearson Education.
	8. Jensen, J. R. (2013). Remote sensing of the environment: An earth resource
	perspective (2nd ed.). Pearson Education.
	9. Joseph, G. (2005). Fundamentals of remote sensing (2nd ed.). University Press
	(India) Pvt. Ltd.
	10. Laurini, R., & Thompson, D. (1992). Fundamentals of spatial information systems. Academic Press.
	11. Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2004). Remote sensing and
	image interpretation (5th ed.). Wiley.
	12. Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2015).
	Geographic information systems and science (4th ed.). Wiley.
	13. Nag, P., & Kudra, M. (1998). Digital remote sensing. Concept Publishing.
	14. Narayan, L. R. A. (1999). Remote sensing and its application. Universities Press
	(India).
	15. Slocum, T. A., McMaster, R. B., Kessler, F. C., & Howard, H. H. (2008). Thematic
	cartography and geovisualization (3rd ed.). Prentice Hall.
Method of Assessment,	20 Marks
Measurement, & Evaluation:	Mode: Laboratory-based Examination
	Exam duration : 2 Hours
	Question Pattern: Students shall perform <i>One</i> Practical carrying / marks; <i>One</i>
	Practical carrying 5 marks; and <i>One</i> practical carrying 4 marks. 4 marks for
	submission of the Laboratory Notebook duly signed by the Teacher(s) followed
	by the performance in a viva-voce

Curriculum of Discipline Specific Course/ Major Core (DC-MJ) -604 for UG Program

Paper: Field Report (GEO-DC-MJ-604)	
Title of the Course:	FIELD REPORT
Discipline Specific	GEO-DC-MJ-604
Minor Paper Code:	
Semester = VI (PRACTICAL)	
	Credits = 04
Objectives of the Course:	 i. To develop practical field research competencies in geographical investigation through hands-on experience in data collection, analysis, and interpretation. ii. To familiarize students with various geographical field techniques, survey methods, and tools for collecting primary data. iii. To enhance students' ability to identify and analyze geographical phenomena and processes through direct observation and field-based inquiry. iv. To train students in the preparation of comprehensive field reports with proper documentation, analysis, and presentation of findings. v. To develop critical thinking and problem-solving skills by addressing real-world geographical issues at local and regional scales. vi. To strengthen students' understanding of the relationships between theoretical geographical concepts and their practical manifestations in the field.

Learning Outcomes of	i. Upon successful completion of this course, students will be able to:
the Course	ii. Design and execute field-based geographical research using appropriate
	methodological approaches and tools.
	iii. Collect, organize, and analyze geographical data with precision and
	methodological rigor.
	iv. Apply analytical techniques to interpret field data and derive meaningful conclusions
	v. Utilize geospatial tools (GPS, mobile applications, GIS) for field data collection
	and visualization.
	vi. Connect theoretical concepts with field observations to explain geographical
	patterns and processes.
	wass diagrams and text
	viii. Conduct ethical field research respecting local communities and environments.
	ix. Demonstrate understanding of physical and human geographical characteristics of
	the study area.
	x. Formulate practical, evidence-based recommendations to address geographical
	issues identified during fieldwork.
	Course Content
Module-1:	General Guidelines for the Prenaration of Field Report
Field Report Preparation	• The report is to be prepared for a C.D. Block / P.S. / Mouza / G.P. / Municipality
	/ Subdivision / Drainage Basin area primarily on the basis of field survey.
	• Participation of each student in the Field Work is mandatory & Certificate of
	Supervisor regarding the participation in Field Work is to be attached in the
	Report.
	• The field report will be conducted using any relevant single topic from Physical
	and Human Geography. Any specific issue could be addressed.
	• A single Field Report is to be prepared individually by each student on the
	same topic based on the fieldwork conducted within any place(s) of
	geographical importance.
	• The entire field report has to prepare in English language.
	• The department must assign a supervisor to conduct local fieldwork if any
	student is unable to participate in a field excursion to a distant location
	from the institution due to valid reasons, such as
	i. Non-affordability
	II. Exigency
	in. Physical/Mental liness/Sickness
	 Students must prepare the report based on data collected through field survey.
	under the assigned faculty member(s) of the concerned college
	 Ouestionnaire(s)/ schedule(s) are to be prepared for collection of primary data
	and one of the same as filled in during the field work, duly signed by the
	concerned teacher, be annexed with the field report.
	• The report should be prepared normally with primary data collected by field
	survey.
	• Incorporation of secondary data should not exceed 1/5th of the total report.
	• Field report is to be prepared by the student in his/her own hand writing.
	• Length of the report not to exceed 8000 words.
	• The Field Report should contain up to 12 pages for diagrams and maximum of
	8 pages for photographs.
	• Maps and diagrams may be prepared with the aid of software but must be
	original and related to the fieldwork.

