

**SYLLABUS
GEOGRAPHY**

**FOUR YEARS UNDER GRADUATE PROGRAMME (FYUGP)
MADHABDEV UNIVERSITY, NARAYANPUR**

FOUR YEARS UNDER GRADUATE PROGRAMME (FYUGP) STRUCTURE AS PER
UGC CREDIT FRAMEWORK OF MAY, 2024

Marks Distribution

	4 Credit Course with Practical	4 Credit Course without Practical
In-Sem	20 IE + 10 (H.A/ GD/ Seminar/ Debate etc.) = 30 Marks	20 IE + 10 (H.A/ GD/ Seminar/ Debate etc.) = 30 Marks Marks
End-Sem	52T+18P (10 Exam+5 PNB+ 2VV) = 70 Marks	70 T = 70 Marks

Abbreviations:

T (Theory), **P** (Practical), **PNB** (Practical Note Book), **IE** (Internal Examination),
VV (Viva- Voce), **GD** (Group Discussion)

Year	Semester	Course	Title of the Course	Total Credit
Year 01	1st	GGRM-101	Introduction to Physical Geography	4
		GGRN -101	Introduction to Physical Geography	4
		AEC 1		4
		VAC 1		2
		SEC 1		3
		MDC 1	Natutal Resource Management	3
	TOTAL			20
	2nd	GGRM-201	Geomorphology	4
		GGRN-201	Human Geography	4
		AEC 2		4
		VAC 2		2
		SEC 2		3
		MDC 2		3
	TOTAL			20
	Grand Total: Semester I & II= 40			
Exit 1	The students on exit shall be awarded Undergraduate Certificate (in the Field of Study/Discipline) after securing the requisite 40 Credits in Semester 1 and 2 provided they secure 4 credits in work based vocational courses offered during summer term or internship / Apprenticeship in addition to 6 credits from skill-based courses earned during 1st and 2nd Semester			
Year 02	3rd	GGRM-301	Human Geography	4
		GGRM-302	Climatology and Bio-geography	4
		GGRN-301	Geomorphology	4
		MDC 3		3
		SEC 3		4
		VAC 3		3
	TOTAL			22
	4 th	GGRM-401	Economic Geography	4
		GGRM-402	Population and Settlement Geography	4
		GGRM-403	Statistical Methods in Geography	4

		GGRM-404	Cartographic Techniques and Map Projection	4
		GGRN-401	● Climatology and Bio-geography (A) ● Fundamentals of Economic Geography (B) (Any one)	4
			Internship/Community engagement	2
	TOTAL			22
	Grand Total: Semester III & IV= 84			
Exit 2	The students on exit shall be awarded Undergraduate Diploma (in the Field of Study/Discipline) after securing the requisite 44 Credits on completion of Semester IV provided, they secure additional 4 credit in skill based vocational courses offered during First Year or Second Year summer term			
Year 03	5th	GGRM-501	Geography of India.	4
		GGRM-502	Political Geography	4
		GGRM-503	Remote Sensing and GIS	4
		GGRM-504	Oceanography and Hydrology	4
		GGRN-501	Oceanography and Hydrology	4
			Internship /Community Engagement	2
	TOTAL			22
	6th	GGRM-601	Geographical Thoughts Through Ages	4
		GGRM-602	Environmental Geography	4
		GGRM-603	Geography of North-east India and Assam	4
		GGRM-604	Regional Geography of world	4
		GGRN-601	Geography of India	4
			Research Project/Field Study	2
	TOTAL			22
	Grand Total: Semester V & VI = 128			
Exit 3	The students on exit shall be awarded Bachelor of (in the Field of Study/Discipline) Honors (3 years) after securing the requisite 128 Credits on completion of Semester 7.			
	7th	GGRM-701	Regional Planning and Development	4
		GGRM-702	Social and Cultural Geography	4
		GGRM-703	Fundamental of Disaster Management	4
		GGRN-701	Geography of North-east India and Assam	4

Year 04		GGRM-704	Research Ethics and Methodology	4
			Seminar/Presentation/ Internship/Project Report	2
		TOTAL		22
	8 th	GGRM-801	Geography of Health and Well-Being (Compulsory)	4
		GGRM-802	Geography of Rural Development (Compulsory)	4
		GGRM-803	Agricultural Geography (Compulsory)	4
		GGRN-801	● Fundamental of Disaster Management ● Geography of Tourism (Any one)	4
		GGRM-804	➤ Urban Geography ➤ Geoinformatics (Any one)	4
			Field Work (only for Honours programme)	4
			Those who opt to exit with UG Degree Honours, they have to study one paper from GGRM-804 and must complete a field work.	
			Those who opt to exit with Research Programme, they have to complete Dissertation	8
		TOTAL	24	
			Grand Total : Semester I, II, III, IV, V, VI, VII and VIII = 174	
Exit 4	The students on exit shall be awarded Bachelor of (in the Field of Study/Discipline) (Honours with Research) (4 years) after securing the requisite 174 Credits on completion of Semester 8.			

SEMESTER:I

TITLE OF THE COURSE	: INTRODUCTION TO PHYSICAL GEOGRAPHY
COURSE CODE	: GGRM-101
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End-Sem) + 30 (In-Sem)

Course Description:

Introduction to Physical Geography (GGRM-101) is a foundational course designed to introduce students to the basic concepts, nature, scope, and significance of Physical Geography as major branch of Geography. The course provides a comprehensive understanding of the Earth's physical environment and the processes that shape it. It covers the development and branches of Physical Geography and its relationship with other scientific disciplines.

The course further introduces the fundamentals of Geomorphology, including landforms, geomorphic processes, and earth movements caused by endogenetic and exogenetic forces. In Climatology, students will learn about weather and climate, atmospheric elements, and the factors influencing climatic conditions. The course also includes Oceanography and Biogeography, focusing on ocean floor configuration, biosphere, and the distribution of flora and fauna on Earth.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Physical Geography

- 1.1.Explain the meaning, nature, scope, and development of Physical Geography.
- 1.2.Identify the major branches of Physical Geography and their importance.
- 1.3.Examine the relationship of Physical Geography with other disciplines.
- 1.4.Develop a basic understanding of Earth's physical environment and processes.

CO2: Knowledge of Geomorphology

- 2.1.Define and explain the nature and scope of Geomorphology.
- 2.2.Understand the basic concepts and processes of geomorphic studies.
- 2.3.Classify and describe different orders of landforms.

2.4 Differentiate between endogenetic and exogenetic forces and their impacts on landform development.

CO3: Understanding Climatology

3.1.Explain the meaning, nature, and scope of Climatology.

3.2.Understand the significance of climatology in environmental and human studies.

3.3.Describe the elements of weather and climate.

3.4.Analyze the factors affecting weather and climatic conditions.

CO4: Knowledge of Oceanography

4.1.Define the meaning and scope of Oceanography.

4.2.Describe the major bottom configurations of the ocean floor.

4.3.Understand the importance of oceans in the Earth system.

4.4.Develop awareness about marine physical features and processes.

CO5: Understanding Biogeography

5.1.Explain the meaning, scope, and significance of Biogeography.

5.2.Understand the different approaches in Biogeography.

5.3.Describe the concept and importance of the biosphere.

5.4 Analyze the relationship between organisms and their physical environment.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: I (17 Marks)	Introduction to Physical Geography	a. Definition, Nature and scope of Physical Geography b. Development of Physical Geography c.Branches of Physical Geography c.Relationship of Physical Geography with other disciplines.	17	2	
Unit: II (18 Marks)	Geomorphology	a.Definition,Nature and Scope of Geomorphology b.Basic concepts of Geomorphology c.Landforms of Different Order d.Earth Movements-Endogenetic and Exogenetic forces.	17	2	
Unit:III	Climatology	a. Defination,meaning,Nature, Scope	15	2	

(18 Marks)		b. Significance of Climatology c. Element of Weather and Climate d. Factors affecting weather and climate			
Unit: IV (17Marks)	Oceanography and Biogeography	a. Meaning, Scope of oceanography b. Bottom configuration of Ocean floor c. Meaning, scope of Biogeography d. Significance of Biogeography e. Approaches in Biogeography f. Biosphere	17	2	
		Total	67	8	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Strahler, A., and Strahler, A. (2007). Physical geography. John Wiley & Sons.
2. Bloom, A. L., and Bloom, A. L. (1998). Geomorphology: a systematic analysis of late Cenozoic landforms (No. 551.41 B5.). Upper Saddle River: Prentice Hall.
3. Waugh, D. (2000). Geography: An integrated approach. Nelson Thornes.
4. Kale, V.S. and Gupta, A. (2001) Introduction to Geomorphology. Orient Longman, New Delhi.
5. Selby, M.J. (2005) Earth's Changing Surface: An Introduction to Geomorphology. Clarendon Press
6. Thornbury, W. (1968). Principles of Geomorphology.- John Wiley and Sons, 394p. New York.
7. Siddhartha, K. (2018): Oceanography, A brief Introduction, Kitab Mahal
8. Howard, J. Critchfield: General Climatology, 2008, Pearson
9. Lal, D.S.(2022) Climatology, Sarda Pustak Bhaban
10. C.Barry Cox, Peter D. Moore, (2000), Biogeography, John Wiley and Sons Ltd
11. Pegu, R. & Deuri, S.(2024): A Study on Geomorphology, Global Net Publication, New Delhi

TITLE OF THE COURSE	: INTRODUCTION TO PHYSICAL GEOGRAPHY
COURSE CODE	:GGRN-101
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End Sem) + 30 (In-Sem)

Course Description:

Introduction to Physical Geography (GGRN-101) is a foundational course designed to introduce students to the basic concepts, nature, scope, and significance of Physical Geography as a major branch of Geography. The course provides a comprehensive understanding of the Earth's physical environment and the processes that shape it. It covers the development and branches of Physical Geography and its relationship with other scientific disciplines.

The course further introduces the fundamentals of Geomorphology, including landforms, geomorphic processes, and earth movements caused by endogenetic and exogenetic forces. In Climatology, students will learn about weather and climate, atmospheric elements, and the factors influencing climatic conditions. The course also includes Oceanography and Biogeography, focusing on ocean floor configuration, biosphere, and the distribution of flora and fauna on Earth.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Physical Geography

- 1.1.Explain the meaning, nature, scope, and development of Physical Geography.
- 1.2.Identify the major branches of Physical Geography and their importance.
- 1.3.Examine the relationship of Physical Geography with other disciplines.
- 1.4.Develop a basic understanding of Earth's physical environment and processes.

CO2: Knowledge of Geomorphology

- 2.1.Define and explain the nature and scope of Geomorphology.
- 2.2.Understand the basic concepts and processes of geomorphic studies.
- 2.3.Classify and describe different orders of landforms.

2.4 Differentiate between endogenetic and exogenetic forces and their impacts on landform development.

CO3: Understanding Climatology

- 3.1.Explain the meaning, nature, and scope of Climatology.
- 3.2.Understand the significance of climatology in environmental and human studies.
- 3.3.Describe the elements of weather and climate.
- 3.4.Analyze the factors affecting weather and climatic conditions.

CO4: Knowledge of Oceanography

- 4.1.Define the meaning and scope of Oceanography.
- 4.2.Describe the major bottom configurations of the ocean floor.
- 4.3.Understand the importance of oceans in the Earth system.
- 4.4.Develop awareness about marine physical features and processes.

CO5: Understanding Biogeography

- 5.1.Explain the meaning, scope, and significance of Biogeography.
- 5.2.Understand the different approaches in Biogeography.
- 5.3.Describe the concept and importance of the biosphere.
- 5.4 Analyze the relationship between organisms and their physical environment.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: I (17 Marks)	Introduction to Physical Geography	a. Definition, Nature of Physical Geography b.Branches of Physical Geography c.Relationship of Physical Geography with other disciplines.	18	2	
Unit:II (18 Marks)	Geomorphology	a.Definition,Nature and Scope of Geomorphology b. Classification of landform c. Earth Movements-Endogenetic and Exogenetic forces	18	2	
Unit:III (15Marks)	Climatology	a.Element of Weather and Climate b.Factors affecting weather and climate	7	2	
Unit:IV	Oceanography	a. Bottom configuration of Ocean floor	20	2	

(20 Marks)	and Biogeography	b. Factors and distribution of temperature and salinity of ocean water c. Meaning, scope and significance of Biogeography d. World distribution of Plants and Animals. e. Soil: meaning, types, soil profile and soil forming process			
		Total	63	8	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Strahler, A., and Strahler, A. (2007). Physical geography. John Wiley & Sons.
2. Bloom, A. L., and Bloom, A. L. (1998). Geomorphology: a systematic analysis of late Cenozoic landforms (No. 551.41 B5.). Upper Saddle River: Prentice Hall.
3. Waugh, D. (2000). Geography: An integrated approach. Nelson Thornes.
4. Kale, V.S. and Gupta, A. (2001) Introduction to Geomorphology. Orient Longman, New Delhi.
5. Selby, M.J. (2005) Earth's Changing Surface: An Introduction to Geomorphology. Clarendon Press
6. Thornbury, W. (1968). Principles of Geomorphology.- John Wiley and Sons, 394 p. New York.
7. Siddhartha, K. (2018): Oceanography, A brief Introduction, Kitab Mahal
8. Howard, J. Critchfield: General Climatology, 2008, Pearson
9. Lal, D.S.(2022) Climatology, Sarda Pustak Bhaban
10. C.Barry Cox, Peter D. Moore, (2000).Biogeography, John Wiley and Sons Ltd
11. Pegu, R. & Deuri,S.(2024): A Study on Geomorphology, Global Net Publication, New Delhi

SEMESTER:II

TITLE OF THE COURSE	: GEOMORPHOLOGY
COURSE CODE	: GGRM-201
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 = 70 (End Sem) + 30 (In-Sem)

Course Description:

This course provides an in-depth understanding of the earth's physical form and structure. It explores the fundamental concepts and processes in geomorphology, focusing on both internal (endogenetic) and external (exogenetic) processes that shape the earth's surface. Students will learn to analyse various landforms and their evolution through lectures, tutorials, and practical exercises, equipping them with skills essential for careers in environmental and land-use management.

Course Objectives:

Enhance understanding of geomorphology and its fundamental concepts. Acquire knowledge about the earth's interior and its movements. Understand diverse geomorphic processes and their impact on landform development under various geo-climatic conditions. Comprehend the processes responsible for the development of diverse landforms on the earth's surface.

Course Outcomes (COs): students will be able to:

CO1: Understand key concepts and terminologies in geomorphology.

1.1: Recall definitions of geomorphological terms.

1.2: Identify different geomorphic processes.

1.3: List various landforms created by geomorphic processes.

CO2: Explain the earth's interior structure and geomorphic processes.

2.1: Describe the structure of the earth's interior.

2.2: Explain the concepts of isostasy, plate tectonics, and geosynclines.

2.3: Discuss the processes of weathering and mass wasting.

CO3: Apply geomorphic knowledge to analyse and interpret landscapes and landforms.

3.1: Use topographical maps to interpret landforms.

3.2: Perform morphometric and slope analysis on various terrains.

3.3: Analyse fluvial, karst, aeolian, glacial, and coastal landforms.

CO4: Differentiate between erosional and depositional processes.

- 4.1: Compare and contrast different types of erosional landforms.
- 4.2: Identify depositional features in various environments.
- 4.3: Assess the impact of climatic conditions on geomorphic processes.
- CO5: Integrate geomorphic principles to solve complex geomorphological problems.
- 5.1: Combine knowledge of endogenetic and exogenetic processes to explain landform evolution.
- 5.2: Create models representing different geomorphic processes.
- 5.3: Propose solutions to geomorphological issues in environmental management.
- CO6: Critically evaluate geomorphic processes and their implications on landform development.
- 6.1: Judge the effectiveness of different geomorphic theories.
- 6.2: Evaluate the role of geomorphic processes in landscape modification.
- 6.3: Appraise the implications of human activities on geomorphic processes.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: I (12 Marks)	Introduction to Geomorphology	a. History and Development of Geomorphology b. Basic concepts of Geomorphology c. Recent trends in Geomorphology	5	2	
Unit: II (15 Marks)	Earth's Interior, Endogenetic Process	a. Internal Structure of the earth b. Isostasy c. Origin of continents and oceans (Continental Drift Theory, Plate Tectonic Theory) d. Concepts of Geosyncline, Kober's Mountain Building theory e. Earthquakes and Volcanoes (Meaning, types, distribution and its impacts)	14	2	
Unit: III (10 Marks)	Exogenetic Process	a. Mass-wasting (Meaning and types) b. Cycles of erosion (Davis's and Penck's)	6	2	
Unit: IV (15 Marks)	Landform Evolution	a. Evolution of Landform (Erosion, Transportation and Deposition)- Fluvial, Aeolian, Karst, Glacial and Coastal	12	2	
Unit: V (18 Marks)	Practical	a. Profile Drawing b. Stream Ordering(Strahler's and Horton's) c. Drainage Analysis(Bifurcation Ratio, Drainage density, Basin area demarcation d. Toposheet Interpretation e. Transact Chart			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic 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. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
5. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
6. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
7. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
9. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
10. Gautam, A(2010): Bhautik Bhugol, Rastogi Publications, Meerut
11. Tikkaa, R N (1989): Bhautik Bhugol ka Swaroop, Kedarnath Ram Nath
12. Pegu, R. and Deuri, S (2024): A Study on Geomorphology, Global Net Publication, New Delhi

TITLE OF THE COURSE	: HUMAN GEOGRAPHY
COURSE CODE	: GGRN-201
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End Sem) + 30 (In-Sem)

Course Description:

Human Geography (GGRN- 201) is a foundational course that introduces students to the study of human beings and their relationship with the environment. The course focuses on the meaning, nature, scope, and contemporary relevance of Human Geography and traces its historical development as a branch of geographical studies. It also examines the relationship of Human Geography with other social sciences such as sociology, anthropology, economics, and political science. The course further discusses the major schools of thought in Human Geography, including Determinism, Possibilism, and Neo-determinism, which explain the interaction between humans and the environment from different perspectives. Special emphasis is given to the study of man-environment relationships in various geo-environmental settings such as plains, plateaus, and hills, along with the impact of human activities on the environment across different regions of the world.

In addition, the course introduces the concept of race, the basis of racial classification, and the distribution of major human races of the world. Overall, the course aims to develop a

comprehensive understanding of human-environment interactions and the spatial dimensions of human life on Earth.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Human Geography

- 1.1.Explain the meaning, nature, and scope of Human Geography.
- 1.2.Understand the historical development and contemporary relevance of Human Geography.
- 1.3.Examine the relationship between Human Geography and other social sciences.
- 1.4.Develop a conceptual understanding of human-environment interactions.

CO2: Knowledge of Schools of Human Geography

- 2.1.Define and explain the major schools of Human Geography.
- 2.2.Understand the concept of Determinism and its geographical significance.
- 2.3.Analyze the concept of Possibilism and its role in human adaptation.
- 2.4.Differentiate between Determinism, Possibilism, and Neo-determinism.

CO3: Understanding Man–Environment Relationship

- 3.1.Explain the historical perspective of man–environment relationships.
- 3.2.Analyze human-environment interactions in plains, plateaus, and hill regions.
- 3.3.Examine the impact of human activities on different geo-environmental setups.
- 3.4.Develop awareness regarding environmental modification and sustainability.

CO4: Knowledge of Human Races

- 4.1.Understand the concept and basis of racial classification.
- 4.2.Identify the major human races of the world and their characteristics.
- 4.3.Describe the geographical distribution of major human races.
- 4.4.Develop a scientific understanding of human diversity and population distribution.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (15 Marks)	Introduction to Human Geography	a. Definition, Nature and Scope. Contemporary relevance b. Development of human geography human geography and its relationship with other Social Sciences	15	2	
Unit:II (20 Marks)	Schools of Human Geography	a. Schools of human geography Determinism, Possibilism, Neo-determinism	18	2	
Unit: III (20 Marks)	Man-Environment relationships	a. Man-Environment Relationship in historical perspective b. Man-environment relationship in different geo-environmental setup; Plain (Mising), Plateau (Khasi) and Hill (Dimasa)	20	2	
Unit: IV (15 Marks)	Races	a. Introduction and basis of classification of Race b. Classification and distribution of major human races in the world	14	2	
		Total	67	8	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Johnston, R. et. al. (2008). The Dictionary of Human Geography, Blackwell Publication.
2. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
3. Hussain, Majid (2012). Human Geography. Rawat Publications, Jaipur.
4. Gregory, D. 1978. Ideology, Science and Human Geography, London, Hutchinson.
5. James, M.R. and Bacon, R.S. 1990. The Cultural Landscape: An Introduction to Human Geography, Prentice Hall.
6. Leong, G.C. and Morgan, G.C. 1992. Human and Economic Geography, Oxford University Press.
7. Fellmann, J.D., Getis, A. and Getis, J. 1999. Human Geography: Landscapes of Human Activities, WCB McGraw-Hill.
8. Jones, E. 1972. Human Geography, Chatto and Windus, London.
9. Broek, J.O.M. and Webb, J.W., 1969. A Geography of Mankind, Taylor and Francis.

SEMESTER: III

TITLE OF THE COURSE	: HUMAN GEOGRAPHY
COURSE CODE	: GGRM-301
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End-Sem) + 30 (In-Sem)

Course Description:

Human Geography (GGRM-301) is a foundational course that introduces students to the study of human beings and their relationship with the environment. The course focuses on the meaning, nature, scope, and contemporary relevance of Human Geography and traces its historical development as a branch of geographical studies. It also examines the relationship of Human Geography with other social sciences such as sociology, anthropology, economics, and political science. The course further discusses the major schools of thought in Human Geography, including Determinism, Possibilism, and Neo-determinism, which explain the interaction between humans and the environment from different perspectives. Special emphasis is given to the study of man-environment relationships in various geo-environmental settings such as plains, plateaus, and hills, along with the impact of human activities on the environment across different regions of the world.

In addition, the course introduces the concept of race, the basis of racial classification, and the distribution of major human races of the world. Overall, the course aims to develop a comprehensive understanding of human-environment interactions and the spatial dimensions of human life on Earth.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Human Geography

- 1.1.Explain the meaning, nature, and scope of Human Geography.
- 1.2.Understand the historical development and contemporary relevance of Human Geography.
- 1.3.Examine the relationship between Human Geography and other social sciences.
- 1.4.Develop a conceptual understanding of human-environment interactions.

CO2: Knowledge of Schools of Human Geography

- 2.1.Define and explain the major schools of Human Geography.
- 2.2.Understand the concept of Determinism and its geographical significance.
- 2.3.Analyze the concept of Possibilism and its role in human adaptation.

2.4.Differentiate between Determinism, Possibilism, and Neo-determinism.

CO3: Understanding Man–Environment Relationship

3.1.Explain the historical perspective of man–environment relationships.

3.2.Analyze human-environment interactions in plains, plateaus, and hill regions.

3.3.Examine the impact of human activities on different geo-environmental setups.

3.4.Develop awareness regarding environmental modification and sustainability.

CO4: Knowledge of Human Races

4.1.Understand the concept and basis of racial classification.

4.2.Identify the major human races of the world and their characteristics.

4.3.Describe the geographical distribution of major human races.

4.4.Develop a scientific understanding of human diversity and population distribution.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (15 Marks)	Introduction to Human Geography	a. Definition, Nature and Scope. Contemporary relevance b. Development of human geography human geography and its relationship with other Social Sciences	15	2	
Unit:II (20 Marks)	Schools of Human Geography	a. Schools of human geography Determinism, Possibilism, Neo determinism	18	2	
Unit: III (20 Marks)	Man-Environment relationships	a. Man-Environment Relationship in historical perspective b. Man-environment relationship in different geo-environmental setup; Plain (Mising),Plateau (Khasi) and Hill (Dimasa)	20	2	
Unit: IV (15 Marks)	Races	a. Introduction and basis of classification of Race b. Classification and distribution of major human races in the world	14	2	
		Total	67	8	

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MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

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Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

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1. Johnston, R. et. al. (2008). The Dictionary of Human Geography, Blackwell Publication.
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4. Gregory, D. 1978. Ideology, Science and Human Geography, London, Hutchinson.
5. James, M.R. and Bacon, R.S. 1990. The Cultural Landscape: An Introduction to Human Geography, Prentice Hall.
6. Leong, G.C. and Morgan, G.C. 1992. Human and Economic Geography, Oxford University Press.
7. Fellmann, J.D., Getis, A. and Getis, J. 1999. Human Geography: Landscapes of Human Activities, WCB McGraw-Hill.
8. Jones, E. 1972. Human Geography, Chatto and Windus, London.
9. Broek, J.O.M. and Webb, J.W., 1969. A Geography of Mankind, Taylor and Francis.

TITLE OF THE COURSE	: CLIMATOLOGY AND BIO-GEOGRAPHY
COURSE CODE	: GGRM-302
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

Climatology and Bio-Geography (GGRM-302) introduces students to the fundamental concepts of atmospheric processes, weather, climate, and biogeographical patterns. The course covers the structure and composition of the atmosphere, temperature distribution, pressure systems, winds, humidity, climatic classification, and weather phenomena. It also focuses on the distribution of plants and animals, soil characteristics, ecosystems, and major biomes of the world. Practical components provide hands-on training in weather map interpretation and representation of climatic data through different graphical techniques.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Atmosphere and Temperature

- 1.1.Explain the structure and composition of the atmosphere.
- 1.2.Understand the factors affecting temperature distribution.

1.3.Analyze the concepts of insolation, heat budget, and heat balance.

1.4.Describe the causes and effects of temperature inversion.

CO2: Knowledge of Atmospheric Pressure, Winds, and Climate

2.1.Explain pressure belts, planetary winds, and general circulation of the atmosphere.

2.2.Understand the concepts of jet streams, monsoons, and local winds.

2.3.Analyze atmospheric moisture processes such as evaporation, condensation, and precipitation.

2.4.Differentiate between cyclones, anticyclones, and climatic classifications of Koeppen and Thornthwaite.

CO3: Understanding Biogeography and Ecosystem

3.1..Explain the distribution of plants and animals in relation to climate.

3.2.Understand soil types, soil profiles, and soil-forming processes.

3.3.Describe the forms and functions of ecosystems and biomes.

3.4.Identify the major soil types of India and Assam.

CO4: Practical Knowledge and Climatic Data Interpretation

4.1.Interpret weather symbols and weather maps.

4.2.Prepare and analyze Climograph, Hythergraph, and Ergograph.

4.3.Represent climatic data using geographical techniques.

4.4.Prepare and interpret rainfall variability maps of Assam.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Atmospheric Temperature and Insolation	a. Atmosphere; Definition, Composition and structure b. Temperature; factors, Distribution c. Insolation, Heat budget and Heat balance, Temperature inversion	9	2	

Unit: II (25 Marks)	Atmospheric pressure and winds Atmospheric Moisture, Weather and Climate	a. Pressure belts, Planetary Winds, Pressure Gradient, General Circulation, Jet Streams, Monsoons. b. Concept of Air mass and Fronts, Cyclones and Anticyclones, Local winds c. Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation, Types, d. Atmospheric Stability and Instability e. Climatic classification: Koeppen and Thornthwaite	15	2	
Unit :III (15 Marks)	Introduction to Biogeography	a. World distribution of Plants and Animals in relation with climate. b. Soil : Meaning, types, Soil Profiles , Soil forming factors and processes, Importance of soil c. Ecosystem: Forms and functions d. Major soil types of India and Assam e. Biome: Meaning, types (Tropical rainforest, Desert and Tundra biomes)	15	2	
Unit : IV (18Marks)	Practical	A Study of weather symbols and Interpretation of weather map. B. Representation of climatic data: (a) Preparation of Climograph, Hythergraph and Ergograph and their interpretation (b) Preparation of rainfall variability map of Assam			30
		Total	39	6	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List

1. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.
3. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
6. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.
7. Gupta L S (2000): Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
8. Lal, D S (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad
9. Vatal, M (1986): Bhautik Bhugol, Central Book Depot, Allahabad
10. Singh, S (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

TITLE OF THE COURSE	: GEOMORPHOLOGY
COURSE CODE	: GGRN-301
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

This course provides an in-depth understanding of the earth's physical form and structure. It explores the fundamental concepts and processes in geomorphology, focusing on both internal (endogenetic) and external (exogenetic) processes that shape the earth's surface. Students will learn to analyse various landforms and their evolution through lectures, tutorials, and practical exercises, equipping them with skills essential for careers in environmental and land-use management.

Course Objectives:

Enhance understanding of geomorphology and its fundamental concepts. Acquire knowledge about the earth's interior and its movements. Understand diverse geomorphic processes and their impact on landform development under various geo-climatic conditions. Comprehend the processes responsible for the development of diverse landforms on the earth's surface.

Course Outcomes (COs): students will be able to:

CO1: Understand key concepts and terminologies in geomorphology.

1.1: Recall definitions of geomorphological terms.

1.2: Identify different geomorphic processes.

1.3: List various landforms created by geomorphic processes.

CO2: Explain the earth's interior structure and geomorphic processes.

2.1: Describe the structure of the earth's interior.

2.2: Explain the concepts of isostasy, plate tectonics, and geosynclines.

2.3: Discuss the processes of weathering and mass wasting.

CO3: Apply geomorphic knowledge to analyse and interpret landscapes and landforms.

3.1: Use topographical maps to interpret landforms.

3.2: Perform morphometric and slope analysis on various terrains.

3.3: Analyse fluvial, karst, aeolian, glacial, and coastal landforms.

CO4: Differentiate between erosional and depositional processes.

4.1: Compare and contrast different types of erosional landforms.

4.2: Identify depositional features in various environments.

4.3: Assess the impact of climatic conditions on geomorphic processes.

CO5: Integrate geomorphic principles to solve complex geomorphological problems.

5.1: Combine knowledge of endogenetic and exogenetic processes to explain landform evolution.

5.2: Create models representing different geomorphic processes.

5.3: Propose solutions to geomorphological issues in environmental management.

CO6: Critically evaluate geomorphic processes and their implications on landform development.

6.1: Judge the effectiveness of different geomorphic theories.

6.2: Evaluate the role of geomorphic processes in landscape modification.