• Use only geo-tagged field photographs (taken by the student during fieldwork)
in the report.
• All photographs, maps, and diagrams should be clearly captioned and referred
to in the main text.
• No part of the report should contain any photocopied or printed/typed material
(Except software generated Maps and diagrams related to the fieldwork)
Viva-voce on Field Report (20 Marks)
• Duration of viva-voce: not to exceed 10 minutes.
Structure for Field Report Preparation
1. Cover Page
Include the following details clearly:
• Title of the Field Report
• Name of the Student
Roll Number and Registration Number
• Paper Name and Code
• Semester
Name of the College and University
Name of the Supervising Teacher
Date of Submission
2. Certificate of Participation
• Attach a certificate issued by the assigned faculty supervisor, confirming your
active participation in the fieldwork.
• This certificate must be signed, dated, and printed on institutional letterhead
3. Acknowledgement
• A short note of thanks to your supervisors, field assistants, local respondents,
or institutions who supported your fieldwork efforts.
4. Table of Contents
• List all major sections and chapters, along with accurate page numbers (e.g.,
Introduction, Literature review, Methodology, Chapter titles, References, etc.).
5. Chapter Scheme
Brief background of the tonic
 Bher background of the topic Belevance and importance of the study in the geographical context
 Objectives of the Study: Clearly state 2.4 specific objectives or research
• Objectives of the study. Clearly state 2-4 specific objectives of research
Leastion and soone of the field investigation
• Location and scope of the negative sugation
• A concise outline of the report structure
• A thematic review of relevant previous studies or published work
 Identification of research gaps or limitations in existing knowledge
 Instification for conducting the current study in light of those gaps
Chanter 3: Study Area
• Detailed description of the study area:
• Administrative identity (e.g., CD Block / P.S. / Mouza / G.P. /
Municipality / Subdivision) / Drainage Basin
Geographical coordinates (latitude and longitude)
 Physical features: tonography drainage soil climate vegetation ato
Socio-economic features: nonulation settlement nattern land use
livelihood etc
Invention, etc.
 Include a location map (nand-drawn of software-generated and geo- referenced)
Chapter 4: Methodology
Chapter 4: Methodology

	• Types of data: Primary and Secondary
	• Methods of data collection: surveys, interviews, observations, photography,
	mapping, measurements etc.
	• Sampling design and sample size
	• Tools and instruments used: questionnaire GPS camera mobile apps
	surveying instruments tonographic maps satellite images etc.
	Data processing and analysis methods (quantitative, qualitative, etc.)
	• Data processing and analysis methods (quantitative, quantative, etc.)
	• Ethical considerations: e.g., informed consent from respondents,
	Chanters 5. (
	Fach of these chapters should:
	Correspond directly to one or more specific objectives
	 Be independently titled based on content (e.g. "Hydrogeomorphic
	Characteristics of the Ganga Rasin" Spatio-Temporal Analysis of Drought
	Patterns in Purulia District" Livelihood Vulnerabilities in Slum Areas in
	<i>Tallerins in Turalia District</i> , <i>Livelinood vaineraolililes in Siam Areas in</i>
	Koikala elc.)
	Data presentation: tables graphs charts mans photographs etc.
	 Data presentation: tables, graphs, charts, maps, photographs, etc. Analytical interpretation of data and findings
	Analytical interpretation of data and findings Spatial ar temporal comparison, where relevant
	• Spatial of temporal comparison, where relevant
	Integration of mini case studies of local narratives to support midings Discussion of notterna, courses, and implications linked to theoretical or
	• Discussion of patterns, causes, and implications linked to theoretical or
	Einel Chantow Summony Conclusions and Decommondations
	Comprehensive summary of the key findings from each thematic chapter
	 Synthesis of findings in relation to the objectives
	 Conclusions derived from the analysis
	 Conclusions derived from the analysis Dractical recommendations for policy planning, or development
	Identification of research limitations
	Identification of research lineations
	• Suggestions for future research directions
	/: References
	 Books, journal articles, government reports, and web sources Use consistent citation style (APA)
	• Use consistent chation style (AFA)
	• Filled-in questionnaire/schedule (signed by teacher)
	 Extra data tables, charts, mans etc.
Suggestive Deadings	 Extra data tables, charts, maps etc. 1 Bernard H B (2017) Research Methods in Anthropology: Qualitative and
Suggestive Reautings	Quantitative Approaches (6th ed.) Rowman & Littlefield
	2. Clifford, N., Cope, M., French, S., & Valentine, G. (Eds.). (2023). Key Methods in
	<i>Geography</i> (4th ed.). Sage Publications.
	3. Creswell, J. W., & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative,
	and Mixed Methods Approaches (5th ed.). Sage Publications.
	4. Dawson, C. (2009). Introduction to Research Methods: A Fractical Guide for Anyone Undertaking a Research Project (4th ed.) How To Books
	5. Flowerdew, R., & Martin, D. (2021). Methods in Human Geography: A Guide for
	Students Doing a Research Project (3rd ed.). Routledge.
	6. Goddard, W., & Melville, S. (2019). Research Methodology: An Introduction (3rd ed.).
	7 Gomez B & Jones J.P. (2020) Research Methods in Geography: A Critical
	Introduction (3rd ed.). Wiley-Blackwell.
	8. Hay, I. (2021). Qualitative Research Methods in Human Geography (5th ed.). Oxford
	University Press. Vitabia P. & Tata N. I. (2012) Conducting Passarah in Human Goography: Theory
	Methodology and Practice. Routledge.

	10. Kothari, C. R., & Garg, G. (2019). Research Methodology: Methods and Techniques
	(4th ed.). New Age International Publishers.
	11. Kumar, R. (2023). Research Methodology: A Step-by-Step Guide for Beginners (6th
	ed.). Sage Publications.
	12. Montello, D.R., & Sutton, P.C. (2020). An Introduction to Scientific Research Methods
	in Geography and Environmental Studies (3rd ed.). SAGE Publications.
	13. Scheyvens, R., & Storey, D. (Eds.). (2014). Development Fieldwork: A Practical Guide
	(2nd ed.). Sage Publications.
	14. Wheeler, J. O., & White, G. K. (2009). Fieldwork in Geography (Reprint ed.). Cengage
	Learning.
Method of Assessment,	Semester End Examination: 50 Marks
Measurement, &	30 Marks for Field Report Preparation
Evaluation	20 Marks for Viva-Voce
	Internal Assessment: 25 Marks
	Mode: Field Report Preparation 10 marks and Presentation 5 marks; Field Attendance
	5 marks and Classroom Activities (in due course of report preparation) 5 marks.

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