6.3: Appraise the implications of human activities on geomorphic processes.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:1 (12 Marks)	Introduction to Geomorphology	a.History and Development of Geomorphology b.Basic concepts of Geomorphology c.Recent trends in Geomorphology	5	2	
Unit:II (15 Marks)	Earth's Interior, Endogenetic Process	a.Internal Structure of the earth b.Isostasy c.Origin of continents and oceans(Continental Drift Theory, Plate Tectonic Theory) d.Concepts of Geosyncline, Kober's Mountain Building theory e.Earthquakes and Volcanoes (Meaning, types,distribution and its impacts)	14	2	
Unit: III (10 Marks)	Exogenetic Process	a.Mass-wasting (Meaning and types) b.Cycles of erosion (Davis's and Penck's)	6	2	
Unit: IV (15 Marks)	Landforms Evolution	a.Evolution of Landforms (Erosion, Transportation and Deposition)- Fluvial, Aeolian, Karst, Glacial and coastal	12	2	
Unit: V (18 Marks)	Practical	a.Profile Drawing b.Stream Ordering(Strahler's and Horton's) c.Drainage Analysis(Bifurcation Ratio, Drainage density, Basin area demarcation			30

		d.Toposheet Interpretation e.Transact Chart			
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List

1. Singh. S.: Geomorphology
2. Gataum. A.: Geomorphology
3. Ahmed. E., 1985: Geomorphology, Kalyani Publisher, New Delhi
4. Steers. J. A.: Unstable Earth
5. Bhattacharyya. N. N.: Biogeography
6. Mahanta. A. P.: Biogeography
7. Mahanta. A. P.: Snatakar Jibo Bhugul
8. Lal. D. S.: Oceanography and climatology
9. Chorley, Water, Earth and Man, Methum and Co. London.
10. Leopold. L. B., Wolman. M.G., Miller. J.P., 1964: fluvial processes in geomorphology, Freeman, Sanfransisco.
11. Penck. W., 1924: Morphological Analysis of Landforms, Mc Millan, London.
12. King. CAM (1972): Oceanography of Geographers. E. Arnold, London
13. Sharma. R. C. et al. (1970): Oceanography for Geographers, Chetnya Publ.House, Allahabad.
14. Pegu, R. and Deuri, S. (2024): A Study on Geomorphology, Global Net Publication, New Delhi

SEMESTER: IV

TITLE OF THE COURSE	: ECONOMIC GEOGRAPHY
COURSE CODE	: GGRM-401
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End Sem) + 30 (In-Sem)

Course Description:

Economic Geography (GGRM-401) deals with the study of resources, economic activities, industries, transport, and trade in relation to geographical conditions. The course introduces the concepts, nature, and approaches of Economic Geography along with the role of technology and resource utilization. It also focuses on the distribution of minerals and power resources, industrial development, transport systems, and international trade relations. The course aims to develop an understanding of spatial patterns of economic activities and their significance in regional and global development.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Economic Geography

- 1.1 Explain the meaning, nature, and scope of Economic Geography.
- 1.2 Understand the different approaches to the study of Economic Geography.
- 1.3 Describe the fundamental concepts of Economic Geography.
- 1.4 Develop a basic understanding of spatial economic activities.

CO2: Knowledge of Resources

- 2.1 Explain the meaning, concept, and classification of resources.
- 2.2 Understand the resource-creating factors and their significance.
- 2.3 Analyze the role of technology in resource utilization.
- 2.4 Evaluate the causes of resource crisis and methods of resource conservation.

CO3: Understanding Minerals and Power Resources

- 3.1 Identify the major metallic and non-metallic minerals of the world.
- 3.2 Explain the production and distribution of iron, copper, limestone, and mica.
- 3.3 Understand the distribution of conventional power resources such as coal and petroleum.
- 3.4 Analyze the importance of non-conventional power resources such as nuclear and solar energy.

CO4: Knowledge of Industries

- 4.1 Explain the meaning and classification of industries.
- 4.2 Understand the factors affecting the location of industries.
- 4.3 Describe Alfred Weber's Theory of Industrial Location.
- 4.4 Identify the major industrial regions and Special Economic Zones (SEZs) of the world.

CO5: Understanding Transport and Trade

- 5.1 Explain the different modes of transport and their significance.
- 5.2 Analyze the factors influencing transport development.
- 5.3 Understand the role of transport in resource mobilization.
- 5.4 Describe the concepts, types, and factors influencing trade.
- 5.5 Examine India's trade relations with Russia and Japan.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (10 Marks)	Introduction to Economic Geography	a. Meaning, nature and scope of Economic Geography b. Approaches to study Economic Geography c. Fundamental concepts in Economic Geography	9	2	
Unit: II (15 Marks)	Introduction to Resources	a. Resource: Meaning, definition and concept of resources, resource creating factors. b. Classification of Resources c. Role of technology in resource utilization d. Resource crisis and conservation of resources	14	2	
Unit: III (15 Marks)	Minerals and Power Resources	a. Metallic Minerals: Iron and copper production and distribution in the world. b. Non-Metallic: Limestone, Mica production and distribution in the world. c. Power resources: Conventional-Coal, Petroleum production and distribution in the world. d. Non-Conventional-Nuclear and solar production and distribution in the world.	14	2	
Unit: IV (15 Marks)	Industries	a. Meaning and Classification of industries b. Factors affecting the location of Industries, Location Theory of industry	14	2	

		(Alfred Weber) c. Industrial Regions of the world d. Special Economic Zones (SEZ)			
Unit: V (15 Marks)	Transport and Trade	a. Mode of transport: Land, Water, Air, Pipe and Rope way b. Factors influencing transport development c. Role of transport in resource mobilization d. Concepts and types of trade e. Factors influencing trade f. Trade relation of India with Russia and Japan.	14	2	
		Total	65	10	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List :

1. Combes P., Mayer T and Thisse F J (2008): Economic Geography: The Intergation of Regions Nations, Princeton University Press.
2. Guha, J L and Chattoraj, P R (20002): A New Approach to Economic Geography: A Study of Resources.
3. Leong G C and Morgan G C (1982): Human and Economic Geography, Oxford University Press, New York.
4. Roy, P (2005) Economic Geography: A Study of Resources, New Central Book Agency (P) Ltd, 8/1 Chintamoni Das Lane, Kolkata.
5. Wheeler J O (1998) Economic Geography, Wiley International.
6. Willington D. E (2008) Economic Geography, Husband Press.
7. Hazarika., G. (2024): Arthanaitik Bhugol (Assamese Medium) , Saraswati Prakashan

TITLE OF THE COURSE : POPULATION AND SETTLEMENT GEOGRAPHY

COURSE CODE : GGRM- 402

NATURE OF THE COURSE : MAJOR

TOTAL CREDITS : 4 CREDITS

DISTRIBUTION OF MARKS: 52 +18= 70 (End-Sem) + 30 (In-Sem)

Course Description:

Population and Settlement Geography (GGRM-402) focuses on the study of population characteristics, growth, distribution, and settlement patterns across the world with special reference to India. The course introduces the concepts, scope, and sources of population data along with major population theories and contemporary demographic issues. It also covers rural and urban settlements, their evolution, types, hierarchy, and functional classification. The practical component emphasizes graphical and cartographic representation of population and settlement data.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Population Geography

- 1.1 Explain the meaning, nature, and scope of Population Geography.
- 1.2 Identify the major sources of population data in India such as Census, NSS, and Vital Statistics.
- 1.3 Understand the importance of population studies in geographical analysis.
- 1.4 Develop basic knowledge of demographic data interpretation.

CO2: Knowledge of Population Growth and Distribution

- 2.1 Explain the factors influencing population growth, distribution, and density.
- 2.2 Analyze the trends of population growth in India.
- 2.3 Understand the components of population growth such as fertility, mortality, and migration.
- 2.4 Describe the patterns of population distribution in the world.

CO3: Understanding Population Theories and Composition

- 3.1 Explain the Malthusian Theory and Demographic Transition Theory.
- 3.2 Analyze population composition based on age, sex, literacy, and rural-urban structure.
- 3.3 Understand contemporary population issues such as ageing, declining sex ratio, and HIV/AIDS.
- 3.4 Develop awareness regarding demographic challenges and population policies.

CO4: Knowledge of Settlement Geography

- 4.1 Explain the meaning and scope of Settlement Geography.
- 4.2 Identify different types and patterns of settlements.
- 4.3 Understand the evolution and factors affecting rural settlements.
- 4.4 Analyze urban settlements, functional classification of towns, and hierarchy of settlements.

CO5: Practical Knowledge and Data Representation

- 5.1 Prepare population growth curves, bar graphs, and composite bar graphs for Assam and India.
- 5.2 Prepare population distribution and density maps of Assam and India.
- 5.3 Construct and interpret age-sex pyramids for developed and developing countries.
- 5.4 Calculate and interpret mean centre and median centre of settlements.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (10 Marks)	Introduction to population Geography	a. Definition, Nature and scope of population geography b. Sources of Data with special reference to India (Census, NSS, Vital Statistic)	5	2	
Unit: II (12 marks)	Growth and Distribution of Population	a. Factors influencing population growth, distribution and density b. Trend of population growth in India c. Components of population growth-Fertility, mortality and migration d. Patterns of Population distribution in the world.	10	2	
Unit:III (15 Marks)	Theories of Population	a. Malthusian Theory and Demographic Transition Theory b. Population Composition and Characteristics – Age-Sex Composition; Rural and Urban Composition, Literacy. c. Contemporary Issues – Ageing of Population; Declining Sex Ratio; HIV/AIDS.	10	2	
Unit: IV (15 Marks)	Introduction to Settlement Geography	a. Meaning and scope of settlement geography b. Types and pattern of settlements c. Rural settlement- Evolution, factors and types of settlements d. Urban Settlement- evolution, functional classification of towns e. Hierarchy of settlements	12	2	
Unit: V (18 Marks)	Practical	a. Preparation of population growth curve/Bar graph/composite bar graph of Assam and India b. Preparation of population distribution and density maps of Assam and India			30

		c. Age Sex Pyramid for developed and developing countries			
		d. Mean Centre/Median centre of settlement			
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Singh, L.R.: Fundamentals of Human Geography. Sharda Pustak Bhawan, Allahabad
2. Hussain, M.: Human Geography. Rawat Publication, Jaipur
3. Singh, Y.I.: Human Geography, Global Net Publication, New Delhi
4. Negi, B.S.: Human Geography, Kedar Nath Ram Nath Publications, Meerut
5. Maurya, S.D.: Human Geography, Pravalika Publications, Allahabad
6. Chandna, R.C.: Population Geography, Kalyani Publisher, New Delhi
7. Clarke, J.I.: Population Geography, Pergamon Press, Oxford
8. Johnstone, R.J.: Dictionary of Human Geography, Basil Blackwell, Oxford
9. Hassan, M.I.: Population Geography, Rawat Publications, Jaipur
10. Daniel, P.A. & Hopkinson, M, F.: The Geography of Settlement, Oliver & Boyd, London

TITLE OF THE COURSE : STATISTICAL METHODS IN GEOGRAPHY
COURSE CODE : GGRM-403
NATURE OF THE COURSE : MAJOR
TOTAL CREDITS : 4 CREDITS
DISTRIBUTION OF MARKS: 52+18 =70 (End-Sem) + 30 (In-Sem)

Course Description

Statistical Methods in Geography (GGRM-403) introduces students to the application of statistical techniques in geographical studies. The course focuses on the collection, measurement, analysis, and interpretation of geographical data using quantitative and statistical methods. It covers measures of central tendency, dispersion, correlation, regression, sampling techniques, and inequality measures. The practical component develops skills in graphical representation, network analysis, and interpretation of statistical data in geographical research.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Statistical Methods in Geography

- 1.1 Explain the significance of statistical methods in Geography.
- 1.2 Understand the concept of geographical data matrix and sources of data.
- 1.3 Differentiate between nominal, ordinal, interval, and ratio scales of measurement.
- 1.4 Develop basic knowledge of data handling and interpretation in geographical studies.

CO2: Knowledge of Quantitative Methods

- 2.1 Calculate and interpret Mean, Median, and Mode.
- 2.2 Understand measures of dispersion such as Mean Deviation and Standard Deviation.
- 2.3 Analyze the concept and application of Coefficient of Variation (C.V.).
- 2.4 Apply quantitative methods in geographical studies and data analysis.

CO3: Understanding Correlation, Regression, and Inequality

- 3.1 Explain the concepts of correlation and regression.
- 3.2 Understand techniques of measuring correlation and regression.
- 3.3 Apply correlation and regression methods in geographical analysis.
- 3.4 Analyze geographical inequalities using statistical techniques.

CO4: Knowledge of Sampling Methods

- 4.1 Explain the concept and importance of sampling in Geography.
- 4.2 Understand different methods of sampling.

- 4.3 Apply sampling techniques in geographical research and field studies.
4.4 Develop skills in quantitative data collection and analysis.

CO5: Practical Knowledge and Statistical Representation

- 5.1 Prepare frequency curves, cumulative frequency curves, histograms, and line graphs.
5.2 Represent Mean, Median, and Mode graphically.
5.3 Analyze inequality using Lorenz Curve and Location Quotient.
5.4 Apply Network Analysis using Alpha and Beta indices.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (12 Marks)	Introduction to Statistical methods.	a. Use of Data in Geography: Geographical Data Matrix, b. Significance of Statistical Methods in Geography c. Sources of Data, Scales of measurement (Nominal, Ordinal, Interval, Ratio).	9	2	
Unit: II (15 Marks)	Quantitative methods.	a. Measures of Central Tendency—Mean, Median and Mode b. Measures of dispersion; Mean Deviation, Standard Deviation, Co-efficient of Variation (C.V) and their application in geographical studies	14	2	
Unit: III (15 Marks)	Correlation, Regression and Inequality	a. Concept of correlation and regression, techniques of measuring correlation and regression and their application in Geographical studies.	8	2	
Unit: IV (10 Marks)	Quantitative methods.	Sampling and its application in Geographical studies.	6	2	
Unit: V (18 marks)	Practical	a. Frequency curve, Cumulative Frequency curve, Line Graph, Histogram b. Graphical representation of Mean, Median and Mode c. Measures of Inequality- Lorenz curve and Location Quotient d. Network Analysis- Alpha and Beta			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Mahmood A., 1999, Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
2. Berry B.J.L. and Marble D.F. (eds): Spatial Analysis-A Reader in Geography.
3. Hammond P. and McCullagh P.S., 1978: Quantitative Techniques in Geography: An Introduction, Oxford University Press.
4. Sarkar, A., (2013) Quantitative Geography. Techniques and Presentations. Orient Black Swan Private Ltd., New Delhi.
5. Elhance, D.N., 1972: Fundamentals of Statistics, Kitab Mahal, Allahabad.
6. King L, S., 1969: Statistical Analysis in Geography, Prentice Hall.
7. Yeates M., 1974: An Introduction to Quantitative Analysis in Human Geography, McGraw Hills, New York.
8. Gregory, S., 1963: Statistical Methods and Geographers, Longman, London.

TITLE OF THE COURSE	: CARTOGRAPHIC TECHNIQUES AND MAP PROJECTION
COURSE CODE	: GGRM- 404
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End-Sem) + 30 (In-Sem)

Course Description:

Cartographic Techniques and Map Projection (GGRM-404) introduces students to the basic concepts and techniques of cartography, map design, surveying, and map projections. The course covers the history and scope of cartography, coordinate systems, scales, thematic mapping, and principles of surveying. It also focuses on different types of map projections, their construction, properties, uses, and limitations. The practical component develops skills in scale construction and preparation of various map projections used in geographical studies.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Cartography

- 1.1 Explain the meaning, scope, and historical development of cartography.
- 1.2 Understand the coordinate system of the Earth including latitude and longitude.
- 1.3 Analyze the importance of latitude and longitude in map preparation.
- 1.4 Explain the definition, classification, and conversion of scales.

CO2: Knowledge of Map Design and Construction

- 2.1 Explain the concept and types of maps.
- 2.2 Understand the principles of map design and layout.
- 2.3 Describe the concept and types of thematic mapping.
- 2.4 Prepare and interpret Choropleth and Isopleth maps.

CO3: Understanding Basics of Surveying

- 3.1 Explain the meaning, principles, and necessity of surveying in geography.
- 3.2 Understand the concepts of geodetic surveying and control systems.
- 3.3 Describe the meaning and types of plane surveying.
- 3.4 Develop basic knowledge of surveying techniques used in geographical studies.

CO4: Knowledge of Map Projection

- 4.1 Explain the concept and classification of map projections.
- 4.2 Understand the principles of constructing Zenithal, Conical, and Cylindrical projections.
- 4.3 Analyze the properties, uses, and limitations of different map projections.
- 4.4 Develop the ability to choose suitable map projections for different geographical purposes.

CO5: Practical Knowledge and Map Construction

- 5.1 Construct linear, diagonal, and comparative scales.
- 5.2 Prepare Zenithal Gnomonic and Stereographic projections in polar case.
- 5.3 Construct Conical projection with one standard parallel and Cylindrical projections.
- 5.4 Interpret the properties, uses, and limitations of different map projections through practical exercises.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (10 marks)	Introduction to Cartography	a. Meaning and scope of Cartography b. History of cartography c. Co-ordinate System of Earth; Latitude Longitude and their importance d. Scales-definition, classification and conversion of scales	7	2	
Unit:II (15 marks)	Map Design and Construction	a. Maps: Concept and types b. Map design and layout c. Thematic Mapping-concepts and type, Choropleth and Isopleth mapping	10	2	
Unit:III (10 marks)	Basic of Surveying	a. Definition, Basic principles of surveying and their necessity in geography b. Geodetic Surveying: Vertical and horizontal	8	2	

		control c. Plane Surveying: Definition,types			
Unit: IV (17 marks)	Map Projection	a. Map Projections: Concept of Map Projection, Classification of Map Projection b. Preparation of Choropleth and Isopleth map. c. Principles of constructing Zenithal Gnomonic and Stereographic (Polar Case), Conical projection with one standard parallel and Cylindrical projections (Cylindrical equal Area and Mercator's projection), properties,uses and limitations d. Choice of Map projections	12	2	
Unit: V (18 marks)	Practical	a. Construction of scales- linear, diagonal and comparative b. Construction of Zenithal Gnomonic and Stereographic (Polar Case), Conical projection with one standard parallel and Cylindrical projections (Cylindrical equal Area and Mercator's projection),mention its properties,uses and limitations			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Campbell, J.,1984: Introductory Cartography, Prentice Hall Inc.
2. Mishra, R.P. and Ramesh, A. 1995: Fundamentals of Cartography, Concept Publishing Company.
3. Monkhouse F.J. and Wilkinson, H.R. 1971: Maps and Diagrams: Their Compilation and Construction; B.I. Publications Private Ltd. New Delhi.
4. Robinson, A.H., et al: Elements of Cartography, John Wiley Sons, New York.
5. Sarkar A. 1997, Practical Geography: A Systematic Approach, Orient Longman. Ltd.Hyderabad.
6. Singh, R.L; Sing, Rana P.B.: Elements of Practical Geography, Kalyani Publishers
7. Hazarika, G. (2020): Mepankon Bignyanar Moulik Tatwa (Assmese Medium), Saraswati Prakashan, Golaghat

TITLE OF THE COURSE	: CLIMATOLOGY AND BIOGEOGRAPHY
COURSE CODE	: GGRN-401 (A)
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End-Sem) + 30 (In-Sem)

Course Description:

Climatology and Bio-Geography (GGRN-401) introduces students to the fundamental concepts of atmospheric processes, weather, climate, and biogeographical patterns. The course covers the structure and composition of the atmosphere, temperature distribution, pressure systems, winds, humidity, climatic classification, and weather phenomena. It also focuses on the distribution of plants and animals, soil characteristics, ecosystems, and major biomes of the world. Practical components provide hands-on training in weather map interpretation and representation of climatic data through different graphical techniques.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Atmosphere and Temperature

- 1.1.Explain the structure and composition of the atmosphere.
- 1.2.Understand the factors affecting temperature distribution.
- 1.3.Analyze the concepts of insolation, heat budget, and heat balance.
- 1.4.Describe the causes and effects of temperature inversion.

CO2: Knowledge of Atmospheric Pressure, Winds, and Climate

- 2.1.Explain pressure belts, planetary winds, and general circulation of the atmosphere.
- 2.2.Understand the concepts of jet streams, monsoons, and local winds.
- 2.3.Analyze atmospheric moisture processes such as evaporation, condensation, and precipitation.
- 2.4.Differentiate between cyclones, anticyclones, and climatic classifications of Koeppen and Thornthwaite.

CO3: Understanding Biogeography and Ecosystem

- 3.1..Explain the distribution of plants and animals in relation to climate.

3.2. Understand soil types, soil profiles, and soil-forming processes.

3.3. Describe the forms and functions of ecosystems and biomes.

3.4. Identify the major soil types of India and Assam.

CO4: Practical Knowledge and Climatic Data Interpretation

4.1. Interpret weather symbols and weather maps.

4.2. Prepare and analyze Climograph, Hythergraph, and Ergograph.

4.3. Represent climatic data using geographical techniques.

4.4. Prepare and interpret rainfall variability maps of Assam.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Atmospheric Temperature and Insolation	a. Atmosphere; Definition, Composition and structure b. Temperature; factors, Distribution c. Insolation, Heat budget, temperature inversion	11	3	
Unit:II (25 Marks)	Atmospheric pressure and winds, Atmospheric Moisture, Weather and Climate	a. .Pressure belts, Planetary Winds, General Circulation, Jet Streams, Monsoon. b. Concept of Airmass and Fronts, Cyclones and Anticyclones, Local winds c. Evaporation, Humidity, Condensation, Precipitation, Types, d. Atmospheric Stability and Instability e. Climatic classification: KoEppen	14	3	
Unit: III (15 Marks)	Introduction to Biogeography	a. World distribution of Plants and Animals b. Soil : Meaning, types, Soil Profiles , Soil forming factors and processes, Importance of soil c. Ecosystem: Forms and functions d. Major soil types of India and Assam	12	2	
Unit : IV (18 Marks)	Practical	a. Study of weather symbols and Interpretation of weather map. b. Representation of climatic data: (a) Preparation of Climograph, Hythergraph and Ergograph and their interpretation c. Preparation of rainfall variability map of Assam			30

		Total	37	8	30
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Where, *L*: Lectures *T*: Tutorials *P*: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List :

1. Anthes R. A., Panofsky H. A., Cahir J. J. and Rango A., 1978: The Atmosphere, Columbus.
2. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
3. Barry R. G. and Corley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.
4. Batten L. J., 1979: Fundamentals of Meteorology, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
5. Boucher K., 1975: Global Climates, Halstead Press, New York.
5. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
6. Das, P.K., 1968: The Monsoon, National Book Trust, New Delhi.
7. Hobbs, J.E., 1980: Applied Climatology, Butterworth.
8. Lal, D.S., 1998: Climatology, Sharda Pustak Bhawan, Allahabad.
9. Lockwood, J.G., 1976: World Climatology-Environmental Approach, Ed. Arnold Ltd.
10. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey
11. Menon, P. A.: Our Weather, National Book Trust
12. Miller, A.A., 1953: Climatology, Dutton.
13. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
14. Stringer, E.N., 1982: An Introduction to Climate, International Studies.
15. Thompson D. R. and Perry A. (eds.), 1997: Applied Climatology: Principles and Practice, Routledge, USA and Canada.
16. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.
17. Cox, C. B., R. Ladle, and P. D. Moore. 2016. Biogeography: An Ecological and Evolutionary Approach. John Wiley & Sons.
18. Darwin, C. 1859. The Origin of Species. P. F. Collier & Son.
19. Flannery, T. 2015. The Eternal Frontier: An Ecological History of North America and Its Peoples. Grove/Atlantic, Inc.
20. Gavin, D. G. 2012. Biogeography. Pages 77-89 in J. P. Stoltman, editor. 21st Century Geography: A Reference Handbook. SAGE Publications, Thousand Oaks, CA.
21. Jackson, S. T. 2004. Quaternary biogeography: Linking biotic responses to environmental variability across timescales. Pages 47-65 in M. V. Lomolino and L.

TITLE OF THE COURSE : FUNDAMENTALS OF ECONOMIC GEOGRAPHY
COURSE CODE : GGRN-501 (B)

NATURE OF THE COURSE : MINOR

TOTAL CREDITS : 4 CREDITS

DISTRIBUTION OF MARKS: 52+18 =70 (End-Sem) + 30 (In-Sem)

Short Course Description:

This course introduces the concepts, scope, and approaches of Economic Geography. It examines the distribution and utilization of natural resources, agricultural systems, industrial development, and their spatial patterns at global, national, and regional levels. The course also develops practical skills in analyzing geographical data, trends, and thematic maps related to resources, agriculture, and industries.

Unit 1: Introduction to Economic Geography

Course Outcomes (COs)

After completing this unit, students will be able to:

- 1.1:** Economic Geography- its nature and scope.
- 1.2:** The relationship between geographical factors and economic activities.
- 1.3:** Differentiate between various approaches to the study of Economic Geography.
- 1.4:** Analyze the role of location, environment, and resources in economic development.

Unit 2: Geography of Resources

- 2.1:** Concept, classification, and importance of resources.
- 2.2:** Identify and interpret the global distribution of major mineral resources, especially iron ore.
- 2.3:** Examine the distribution and significance of petroleum resources in the world.
- 2.4:** Evaluate the importance and development of renewable energy resources such as hydel and solar power.

Unit 3: Geography of Agriculture and Industries

- 3.1:** Determinants influencing agricultural activities.

3.2: World distribution patterns of major crops such as rice, wheat, cotton, and tea.

3.3: Von Thünen's Theory of Agricultural Location and its relevance.

3.4: Analyze the types of industries and factors affecting industrial location.

3.5: Identify and explain the major industrial regions of India.

Unit 4: Practical

4.1: Prepare and interpret trend graphs for rice, wheat, and iron & steel production.

4.2: Construct and analyze thematic maps showing the distribution of rice and wheat in India.

4.3: Map and interpret the distribution of major mineral resources such as iron ore and coal in India.

4.4: Identify and map major Hydel Power Projects in North-East India.

4.5: Develop basic skills in geographical data collection, representation, and interpretation.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Introduction to Economic Geography	a. Meaning, nature and scope of Economic Geography b. Approaches to study of Economic Geography	10	2	
Unit:II (15 Marks)	Geography of Resources	a. Resources: meaning and classification. b. Distribution of mineral resources in the world: Iron ore. c. Distribution of major power resources in the world: petroleum, and development of hydel and solar power.	12	3	
Unit: III (25 Marks)	Geography of Agriculture and Industries	a. Determinants of agriculture. b. World distribution of major crops (Rice, Wheat, Cotton, Tea). c. Von Thunen's theory of agricultural location. d. Types of Industry and factors of industrial location. e. Industrial regions of India.	14	3	
Unit : IV (18 Marks)	Practical	d. a. Trend of rice, wheat and iron and steel production in the world and India for 10 years. b. Distribution of Rice and wheat in India. c. Distribution of Mineral resources in India (Iron ore and Coal).			30

		d. Distribution of Hydel Power Projects in North-east India.			
		Total	34	8	30

Where, *L: Lectures T: Tutorials P: Practicals*

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading list:

1. Economic Geography by Alexander, J.W.
2. Geography of Resources by Nagi, B.S.
3. A New Approach to Economic Geography by Gurha, J.I. and Chattaraj, P.R.
4. Economic Geography by Hartshorn, T.A. and Alexander, J.W.
5. Economic Geography by saxena, H.M..

SEMESTER: V

TITLE OF THE COURSE	: GEOGRAPHY OF INDIA
COURSE CODE	: GGRM-501
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End-Sem) + 30 (In-Sem)

Course Description

Geography of India (GGRM-501) provides a comprehensive understanding of the physical, economic, and human geographical aspects of India. The course covers physiography, drainage, climate, soil, and vegetation along with agriculture, mineral and power resources, industries, transport, and population characteristics. It also focuses on agricultural revolutions, resource distribution, and socio-economic conditions. The field study and excursion component develops practical knowledge through observation, data collection, and report preparation on geographical issues and regional characteristics.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding the Physical Setting of India

- 1.1 Explain the physiographic divisions of India.
- 1.2 Understand the drainage system and climatic characteristics of India.
- 1.3 Analyze the distribution and types of soils and vegetation in India.
- 1.4 Develop knowledge about the relationship between physical environment and human activities.

CO2: Knowledge of Agriculture in India

- 2.1 Identify the major agricultural crops of India such as rice, wheat, cotton, jute, sugarcane, and tea.
- 2.2 Understand the significance of agricultural revolutions in India.
- 2.3 Explain the concepts of Green, White, Pink, Silver, and Blue Revolutions.
- 2.4 Analyze the role of agriculture in the Indian economy.

CO3: Understanding Resources, Industries, and Transport

- 3.1 Explain the production and spatial distribution of major minerals in India.
- 3.2 Understand the distribution and importance of conventional and non-conventional power resources.
- 3.3 Analyze the development of iron and steel, petrochemical, and cotton textile industries.
- 3.4 Describe the importance of rail, road, and air transport in India.

CO4: Knowledge of Population Geography of India

- 4.1 Explain the growth, distribution, and density of population in India.
- 4.2 Understand population composition based on age, sex, race, language, and religion.
- 4.3 Analyze the major population problems and prospects of India.
- 4.4 Develop awareness regarding demographic diversity and challenges in India.

CO5: Practical Knowledge through Excursion and Field Study

- 5.1 Conduct field visits to places of geographical importance.
- 5.2 Prepare field reports based on settlement and land use patterns.
- 5.3 Analyze socio-economic and environmental conditions of local areas.
- 5.4 Develop practical skills in field observation, data collection, and geographical interpretation.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Physical setting	a. Physiographic division, b. Drainage system. c. Climate, d. Soil e. Vegetation.	13	2	
Unit:II (15 Marks)	Agriculture	a. Major crops-Rice, Wheat, Cotton, jute, Sugarcane, Tea. b. Agricultural revolutions: Green revolution, Concepts of White revolution, Pink revolution, Silver revolution, Blue revolution.	11	2	
Unit:III (15 Marks)	Mineral, power resources, industry and transport	a. Major Minerals: Metallic (Iron and Copper) & Non- Metallic (Limestone and Mica) - Production and spatial distribution. b. Power Resources: i. Conventional-Coal, Petroleum and Hydro power. ii. Non-Conventional –Solar energy, Wind energy and atomic energy. c. Industry: Iron and steel, petrochemicals and Cotton textile d. Transport: Rail, Road and Air	16	2	
Unit: IV (10 Marks)	Population	a. Growth, Distribution and density b. Composition-Age, Sex, Race, Language and religion. c. Population problems and prospects	7	2	
Unit: V (18 Marks)	Excursion / Field study	Excursion: Visit to place of geographical importance and preparation of report; OR Field study: Visit a local area and preparation a			20

		report on settlement, land use pattern, Socio-economic condition, Environmental issues and Natural hazards.			
		Total	47	8	20

Where, *L: Lectures T: Tutorials P: Practicals*

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Singh, R.L(ed)A Regional Geography of India,1967
2. Tiwari, R.C.: Geography of India, Prayag Pushtak Bhawan
3. Khullar: India A Comprehensive Geography, Kalyani Publishers
4. Sutta, A.K.: India: Resources, Potentialities and Planning,1973
5. Barry R.G. and Corley R.J., 1998Atmosphere, Weather and Climate, Routledge, New York
6. Miller, A.A., 1953: Climatology

TITLE OF THE COURSE	: POLITICAL GEOGRAPHY
COURSE CODE	: GGRM-502
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End -Sem) + 30 (In-Sem)

Course Description:

Political Geography (GGRM- 502) deals with the study of the relationship between geography and political processes. The course introduces the concepts, nature, scope, and approaches of Political Geography along with the geographical attributes of states, nations, boundaries, and buffer zones. It also focuses on geopolitics, major geopolitical theories, international conflicts, electoral geography, and resource disputes. The practical component includes map-based studies and applications related to political and territorial organization.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Political Geography

- 1.1 Explain the concept, nature, scope, and approaches to Political Geography.
- 1.2 Understand the concept and elements of the state.
- 1.3 Analyze the geographical attributes of a state such as size, shape, and location.
- 1.4 Explain the concepts of nation, nation-state, boundaries, frontiers, and buffer zones.

CO2: Knowledge of Geopolitics and Geopolitical Theories

- 2.1 Explain the concept and evolution of geopolitics.
- 2.2 Understand the geostrategic theories of Mackinder, Spykman, and Mahan.
- 2.3 Analyze the role of geography in international conflicts.
- 2.4 Examine geopolitical issues relating to India–Pakistan, India–China, and India–Bangladesh relations.

CO3: Understanding Electoral Geography and Resource Disputes

- 3.1 Explain the concept and importance of Electoral Geography.
- 3.2 Analyze the factors influencing voting behaviour.
- 3.3 Understand the concept and significance of Gerrymandering.
- 3.4 Examine international water-sharing disputes involving India, Pakistan, and Bangladesh.

CO4: Practical Knowledge and Cartographic Representation

- 4.1 Prepare maps showing the reorganization of North East India for different periods.
- 4.2 Calculate and interpret Shape Index using the Chorley and Haggett method.
- 4.3 Prepare maps showing the territories of major Autonomous Councils of Assam.
- 4.4 Develop practical skills in political map interpretation and geographical analysis.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: I (20 Marks)	Introduction to Political Geography	a. Concept, Nature, Scope and approaches to Political Geography. b. State: Concept, elements; Geographical attributes of state: size, shape, location. c. Nation: Concept, nation building factors, nation state c. Frontier: Concept and types; Boundary Concept, functions, types, classification d. Buffer Zone	15	3	
Unit: II (15 Marks)	Geopolitics and Geopolitical Theories	a. Concept and evolution of Geopolitics b. Geostrategic Theories of Mackinder and Spykman, Mahan. c. Geography and conflict: India-Pakistan; India-China, India-Bangladesh	9	3	
Unit: III	Electoral	a. Electoral Geography: Concept and its	13	2	

(17 Marks)	Studies in Geography and Resource Disputes	importance in geography. b. Factors influencing voting behaviour c. Gerrymandering d. Water Sharing Disputes: International (India, Pakistan and Bangladesh)			
Unit: IV (18 Marks)	Practical	a. Map of reorganization of North East India (1951, 1971, 1991) b. Shape Index by Chorley and Haggett method: India (Pre-Independent and Post-Independent), Chile and France. c. Map showing the territory of the major Autonomous Councils of Assam.			30
		Total	37	8	30

Where, *L*: Lectures *T*: Tutorials *P*: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Adhikari, Sudipta: Political Geography, Rawat Publication, New Delhi.
2. Adhikari, Sudipta: Political Geography of India, Sarda Pushtak Bhawan,
3. Cox, K., 2002: Political Geography, Wiley Blackwell
4. Dikshit, R.D. (1999): Political Geography, A Contemporary Perspectives, Tata McGraw, Hill, New Delhi.
5. Hazarika, Joysankar, (1996) Geopolitics of North East India- A Strategical Study. Gyan Publishing House, New Delhi.
6. Muir, R. (1976): Modern Political Geography, MacMillan, London.
7. Taylor, Peter (1985): Political Geography.
8. Hazarika, G. (2017): Rajnoitik Bhugol (Assamese Medium), Saraswati Prakashan, Golaghat

TITLE OF THE COURSE	: REMOTE SENSING AND GIS
COURSE CODE	: GGRM-503
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	:52+18=70 (End Sem) + 30 (In-Sem)

Course Description:

Remote Sensing and GIS (GGRM-503) introduces students to the concepts, principles, and applications of Remote Sensing, Geographic Information System (GIS), and Global Positioning System (GPS). The course covers remote sensing systems, electromagnetic spectrum, image interpretation, spatial and non-spatial data, and GIS database management. It also focuses on the applications of remote sensing and GIS in land, vegetation, water resource analysis, and spatial studies. The practical component develops technical skills in image processing, geo-referencing, data analysis, satellite image interpretation, and aerial photo interpretation.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Remote Sensing

- 1.1 Explain the meaning, components, development, and types of Remote Sensing.
- 1.2 Understand the different platforms of Remote Sensing.
- 1.3 Describe the development of Indian Remote Sensing programmes.
- 1.4 Develop basic knowledge of Remote Sensing applications in geographical studies.

CO2: Knowledge of Principles of Remote Sensing System

- 2.1 Explain the concepts of energy sources and electromagnetic spectrum.
- 2.2 Understand the interaction of electromagnetic radiation with atmosphere and earth features.
- 2.3 Differentiate between aerial and satellite remote sensing.
- 2.4 Analyze the applications of Remote Sensing in land, vegetation, and water studies.

CO3: Understanding GIS and GPS

- 3.1 Explain the definition, development, and components of GIS.
- 3.2 Differentiate between spatial and non-spatial data.
- 3.3 Understand Raster and Vector data models and database management systems.
- 3.4 Explain the principles, uses, and applications of GPS and GIS.

CO4: Knowledge of Image Interpretation

- 4.1 Explain digital images and their types.
- 4.2 Understand sensor characteristics and different types of resolutions.

4.3 Identify the elements of image interpretation.

4.4 Develop the ability to interpret satellite images and remotely sensed data.

CO5: Practical Knowledge and Spatial Data Analysis

5.1 Import raster and vector data into GIS interface and perform geo-referencing.

5.2 Create and edit shape files for point, line, and polygon features.

5.3 Apply image pre-processing, enhancement, and classification techniques.

5.4 Interpret satellite images and aerial photographs for land use and land cover change analysis.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: I (10 Marks)	Introduction to Remote Sensing	a. Definition, components, development, platforms and types b. Indian Remote Sensing and its recent development.	6	2	
Unit:II (15 Marks)	Principles of Remote Sensing System	a. Energy sources, Electromagnetic Spectrum, EMR and its interaction with Atmosphere and Earth Features; Aerial and Remote Sensing b. Application of Remote Sensing: Land, Vegetation and Water	9	2	
Unit:III (15 Marks)	Introduction to GIS and GPS	a. Definition, Development, Components b. Types of data- Spatial and Non-spatial c. Raster and Vector, Database Management System d. Application of GIS e. GPS: Basic concept, principles and uses	10	2	
Unit:IV (12 Marks)	Fundamentals of Image Interpretation	a. Digital image and its types b. Sensor and Resolutions : Spectral, Spatial, Radiometric and Temporal resolution c. Elements of Image Interpretation	12	2	
Unit:V (18 Marks)	Practical	a. Import Raster and Vector data to GIS interface, Geo-Referencing; Creation of shape file; Editing on point, line and polygon b. Data Analysis: Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Un-supervised) c. Satellite Image interpretation: Spatio-temporal change: land use/land cover d. Aerial Photo Interpretation			30

		Total	37	8	30
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Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press.
2. Jensen, J.R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
3. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
4. Lillesand, T.M., Kiefer, R.W. and Chipman J.W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
5. Nag, P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
6. Rees, W.G., 2001: Physical Principles of Remote Sensing, Cambridge University Press.
7. Singh, R.B. and Murai, S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.
8. Wolf, P.R. and Dewitt, B.A., 2000: Elements of Photogrammetry: With Applications in GIS, McGraw-Hill.
9. Sarkar, A. (2015): Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
10. Chauniyal, D.D. (2010) Sudur Samvedanevam Bhogolik Suchana Pranali, Sharda Pustak Bhawan, Allahabad.

TITLE OF THE COURSE	: OCEANOGRAPHY AND HYDROLOGY
COURSE CODE	: GGRM -504
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARK	: 52+18 =70 (End -Sem) + 30 (In-Sem)

Course Description:

Oceanography and Hydrology (GGRM-504) introduces students to the fundamental concepts of water systems on Earth, including hydrological processes, river basin characteristics, and oceanographic features. The course covers the hydrological cycle, components of water balance, river discharge, floods and droughts, and integrated water management. It also focuses on ocean floor configuration, salinity, temperature, ocean currents, and marine deposits, along with theories of coral reef formation. The practical component develops skills in basin analysis, stream ordering, and hydrological curve preparation.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Hydrology

- 1.1 Explain the hydrological cycle and its components.
- 1.2 Understand the impact of human activities on the hydrological cycle.
- 1.3 Describe processes such as precipitation, evaporation, infiltration, runoff, and groundwater flow.
- 1.4 Analyze the importance of rainwater harvesting in water conservation.

CO2: Knowledge of River Basin Hydrology

- 2.1 Explain the characteristics of river basins.
- 2.2 Understand methods of measuring river discharge.
- 2.3 Analyze causes and impacts of floods and droughts.
- 2.4 Develop awareness of integrated water resource management.

CO3: Understanding Oceanography

- 3.1 Explain the meaning and significance of oceanography.
- 3.2 Describe the configuration of the ocean floor and major ocean basins.
- 3.3 Understand the distribution of salinity and temperature in ocean water.
- 3.4 Analyze ocean currents in the Atlantic, Pacific, and Indian Oceans.

CO4: Knowledge of Marine Deposits

- 4.1 Explain theories of coral reef and atoll formation.
- 4.2 Understand subsidence, non-subsidence, and glacial control theories.
- 4.3 Describe marine deposits and their significance.
- 4.4 Analyze oceans as important storehouses of natural resources.

CO5: Practical Skills in Hydrology

- 5.1 Demarcate basin areas using cartographic techniques.
- 5.2 Apply stream ordering methods such as Horton's and Strahler's.
- 5.3 Calculate bifurcation ratio and sinuosity index.
- 5.4 Prepare and interpret hypsometric and bathymetric curves.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:1 (12 marks)	Introduction to Hydrology	a. Hydrological Cycle, human Impact on hydrological cycle b. Precipitation, interception, evaporation, evapo-transpiration, infiltration, ground water, run off and over land flow. c.Rain water Harvesting	8	2	

Unit:II (12 Marks)	River Basin	a. Characteristics of river basins, basin surface run off, measurement of river discharge, floods and droughts. b. Integrated water management	6	2	
Unit : III (16 Marks)	Oceanography	a.Oceanography: Meaning and significance b. Configuration of ocean floor- continental shelf, continental slope, deep sea plain; Bottom configurations of the Atlantic, Pacific and Indian oceans. c. Salinity and temperature of ocean water. d. Ocean currents of the Atlantic, Pacific and Indian oceans.	14	2	
Unit : IV (12 Marks)	Marine Deposit	a.Marine deposits: Theories of origin of Coral reefs and Atolls- subsidence, non-subsidence and glacial control theories. b. Importance of oceans as store house of resources.	9	2	
Unit:V (18 Marks)	Practical	a. Basin Area demarcation b. stream ordering- Horton's and Strahler's c. Bifurcation Ratio. d. Sinuosity Index e. Hypsometric and Bathymetric Curve.			30
		Total	37	8	30

Where, *L*: Lectures *T*: Tutorials *P*: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic 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, 8 Ed., Macmillan Publishing Company
4. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
5. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
6. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
7. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons

9. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
10. Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut
11. Tikkaa, R N (1989): Bhautik Bhugol ka Swaroop, Kedarnath Ram Nath, Meerut
11. Singh, S (2009): Bhautik Bhugol ka Swaroop, Prayag Pustak, Allahabad

TITLE OF THE COURSE	: OCEANOGRAPHY AND HYDROLOGY
COURSE CODE	: GGRN-501
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End-Sem) + 30 (In-Sem)

Course Description:

Oceanography and Hydrology (GGRN-501) introduces students to the fundamental concepts of water systems on Earth, including hydrological processes, river basin characteristics, and oceanographic features. The course covers the hydrological cycle, components of water balance, river discharge, floods and droughts, and integrated water management. It also focuses on ocean floor configuration, salinity, temperature, ocean currents, and marine deposits, along with theories of coral reef formation. The practical component develops skills in basin analysis, stream ordering, and hydrological curve preparation.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Hydrology

- 1.1 Explain the hydrological cycle and its components.
- 1.2 Understand the impact of human activities on the hydrological cycle.
- 1.3 Describe processes such as precipitation, evaporation, infiltration, runoff, and groundwater flow.
- 1.4 Analyze the importance of rainwater harvesting in water conservation.

CO2: Knowledge of River Basin Hydrology

- 2.1 Explain the characteristics of river basins.
- 2.2 Understand methods of measuring river discharge.
- 2.3 Analyze causes and impacts of floods and droughts.
- 2.4 Develop awareness of integrated water resource management.

CO3: Understanding Oceanography

- 3.1 Explain the meaning and significance of oceanography.
- 3.2 Describe the configuration of the ocean floor and major ocean basins.

- 3.3 Understand the distribution of salinity and temperature in ocean water.
 3.4 Analyze ocean currents in the Atlantic, Pacific, and Indian Oceans.

CO4: Knowledge of Marine Deposits

- 4.1 Explain theories of coral reef and atoll formation.
 4.2 Understand subsidence, non-subsidence, and glacial control theories.
 4.3 Describe marine deposits and their significance.
 4.4 Analyze oceans as important storehouses of natural resources.

CO5: Practical Skills in Hydrology

- 5.1 Demarcate basin areas using cartographic techniques.
 5.2 Apply stream ordering methods such as Horton's and Strahler's.
 5.3 Calculate bifurcation ratio and sinuosity index.
 5.4 Prepare and interpret hypsometric and bathymetric curves.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (12 marks)	Introduction to Hydrology	a. Hydrological Cycle, human Impact on hydrological cycle b. Precipitation, interception, evaporation, evapo-transpiration, infiltration, ground water, run off and over land flow. c. Rain water Harvesting	8	2	
Unit:II (12Marks)	River Basin	a.Characteristics of river basins, basin surface run off, measurement of river discharge, floods and droughts. b.Integrated water management	6	2	
Unit : III (16Marks)	Oceanography	a.Oceanography: Meaning and significance. b. Configuration of ocean floor- continental shelf, continental slope, deep sea plain; Bottom configurations of the Atlantic, Pacific and Indian oceans. c. Salinity and temperature of ocean water. d. Ocean currents of the Atlantic, Pacific and Indian oceans.	14	2	
Unit : IV (12Marks)	Marine Deposit	a.Marine deposits: Theories of origin of Coral reefs and Atolls- subsidence, non-subsidence and glacial control theories. b. Importance of oceans as store house of resources.	9	2	
Unit: V (18Marks)	Practical	a.Basin Area demarcation b.stream ordering- Horton's and Strahler's			30

		e.Bifurcation Ratio. d.Sinuosity Index e. Hypsometric and Bathymetric Curve.			
		Total	37	8	30

Where, *L: Lectures T: Tutorials P: Practicals*

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic 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, 8 Ed., Macmillan Publishing Company
4. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
5. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
6. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
7. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
9. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
10. Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut
11. Tikkaa, R N (1989): Bhautik Bhugol ka Swaroop, Kedarnath Ram Nath, Meerut
11. Singh, S (2009): Bhautik Bhugol ka Swaroop, Prayag Pustak, Allahabad

SEMESTER: VI

TITLE OF THE COURSE	: GEOGRAPHICAL THOUGHTS THROUGH AGES
COURSE CODE	: GGRM- 601
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End-Sem) + 30 (In-Sem)

Course Description:

Geographical Thoughts Through Ages (GGRM-601) explores the historical development of geographical ideas from early classical philosophies to modern and contemporary trends in Geography. The course covers pre-modern geographical thinking in Greek, Roman, Indian, and Arab traditions, followed by the contributions of key modern geographers and different national schools of thought. It also examines major theoretical debates such as environmental determinism vs. possibilism, and systematic vs. regional geography. Further, the course highlights contemporary trends including quantitative revolution, behaviouralism, radicalism, feminism, and emerging paradigms shaping the future of geography.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Pre-Modern Geographical Thought

- 1.1 Explain early origins of geographical thinking in Greek, Roman, and Indian traditions.
- 1.2 Understand medieval geographical philosophies and Arab contributions.
- 1.3 Analyze the Age of Discovery and its impact on geographical knowledge.
- 1.4 Describe the evolution of early geographical ideas and concepts.

CO2: Knowledge of Modern Geographical Thought

- 2.1 Explain the contributions of Humboldt and Ritter to geography.
- 2.2 Understand the development of German, French, British, and American schools of thought.
- 2.3 Compare different national traditions in geographical thinking.
- 2.4 Analyze the evolution of modern geography as a scientific discipline.

CO3: Understanding Major Geographical Debates

- 3.1 Explain environmental determinism and possibilism.
- 3.2 Understand systematic and regional geography approaches.
- 3.3 Differentiate between ideographic and nomothetic approaches.
- 3.4 Evaluate key theoretical debates in geography.

CO4: Knowledge of Contemporary Trends in Geography

- 4.1 Explain major paradigms in geography.
 4.2 Understand the impact of the quantitative revolution.
 4.3 Analyze behaviouralism, radicalism, and feminism in geography.
 4.4 Evaluate the future directions and emerging trends in geographical studies.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (15marks)	Pre-Modern	a Early Origins of Geographical Thinking with reference to the Classical Philosophies-Greek, Roman and Indian b. Medieval Philosophies- Age of Discovery and Arab Geographical Tradition	19	4	
Unit :II (20Marks)	Modern	a. Contribution of Humbolt and Ritter b. School of Thought- Germany, France, Britain, United States of America	20	4	
Unit : III (15Marks)	Debates	a.Environmental Determinism and Possibilism b.Systematic and Regional c.Ideographic and Nomeothetic.	10	4	
Unit : IV (20Marks)	Trends	a. Paradigms in Geography b. Quantitative Revolution and its Impact c. Behaviouralism d. Radicalism e. Feminism f. Future of Geography.	10	4	
		Total	59	16	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Husain Majid (2012) "Evolution of Geographical Thought", Rawat Publication, Jawahar Nagar, Jaipur
2. Maurya, S.D. (2013) "History of Geographical Thought", Sarda Pustok Bhawan, Allahabad
3. Adhikari Sudepta (2011) "Fundamentals of Geographical Thought" Chaitanya Publishing House, Allahabad
4. Dikshit R.D.(1997) "Geographical Thought: A Contextual History of ideas, Prentic Hall, India.
5. Hazarika, G.,(2015): Bhougolik Bhabadarsha Aru Samajik Bhugule (Assamese Medium), Ashok Publication.

TITLE OF THE COURSE	: ENVIRONMENTAL GEOGRAPHY
COURSE CODE	: GGRM-602
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

Environmental Geography (GGRM-602) focuses on the study of interactions between humans and the natural environment. The course introduces the meaning, nature, and scope of environmental geography along with basic ecological principles. It covers ecosystem structure and functions, food chains, food webs, trophic levels, and biomes. The course also emphasizes environmental degradation, conservation strategies, environmental policies, EIA, and sustainable development. Practical work includes field observation and data collection from natural ecosystems to understand environmental conditions and issues.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Environmental Geography and Ecology

- 1.1 Explain the meaning, nature, and scope of Environmental Geography.
- 1.2 Understand basic ecological concepts and principles.
- 1.3 Describe the relationship between ecology and environment.
- 1.4 Analyze human–environment interactions in geographical studies.

CO2: Knowledge of Ecosystems and Biomes

- 2.1 Explain the concept, structure, types, and functions of ecosystems.
- 2.2 Understand food chains, food webs, and trophic levels.
- 2.3 Describe the concept and classification of biomes.
- 2.4 Analyze ecological balance and interdependence within ecosystems.

CO3: Understanding Environmental Degradation and Management

- 3.1 Explain the causes and impacts of environmental degradation.
- 3.2 Understand conservation of water, soil, forests, wetlands, and marine resources.
- 3.3 Analyze environmental policies and Environmental Impact Assessment (EIA).
- 3.4 Evaluate the role of sustainable development in environmental management.

CO4: Practical Knowledge and Field-Based Learning

- 4.1 Conduct field observation in ecosystems such as forests or wetlands.
- 4.2 Collect and analyze environmental data using basic instruments.
- 4.3 Identify plant and animal species in a natural environment.
- 4.4 Develop field-based understanding of environmental problems and conservation practices.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (12 marks)	Introduction to Environmental Geography	a. Definition, nature and Scope of Environmental Geography b. Ecology-meaning and principles of ecology	12	2	
Unit :II (20Marks)	Ecosystem	a. Concept, Types, Structure and Functions, Food chain, Food web, Trophic level b. Biome -Concept and Types	17	3	
Unit : III (20Marks)	Environment Degradation and Environmental Management	a. Meaning, nature, cause and impact b. Conservation of environment, water, soil and wetland, forest and marine. c. Policies of Environmental protection & conservation; Concept of EIA d. Indian Knowledge System and Environmental Management e. Concept of Sustainable Development	18	3	
Unit: V (18 Marks)	Practical	Field Observation and Data Collection (<i>Any One</i>): a. Conduct a field trip to a nearby ecosystem (such as a forest, wetland, etc.) and observe the physical features of the environment and problems faced therein. b. Collect data on various environmental parameters like temperature, humidity, wind speed/soil composition using appropriate instruments. c. Identify and document different species of plants and animals found in the area			20
		Total	47	8	20

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Gautam A., 2016-17: Environmental Geography, Sharda Pustak Bhawan, Allahabad.
2. Singh S., 2020: Environmental Geography, Pravalika Publications, Allahabad.
3. Saxena H. M., 2021: Environmental Geography, Rawat Publication, Jaipur.
4. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
5. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
6. UNEP, 2007: Global Environment Outlook: GEO4: Environment For Development, United Nations Environment Programme.
7. Tripathi S., 2019: Sustainable Development and Environment, Ankit Publications, Varanasi.
8. Sharma H. S., Chattopadhyaya S., 1998: Sustainable Development-Issues and case Studies, Concept Publishing Company Pvt. Ltd., Delhi.
9. Mungekar P. R., Introduction to Sustainable Development Goals, Nitya Publication, Bhopal.
10. Choudhury S. P., 2023: Environment Ecology and Sustainable Development, BFC Publications, Lucknow.
11. Sharma H., Sobti T., 2018: An Introduction to Sustainable Development Goals, Independently Published.
12. UNEP's Annual Reports.
13. Hazarika, G.,(2023): Paribesiya Bhugol (Assmese Medium) , Saraswati Prakashan, Golaghat
14. Pegu,R., Kashyap,P., Sarma, .P (2026) Biosphere and Tiger Reserve of Northeast India, LAP Lambert Academic Publishing, United Kingdom.

TITLE OF THE COURSE : GEOGRAPHY OF NORTH-EAST INDIA AND ASSAM
COURSE CODE : GGRM-603
NATURE OF THE COURSE : MAJOR
TOTAL CREDITS : 4 CREDITS
DISTRIBUTION OF MARKS: 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

Geography of North-East India and Assam (GGRM-603) focuses on the physical, socio-cultural, and economic geography of North-East India with special reference to Assam. The course covers physiography, climate, drainage, soil, vegetation, resources, population, and industrial development of the region. It also highlights cultural diversity, resource potential, and developmental challenges of North-East India. The practical component emphasizes thematic mapping and spatial analysis of geographical phenomena in Assam and the North-Eastern region.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Physical and Socio-Cultural Geography

- 1.1 Describe the physiographic divisions of North-East India.
- 1.2 Explain the climate, soil, vegetation, and drainage system of the region.
- 1.3 Understand the socio-cultural diversity including language and religion.
- 1.4 Analyze the relationship between physical and cultural environments in North-East India.

CO2: Knowledge of Resources and Population in North-East India

- 2.1 Identify major agricultural, forest, mineral, and power resources of the region.
- 2.2 Understand industrial development, problems, and prospects in North-East India.
- 2.3 Analyze population growth, distribution, and density patterns.
- 2.4 Evaluate the resource potential and demographic challenges of the region.

CO3: Understanding Geography of Assam

- 3.1 Describe the physiographic divisions of Assam.
- 3.2 Explain the climate, drainage system, soil, and vegetation of Assam.
- 3.3 Analyze the resource base and economic structure of Assam.
- 3.4 Understand population distribution and industrial development in Assam.

CO4: Practical Skills in Regional Mapping and Analysis

- 4.1 Prepare thematic maps of North-East India and Assam on agriculture, minerals, industries, forest, and soil.
- 4.2 Analyze population distribution and density using different cartographic methods.

- 4.3 Interpret spatial patterns of geographical phenomena in the region.
 4.4 Develop skills in geographical data representation and regional analysis.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (12 marks)	North East India: Physical and sociocultural background.	a.Physical: physiographic divisions, soil and vegetation, climate and drainage system. b. Socio-cultural background of North-East India language and religion, cultural diversity.	13	3	
Unit :II (20 Marks)	North East India: Resource base and population	a.Resource- agriculture, forest, mineral and power resources of North East India. b . Industries of North East India; problems and prospects. c . Population: growth, distribution and density.	11	2	
Unit : III (20 Marks)	Assam: Physical and economic background.	a.Phyiographic divisions, climate, drainage, soil and natural vegetation. b . Resource: agriculture, forest, mineral and power. c. Population: growth, distribution and density. d . Industries of Assam	13	3	
Unit: V (18 Marks)	Practical	a.Thematic mapping of North-East India/Assam- showing geographical themes- agriculture, minerals, industries, forest and soil. b . Distribution and density of population in North-east India and Assam using different methods.			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Mandal R.B. (ed), 1990: patterns of regional geography-an international perspective.
2. Tiwari R.C. (2007): Geography of India. Prayag pustakbhawan, Allahabad.
3. Sharma T.C. (2013): Economic geography of India. Rawat publication, Jaipur.
4. Singh R.L. (1971): India: a regional geography, national geographical society of India.
5. Deshpande C.D. (1992): India: a regional interpretation, ICSSR, new Delhi.

- 6.Taher, M., Ahmed, P (2005): Assam: A Geographical Profile,Mani Manik Prakashan
6. Bhagabati, A.K.(2017): Bora, A.K., Bhagbaj,A.K., B. K. Kar,B.K., A.K. Bhagbati: Geography of Assam Geography of Assam
- 7.Pegu,R., Kashyap,P., Sarma, .P (2026) Biosphere and Tiger Reserve of Northeast India, LAP Lambert Academic Publishing, United Kingdom.

TITLE OF THE COURSE	: REGIONAL GEOGRAPHY OF ASIA
COURSE CODE	: GGRM-604
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End Sem) + 30 (In-Sem)

Course Description:

Regional Geography of Asia (GGRM-604) provides a systematic study of the physical and human geography of major continents of the world. The course focuses on the physiography, climate, soil, vegetation, resources, and industrial development of UAE, Myanmar and Japan. It also examines global population distribution, density patterns, and population growth trends in developed and developing countries. The course helps students develop a regional understanding of world geography and spatial variations in physical and human systems.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Physiography and Climate

- 1.1 Identify the major physiography divisions of the continents.
- 1.2 Explain the climatic characteristics of UAE, Myanmar and Japan.
- 1.3 Compare physical environmental conditions across different continents.
- 1.4 Analyze the relationship between physiography and climate at the global scale.

CO2: Knowledge of Soil and Vegetation

- 2.1 Describe the distribution of soils in major continents.
- 2.2 Explain the types and patterns of vegetation across the world.
- 2.3 Understand the relationship between soil, vegetation, and climate.
- 2.4 Compare ecological zones across different continents.

CO3: Understanding Resources and Industries

- 3.1 Identify major mineral resources of different continents.
- 3.2 Explain the industrial development patterns in UAE, Myanmar and Japan.
- 3.3 Analyze the spatial distribution of resources and industries.
- 3.4 Evaluate the role of resources in regional economic development.

CO4: Knowledge of Asia Population

- 4.1 Describe the distribution of world population.
- 4.2 Understand population growth trends in developed and developing countries.
- 4.3 Identify major population density zones of the world.
- 4.4 Analyze global demographic patterns and population-related issues.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (20 marks)	Physiography and climate of the continents	a. Physiography and climate of UAE, Myanmar and Japan	20	4	
Unit :II (15 Marks)	Soil and vegetation of the continents	Soil and vegetation of UAE, Myanmar and Japan	17	2	
Unit : III (20 Marks)	Resource base and Industries	a.Mineral resources and industrial of UAE, Myanmar and Japan	16	2	
Unit: IV (15 Marks)	Asia-Population and Densities	a. .Distribution of population of Asia b. Issues of Population growth in Southeast Asia and East Asia. c.Trends of population growth in Asia	12	2	
		Total	65	10	

Where, *L: Lectures* *T: Tutorials* *P: Practicals*

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Manku, D.S.: A Regional Geography of World, Kalyani Publishers
2. Gautam, A: World Geography, Sarda Pushtak Bhawan, Allahabad
3. Bradshaw, M: World Regional Geography
4. Gourou, P. (1980): The Tropical World, Longman, London
5. Cole, J. (1996): A Geography of World's Major Regions, Routledge, London

TITLE OF THE COURSE	: GEOGRAPHY OF INDIA
COURSE CODE	: GGRN-601
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End -Sem) + 30 (In-Sem)

Course Description:

Geography of India (GGRN-601) provides a comprehensive understanding of the physical, economic, and human geographical aspects of India. The course covers physiography, drainage, climate, soil, and vegetation along with agriculture, mineral and power resources, industries, transport, and population characteristics. It also focuses on agricultural revolutions, resource distribution, and socio-economic conditions. The field study and excursion component develops practical knowledge through observation, data collection, and report preparation on geographical issues and regional characteristics.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding the Physical Setting of India

- 1.1 Explain the physiographic divisions of India.
- 1.2 Understand the drainage system and climatic characteristics of India.
- 1.3 Analyze the distribution and types of soils and vegetation in India.
- 1.4 Develop knowledge about the relationship between physical environment and human activities.

CO2: Knowledge of Agriculture in India

- 2.1 Identify the major agricultural crops of India such as rice, wheat, cotton, jute, sugarcane, and tea.
- 2.2 Understand the significance of agricultural revolutions in India.
- 2.3 Explain the concepts of Green, White, Pink, Silver, and Blue Revolutions.
- 2.4 Analyze the role of agriculture in the Indian economy.

CO3: Understanding Resources, Industries, and Transport

- 3.1 Explain the production and spatial distribution of major minerals in India.
- 3.2 Understand the distribution and importance of conventional and non-conventional power resources.
- 3.3 Analyze the development of iron and steel, petrochemical, and cotton textile industries.
- 3.4 Describe the importance of rail, road, and air transport in India.

CO4: Knowledge of Population Geography of India

- 4.1 Explain the growth, distribution, and density of population in India.
- 4.2 Understand population composition based on age, sex, race, language, and religion.
- 4.3 Analyze the major population problems and prospects of India.
- 4.4 Develop awareness regarding demographic diversity and challenges in India.

CO5: Practical Knowledge through Excursion and Field Study

- 5.1 Conduct field visits to places of geographical importance.
- 5.2 Prepare field reports based on settlement and land use patterns.
- 5.3 Analyze socio-economic and environmental conditions of local areas.
- 5.4 Develop practical skills in field observation, data collection, and geographical interpretation.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12Marks)	Physical setting	a. Physiographic division, b. Drainage system. c. Climate, d. Soil e. Vegetation.	14	3	
Unit: II (15Marks)	Agriculture	a. Major crops-Rice, Wheat, Cotton, jute, Sugarcane, Tea. b. Agricultural revolutions: Green revolution; Concepts of White revolution, Pink revolution, Silver revolution, Blue revolution.	12	3	
Unit: III (15Marks)	Mineral, power resources, industry and transport	a. Major Minerals: Metallic (Iron and Copper) & Non- Metallic (Limestone and Mica) - Production and spatial distribution. b. Power Resources: i. Conventional-Coal, Petroleum and Hydro power. ii. Non-Conventional –Solar energy, Wind energy and atomic energy. c. Industry: Iron and steel, petrochemicals and Cotton textile d. Transport: Rail, Road and Air	12	2	
Unit: IV (10Marks)	Population	a. Growth, Distribution and density b. Composition-Age, Sex, Race, Language and religion. c. Population problems and prospects	9	2	
Unit: V (18Marks)	Excursion / Field study	Excursion: Visit to place of geographical importance and preparation of report; OR Field study: Visit a local area and preparation a report on settlement, land use pattern, Socio-economic condition, Environmental issues and Natural hazards.			20

		Total	47	8	20
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Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Singh, R.L(ed)A Regional Geography of India,1967
2. Tiwari, R.C.: Geography of India, Prayag Pushtak Bhawan
3. Khullar: India A Comprehensive Geography, Kalyani Publishers
4. Sutta, A.K.: India: Resources, Potentialities and Planning,1973
5. Barry R.G. and Corley R.J., 1998Atmosphere, Weather and Climate, Routledge, New York
6. Miller, A.A., 1953: Climatology

SEMESTER: VII

TITLE OF THE COURSE : REGIONAL PLANNING AND DEVELOPMENT
COURSE CODE : GGRM-701
NATURE OF THE COURSE : MAJOR
TOTAL CREDITS : 4 CREDITS
DISTRIBUTION OF MARKS: 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

Regional Planning and Development (GGRM-701) focuses on the concepts, theories, and methods of regional planning and development in geography. The course introduces the idea of regions, regionalization methods, hierarchy of regions, and planning concepts. It also discusses theories of regional development, planning regions in India, agro-ecological zones, and town and country planning. The practical component develops skills in socio-economic regionalization, resource disparity mapping, and application of GIS in urban studies.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Regional Concepts in Geography

- 1.1 Explain the concept, evolution, and types of regions.
- 1.2 Understand the methods of formal and functional regionalization.
- 1.3 Analyze the hierarchy and characteristics of regions.
- 1.4 Develop knowledge about regional concepts in geographical studies.

CO2: Knowledge of Regional Planning Theories

- 2.1 Explain the concept and types of planning.
- 2.2 Understand the principles, objectives, and need for regional planning.
- 2.3 Analyze the Growth Pole Theory of Perroux and Rostow's Theory of Development.
- 2.4 Evaluate the role of planning in regional development.

CO3: Understanding Planning Regions

- 3.1 Explain the concept and characteristics of planning regions.
- 3.2 Understand planning regions and agro-ecological zones of India.
- 3.3 Analyze the concept and significance of town and country planning in India.
- 3.4 Develop awareness regarding balanced regional development and planning strategies.

CO4: Practical Skills in Regional Analysis and GIS

- 4.1 Apply socio-economic regionalization techniques using ranking and Z-score methods.
- 4.2 Prepare resource disparity maps for coal and iron ore distribution.

4.3 Use GIS techniques in urban mapping and population analysis.

4.4 Develop practical skills in spatial analysis and regional planning studies.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Regional Concept in Geography	a. Concept, evolution and types of region b. Regionalization: Methods of formal c. Methods of formal and functional regionalization. d. Hierarchy of region.	11	2	
Unit: II (20 Marks)	Concept and Theories of Regional Planning	a) Concept and types of planning b) Principle, objectives and need of regional planning c.Theories- Growth Pole Model of Perroux and Rostow.	13	3	
Unit: III (20 Marks)	Regions for Planning	a) Planning regions and its characteristics b) Planning regions of India proposed by Town and Country Planning Organisation (TCPO) Agro-ecological zones of India c) Town and Country planning - Concept and significance with special reference to India.	13	3	
Unit: IV (18 Marks)	Practical	a. Socio-economic regionalization using simple ranking, mean ranking and Z-score standardization b. Resource disparity map of mineral resources- coal and iron ore c . Application of GIS in urban mapping: population density, population growth.			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Bhat, L.S (1973): Regional Planning in India, Statistical Publishing Society, Calcutta.
2. Bhat, L.S. et. al (1976) : Micro-Level Planning, A Case Study of Karana l Area, Haryana K.B. Publication, New Delhi.
3. Chorley, H. and Hagget P. (1976): Models in Geography, Metun. London.
4. Misra, R.P. et al (1974): Regional Development in India-A Strategy, Mysore.
5. Mitra. A. (1965): Levels of Regional Development, Census of India, Vol I, pt I &II, New Delhi.
6. Raza, M (1988): Regional development, Heritage Publisher, Delhi.
7. Misra R.P. et al (1980): Multi Level Planning, Heritage.
8. Hazarika, G. (2022): Paribeshiya Bhugol, Saraswati Prakashan, Golaghat.

TITLE OF THE COURSE : SOCIAL AND CULTURAL GEOGRAPHY
COURSE CODE : GGRM-702
NATURE OF THE COURSE : MAJOR
TOTAL CREDITS : 4 CREDITS
DISTRIBUTION OF MARKS: 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

Social and Cultural Geography (GGRM-702) focuses on the spatial dimensions of social and cultural processes and their influence on human societies. The course introduces the concepts, nature, and scope of Social and Cultural Geography along with social space, social inequality, well-being, inclusion and exclusion, and cultural diversity. It also examines cultural regions, cultural diffusion, cultural landscape, and the role of race, religion, language, tribe, and ethnicity in shaping society. The practical component develops skills in thematic mapping and spatial analysis of social and cultural patterns in India and North-East India.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Social Geography

- 1.1 Explain the meaning, nature, and scope of Social Geography.
- 1.2 Understand the concepts of social space and social processes.
- 1.3 Analyze social inequality based on caste, tribe, and race.
- 1.4 Evaluate social well-being in terms of housing, health, education, and quality of life.

- 1.5 Understand social inclusion, exclusion, gender identity, slums, and gated communities.
1.6 Analyze conflicts and crime with special reference to India.

CO2: Knowledge of Cultural Geography

- 2.1 Explain the concept, nature, and scope of Cultural Geography.
2.2 Identify major cultural regions of the world.
2.3 Understand the meaning and types of cultural diffusion.
2.4 Analyze concepts of cultural landscape, cultural ecology, and folk culture regions.
2.5 Evaluate the role of race, religion, language, tribe, and ethnicity in promoting cultural diversity in India.

CO3: Practical Skills in Social and Cultural Analysis

- 3.1 Prepare sex disparity maps of India and North-East India.
3.2 Analyze levels of social well-being using composite Z-score methods.
3.3 Represent the spatial distribution of linguistic groups in India using suitable techniques.
3.4 Prepare maps showing the spatial distribution of major tribes in North-East India.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (26 Marks)	Social Geography	a.Definition, Nature and Scope of Social Geography b . Concepts of social space c. Social processes and social inequality-caste, tribe and race. d . Social well-being- Concept and components: Housing, health and education; Quality of life e . Social Geographies of inclusion and exclusion, Gender identity, Slums, Gated Communities, f.Conflicts and Crime – with special reference to India.	19	4	
Unit: II (26 Marks)	Cultural Geography	a. Definition of culture; concept, nature and scope of Cultural Geography b. Cultural Regions of the World c. Cultural diffusion: meaning and types d. Concepts of cultural landscape, cultural ecology and folk culture regions. e. Contribution of race, religion, language, tribe and ethnicity in promoting diversity in India	19	4	
Unit: III (18 Marks)	Practical	a. Sex disparity map (India and North East India) b. Level of Social well-being with the help of composite Z-score in India /North-East India c. Spatial distribution of linguistic groups in India using a suitable technique d. Spatial distribution of major tribes in North East India			20
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Ahmed A., 1999: Social Geography, Rawat Publications.
2. Casino V. J. D., Jr., 2009) Social Geography: A Critical Introduction, Wiley Blackwell.
3. Cater J. and Jones T., 2000: Social Geography: An Introduction to Contemporary Issues, Hodder Arnold.
4. Holt L., 2011: Geographies of Children, Youth and Families: An International Perspective, Taylor & Francis.
5. Panelli R., 2004: Social Geographies: From Difference to Action, Sage.
6. Rachel P., Burke M., Fuller D., Gough J., Macfarlane R. and Mowl G., 2001: Introducing Social Geographies, Oxford University Press.
7. Smith D. M., 1977: Human geography: A Welfare Approach, Edward Arnold, London.
8. Smith D. M., 1994: Geography and Social Justice, Blackwell, Oxford.
9. Smith S. J., Pain R., Marston S. A., Jones J. P., 2009: The SAGE Handbook of Social Geographies, Sage Publications.
10. Sopher, David (1980): An Exploration of India, Cornell University Press, Ithasa.
11. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
12. Sen. J., (2016): A Textbook of Social and Cultural Geography, Kalyani Publishers.

TITLE OF THE COURSE	: FUNDAMENTAL OF DISASTER MANAGEMENT
COURSE CODE	: GGRM-703
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18 =70 (End-Sem) + 30 (In-Sem)

Course Description:

Fundamental of Disaster Management (GGRM-703) introduces students to the concepts, causes, impacts, and management of natural and man-made disasters. The course covers hazards, risks, vulnerability, and disaster classification along with major disasters in India such as floods, landslides, droughts, earthquakes, tsunamis, and cyclones. It also emphasizes disaster response, mitigation, preparedness, community participation, and the role of disaster management institutions. The practical component develops skills in disaster data collection and preparation of case study reports on local disasters.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Disaster and Hazard Concepts

- 1.1 Explain the concepts of hazards, disasters, risk, and vulnerability.
- 1.2 Understand the classification and types of disasters.
- 1.3 Analyze the relationship between hazards and disasters.
- 1.4 Develop awareness regarding disaster risks and vulnerability assessment.

CO2: Knowledge of Natural and Man-Made Disasters

- 2.1 Explain the causes, impacts, and distribution of major natural disasters in India.
- 2.2 Understand the characteristics of floods, landslides, droughts, earthquakes, tsunamis, and cyclones.
- 2.3 Analyze the causes and impacts of man-made disasters.
- 2.4 Examine case studies of industrial accidents and structural failures.

CO3: Understanding Disaster Response and Mitigation

- 3.1 Explain disaster mitigation and preparedness strategies.
- 3.2 Understand the role of NDMA, ASDMA, and NIDM in disaster management.
- 3.3 Analyze the importance of indigenous knowledge and community-based disaster management.
- 3.4 Develop awareness regarding safety measures and disaster response practices during and after disasters.

CO4: Practical Skills in Disaster Management

- 4.1 Collect data related to floods, landslides, bank erosion, and man-made disasters.
- 4.2 Prepare case study reports on disasters in local areas.
- 4.3 Analyze disaster impacts using field-based observations and data.
- 4.4 Develop practical understanding of disaster management and mitigation measures.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Introduction to Disaster	a. Disasters: Definition and Concepts: Hazards, Disasters b. Risk and Vulnerability & Classification	7	2	
Unit: II (20 Marks)	Introduction to Natural and Man-made Disaster	a. Disasters in India: Flood, Landslide, Drought, Earthquake and Tsunami, Cyclone; Causes, Impact and Distribution b. Causes, Impact and Distribution of Manmade disasters c.A Case Study of Industrial Accident and Structural failure	16	3	
Unit: III (20 Marks)	Response and Mitigation to Natural and Man-made Disaster	a. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA, ASDMA and NIDM;Indigenous Knowledge b. Community-Based Disaster Management; Do's and Don't's During and Post Disasters	14	3	
Unit: IV (18 Marks)	Practical	a.Data collection on flood/Landslide/bank erosion/ man-made disaster. b.Prepare a Case Study report on any one of the mentioned disasters of your locality.			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.

2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

TITLE OF THE COURSE : RESEARCH ETHICS AND METHODOLOGY

COURSE CODE : GGRM-704

NATURE OF THE COURSE : MAJOR

TOTAL CREDITS : 4 CREDITS

DISTRIBUTION OF MARKS: 70 (End-Sem) + 30 (In-Sem)

Course Description:

Research Ethics and Methodology (GGRM-704) introduces students to the principles of research ethics, scientific conduct, and research methodology. The course covers philosophical foundations, ethics in research, scientific misconduct, research design, literature review, data collection, sampling methods, statistical analysis, and hypothesis testing. It aims to develop ethical awareness and methodological skills required for conducting scientific research and preparing research reports in geography and related disciplines.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Ethics and Scientific Conduct

- 1.1 Explain the meaning, nature, and scope of philosophy and ethics.
- 1.2 Understand ethical principles in science and research.
- 1.3 Analyze issues related to intellectual honesty and research integrity.
- 1.4 Identify scientific misconducts such as falsification, fabrication, and plagiarism.
- 1.5 Understand problems of redundant publication and selective reporting of data.

CO2: Knowledge of Research Methodology

- 2.1 Explain the meaning, objectives, and types of research.
- 2.2 Understand the importance of research design and formulation of research problems.

- 2.3 Develop skills in literature review, citation, referencing, and bibliography preparation.
- 2.4 Analyze different sources and types of data used in research.
- 2.5 Prepare research proposals and research reports using proper methods and formats.

CO3: Understanding Data Collection and Analysis

- 3.1 Explain methods of collecting primary and secondary data.
- 3.2 Differentiate between census and sample survey methods.
- 3.3 Understand measures of central tendency and dispersion in data analysis.
- 3.4 Apply correlation and regression analysis in geographical research.

CO4: Knowledge of Hypothesis Testing

- 4.1 Explain the concept and characteristics of hypotheses in research.
- 4.2 Understand methods of hypothesis testing.
- 4.3 Apply t-test, f-test, and chi-square test in statistical analysis.
- 4.4 Develop analytical skills for interpretation of research findings and data.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (20 Marks)	Ethics and scientific Conduct	a.Introduction to Philosophy: definition, nature and scope, concept and branches b. Ethics: Definition, moral philosophy, nature of moral judgments and reactions. c. Scientific Conduct: 1. Ethics with respect to science and research 2. Intellectual honesty and research integrity 3. Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP) Redundant publications: duplicate and overlapping publications, salami slicing, Selective reporting and misrepresentation of data	20	3	
Unit: II (20 Marks)	Introduction to Research	a.Meaning, objectives and types of research. b. Meaning and Need of research design Research problem c. Literature Review; Citation, Reference and Bibliography. d. Sources and type of data. e. Method of preparing a Research Proposal. f. Preparation of Report- steps and layout of Research report	20	3	
Unit: III (15 Marks)	Data Collection and Analysis	a. Methods of collecting primary and secondary data. b. Census and Sample Survey. Meaning and types of Sample Design. c. Measures of Central Tendency, and Measures of Dispersion (ANOVA, Range,Mean and Standard Deviation); Correlation and regression analysis	16	2	

Unit: IV (15 arks)	Hypothesis Testing	a. Concept and characteristics of Hypothesis b. Methods of Hypothesis Testing with examples- t- test, f- test and chi square test.	9	2	
		Total	65	10	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Gosal, G.S. (1999) Survey of Research in Geography, Manak Publication, New Delhi.
2. Kothari, C.R. (199) Research methodology. Wishaw Publisher, New Delhi
3. Kumar, Ranjit (2011) Research Methodology: A step by step guide, Sage Publication
4. Misra. H.N. & Singh, V.P. (1988) Research Methodology in Geography, Rawat Publication
5. Murthy. K.N.L. (1999) Geographical Research, Concept Publisher
6. Pal, S.K. (1995): Computing Mathematical Techniques in Geography, B.R. Publisher
7. Bird, A. (2006). Philosophy of Science. Routledge.
8. MacIntyre, Alasdair (1967) A Short History of Ethics. London.

TITLE OF THE COURSE : Geography of North-East India and Assam
COURSE CODE : GGRN-701
NATURE OF THE COURSE : MINOR
TOTAL CREDITS : 4 CREDITS
DISTRIBUTION OF MARKS : 52+18 =70 (End -Sem) + 30 (In-Sem)

Course Description:

Geography of North-East India and Assam (GGRM-701) focuses on the physical, socio-cultural, and economic geography of North-East India with special reference to Assam. The course covers physiography, climate, drainage, soil, vegetation, resources, population, and industrial development of the region. It also highlights cultural diversity, resource potential, and developmental challenges of North-East India. The practical component emphasizes thematic mapping and spatial analysis of geographical phenomena in Assam and the North-Eastern region.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Physical and Socio-Cultural Geography

- 1.1 Describe the physiographic divisions of North-East India.
- 1.2 Explain the climate, soil, vegetation, and drainage system of the region.
- 1.3 Understand the socio-cultural diversity including language and religion.
- 1.4 Analyze the relationship between physical and cultural environments in North-East India.

CO2: Knowledge of Resources and Population in North-East India

- 2.1 Identify major agricultural, forest, mineral, and power resources of the region.
- 2.2 Understand industrial development, problems, and prospects in North-East India.
- 2.3 Analyze population growth, distribution, and density patterns.
- 2.4 Evaluate the resource potential and demographic challenges of the region.

CO3: Understanding Geography of Assam

- 3.1 Describe the physiographic divisions of Assam.
- 3.2 Explain the climate, drainage system, soil, and vegetation of Assam.
- 3.3 Analyze the resource base and economic structure of Assam.
- 3.4 Understand population distribution and industrial development in Assam.

CO4: Practical Skills in Regional Mapping and Analysis

- 4.1 Prepare thematic maps of North-East India and Assam on agriculture, minerals, industries, forest, and soil.
- 4.2 Analyze population distribution and density using different cartographic methods.
- 4.3 Interpret spatial patterns of geographical phenomena in the region.
- 4.4 Develop skills in geographical data representation and regional analysis.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit: 1 (12 marks)	North East India: Physical and sociocultural background.	a. Physical: physiographic divisions, soil and vegetation, climate and drainage system. b. Socio-cultural background of North-East India- language and religion, cultural diversity.	14	2	
Unit :II (20 Marks)	North East India: Resource base and population	a.Resource- agriculture, forest, mineral and power resources of North East India. b . Industries of North East India; problems and prospects. c . Population: growth, distribution and density.	9	2	
Unit : III (20 Marks)	Assam: Physical and economic background.	a.Physiographic divisions, climate, drainage, soil and natural vegetation. b. Resource: agriculture, forest, mineral and power.	14	4	

		c . Population: growth, distribution and density. d . Industries of Assam			
Unit: V (18 Marks)	Practical	a. Thematic mapping of North-East India/Assam- showing geographical themes- agriculture, minerals, industries, forest and soil. b . Distribution and density of population in North-east India and Assam using different methods.			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading list:

1. Mandal R.B. (ed), 1990: patterns of regional geography-an international perspective.
2. Tiwari R.C. (2007): geography of India. Prayag pustakbhawan, Allahabad.
3. Sharma T.C. (2013): economic geography of India. Rawat publication, Jaipur.
4. Singh R.L. (1971): India: a regional geography, national geographical society of India.
5. Deshpande C.D. (1992): India: a regional interpretation, ICSSR, new Delhi.

SEMESTER: VIII

TITLE OF THE COURSE	: GEOGRAPHY OF HEALTH AND WELL-BEING
COURSE CODE	: GGRM-801
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End-Sem) + 30 (In-Sem)

Course Description:

Geography of Health and Well-Being (GGRM-801) examines the relationship between environment, health, and human well-being from a geographical perspective. The course focuses on environmental quality, population dynamics, urbanization, poverty, and their impact on health conditions. It also explores environmental pressures caused by agriculture, industrialization, transport, and energy use along with health risks related to pollution, housing, and workplace conditions. Special emphasis is given to disease patterns in India and the effects of climate change on human health and nutrition.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Health and Environment

- 1.1 Explain the concept and perspectives of health and well-being.
- 1.2 Understand the relationship between environment, development, and health.
- 1.3 Analyze the impact of population dynamics and urbanization on health.
- 1.4 Evaluate the role of poverty and inequality in shaping health conditions.

CO2: Knowledge of Environmental Quality and Health

- 2.1 Explain environmental pressures caused by human activities.
- 2.2 Understand the effects of land use, agriculture, industrialization, transport, and energy on health.
- 2.3 Analyze the relationship between environmental degradation and public health.
- 2.4 Develop awareness regarding environmental management for healthy living conditions.

CO3: Understanding Health Risks and Disease Patterns

- 3.1 Explain major environmental health risks related to air, water, waste, and housing.
- 3.2 Understand workplace-related health hazards and environmental exposure.
- 3.3 Analyze communicable and lifestyle-related diseases in India.
- 3.4 Examine regional disease patterns and their environmental context.

CO4: Knowledge of Climate Change and Human Health

- 4.1 Explain the impact of climate change on human health.
 4.2 Understand the effects of heat, cold, and biological disease agents on health.
 4.3 Analyze the relationship between climate change, food production, and nutrition.
 4.4 Develop awareness regarding climate-related health challenges and adaptation measures.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (15 Marks)	Introduction	a.Perspectives on Health: Definition; linkages with environment, development and health b.Driving forces in health and environmental trends - population dynamics, urbanization, poverty and inequality.	14	3	
Unit: II (20 Marks)	Environment and Health	a.Pressure on Environmental Quality and Health: Human activities and environmental pressure land use and agricultural development; industrialisation; transport and energy.	18	3	
Unit: III (20 Marks)	Health Risks and Disease Pattern	a.Exposure and Health Risks: Air pollution; household wastes; water; housing; workplace. b.Health and Disease Pattern in Environmental Context with special reference to India c.Types of Diseases and their regional pattern (Communicable and Lifestyle related diseases).	18	3	
Unit: IV (15 Marks)	Climate Change and Human Health	a.Climate Change and Human Health: Changes in climate system – heat and cold; Biological disease agents; food production and nutrition.	14	2	
		Total	64	11	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Akhtar Rais (Ed.), 1990 : Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi.
2. Avon Joan L. and Jonathan A Patzed.2001 : Ecosystem Changes and Public Health,Baltimin, John Hopling Unit Press(ed).
3. Bradley,D.,1977: Water, Wastes and Health in Hot Climates, John Wiley Chichesten.
4. Christaler George and Hristopoles Dionissios, 1998: Spatio Temporal Environment Health Modelling , Boston Kluwer Academic Press.
5. Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
6. Gatrell, A.,and Loytonen, 1998 : GIS and Health, Taylor and Francis Ltd, London.
7. Hardham T. and Tannav M.,(eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.
8. Murray C. and A. Lopez, 1996 : The Global Burden of Disease, Harvard University Press.
9. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harward Univ. Press.
10. Phillips, D.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
11. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son. Llyod and Keith S McLachlan (1998), *Land Locked States of Africa and Asia* (vo.2), Frank Cass

TITLE OF THE COURSE : GEOGRAPHY OF RURAL DEVELOPMENT
COURSE CODE : GGRM- 802
NATURE OF THE COURSE : MAJOR
TOTAL CREDITS : 4 CREDITS
DISTRIBUTION OF MARKS: 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

Geography of Rural Development (GGRM-802) focuses on the concepts, approaches, and strategies of rural development with special reference to India. The course examines rural resources, agricultural and non-farm activities, rural markets, and the role of institutions in rural transformation. It also discusses Panchayati Raj, rural development programmes, poverty alleviation schemes, rural credit systems, micro-finance, and self-help groups. The practical component develops field-based understanding through preparation of village development reports.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Rural Development

- 1.1 Explain the meaning and need of rural development.
- 1.2 Understand different approaches to rural development.
- 1.3 Analyze the Gandhian approach to rural development.
- 1.4 Develop knowledge about rural transformation and development planning.

CO2: Knowledge of Rural Resources and Economic Base

- 2.1 Explain the role of agriculture and allied sectors in rural development.
- 2.2 Understand the importance of non-farm activities and co-operatives in rural economy.
- 2.3 Analyze the concept and role of rural service centres and markets.
- 2.4 Examine the impact of human activities on rural land use and land cover (LULC).

CO3: Understanding Rural Development Programmes in India

- 3.1 Explain the structure and functions of the Panchayati Raj System.
- 3.2 Understand area-based and target group approaches to rural development.
- 3.3 Analyze major rural development programmes such as MNREGA, PMGSY, NRLM, and Jal Jeevan Mission.
- 3.4 Evaluate the role of rural credit, micro-finance, and Self Help Groups (SHGs) in rural development.
- 3.5 Develop awareness regarding government initiatives for sustainable rural livelihoods.

CO4: Practical Skills in Rural Development Studies

- 4.1 Conduct field-based studies in rural areas.
- 4.2 Prepare village reports based on rural development indicators.
- 4.3 Analyze socio-economic and infrastructural conditions of villages.
- 4.4 Develop practical skills in rural data collection, interpretation, and report preparation.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Introduction	a. Rural Development: Definition and Need b.Approaches to Rural Development c. Gandhian Approach to Rural Development.	10	2	
Unit: II (15 Marks)	Rural Resource and Economic Base	a.Agriculture and Allied Sectors, Need of Expanding Non-Farm Activities, Co-operatives, Provision of Urban Amenities to Rural Areas (PURA) b. Rural service centres and market: Concept and their role in rural development.	12	2	

		c.Impact of human activities in rural Landuse-Landcover (LULC)			
Unit: III (25 Marks)	Rural Development in India	a.Panchayati Raj System b. Area based Approach: Drought Prone Area Programmes and Pradhan Mantri Gram Sadak Yojana (PMGSY) c. Target Group Approach: Swarnjayanti Gram Swarozgar Yojana (SJSY), Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) and Jan Dhan Yojana d . Integrated Rural Development Approach e. Latest schemes: NRLM – National Rural Livelihood Mission (Deendayal Antyodaya Yojana), Deen Dayal Upadhyaya Grameen Kaushal Yojana (DDU GKY) and Jal Jeevan Mission A. Rural Credits, Micro-finance and Self Help Group (SHG)	25	4	
Unit: IV (18 Marks)	Practical	Prepare a report on a village based on any aspect of rural development			20
		Total	47	8	20

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Gilg A. W., 1985: An Introduction to Rural Geography, Edwin Arnold, London.
2. Krishnamurthy, J. 2000: Rural Development - Problems and Prospects, Rawat Publications., Jaipur.
3. Lee D. A. and Chaudhri D. P. (eds.), 1983: Rural Development and State, Methuen, London.
4. Misra R. P. and Sundaram, K. V. (eds.), 1979: Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.
5. Misra, R. P. (ed.), 1985: Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delhi.
6. Palione M., 1984: Rural Geography, Harper and Row, London.

7. Ramachandran H. and Guimaraes J.P.C., 1991: Integrated Rural Development in Asia – Learning from Recent Experience, Concept Publishing, New Delhi.
8. Robb P. (ed.), 1983: Rural South Asia: Linkages, Change and Development, Curzon Press.
9. UNAPDI 1986: Local Level Planning and Rural Development: Alternative Strategies. (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publications. Co., New Delhi.
10. Wanmali S., 1992: Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India, International Food Policy Research Institute, Washington, D.C.
11. Yugandhar, B. N. and Mukherjee, Neela (eds.) 1991: Studies in Village India: Issues in Rural Development, Concept Publications, New Delhi.

TITLE OF THE COURSE	: AGRICULTURAL GEOGRAPHY
COURSE CODE	: GGRM-803
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End-Sem) + 30 (In-Sem)

Course Description:

Agriculture Geography (GGRM-803) focuses on the spatial dimensions of agricultural activities and their relationship with physical, social, economic, technological, and institutional factors. The course introduces the nature and scope of Agricultural Geography, agricultural land use, regionalization, agricultural systems, and land use models. It also examines agricultural regions of the world and India along with contemporary agricultural issues such as food security, sustainable agriculture, climate change, and organic farming.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Agriculture Geography and Determinants of Agriculture

- 1.1 Explain the meaning, nature, and scope of Agricultural Geography.
- 1.2 Understand the physical determinants influencing agriculture.
- 1.3 Analyze social, economic, technological, and institutional factors affecting agriculture.
- 1.4 Develop knowledge about the spatial organization of agricultural activities.

CO2: Knowledge of Agricultural Types, Land Use, and Regionalization

- 2.1 Explain different types of agriculture practiced across the world.
- 2.2 Understand land use and land cover concepts and classifications.

- 2.3 Identify major agricultural regions of the world.
 2.4 Analyze agro-climatic regions, crop combination regions, and crop diversification in India.

CO3: Understanding Agricultural Theories and Models

- 3.1 Explain Whittlesey's classification of agricultural systems.
 3.2 Understand Von Thünen's agricultural land use model.
 3.3 Analyze the modifications and relevance of agricultural land use models in modern contexts.
 3.4 Evaluate the role of theoretical models in agricultural geographical studies.

CO4: Knowledge of Contemporary Agricultural Issues

- 4.1 Explain the concept of food security and sustainable agriculture.
 4.2 Understand the impact of climate change on agriculture.
 4.3 Analyze the significance of organic farming in modern agriculture.
 4.4 Develop awareness regarding environmental and sustainability issues in agriculture.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (20 Marks)	Introduction and Determinants of agriculture	a . Defining the Field: Introduction, nature and scope; b.Determinants of Agriculture: Physical,Social, economic, Technological and Institutional	18	4	
Unit: II (20 Marks)	Types, Agricultural Land-use and Regionalization	a . Types of Agriculture b. Land use/ land cover definition and classification. c. Agriculture Regions of the world dAgricultural Regions of India: Agro-climatic, Crop Combination Regions and crops Diversification.	18	4	
Unit: III (15 Marks)	Theories and Model	a . Agricultural Systems of the World (Whittlesey's classification) and Agricultural Land use model (Von Thuenen, modification and relevance).	13	2	
Unit: IV (15 Marks)	Contemporary Issues in Agriculture	a.Food Security, Sustainable Agriculture, Climate Change, Organic Farming.	13	3	
		Total	62	13	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Basu, D.N., and Guha, G.S., 1996: *Agro-Climatic Regional Planning in India*, Vol.I & II, Concept Publication, New Delhi.
2. Bryant, C.R., Johnston, T.R., 1992: *Agriculture in the City Countryside*, Belhaven Press, London.
3. Burger, A., 1994: *Agriculture of the World*, Aldershot, Avebury.
4. Grigg, D.B., 1984: *Introduction to Agricultural Geography*, Hutchinson, London.
5. Ilbery B. W., 1985: *Agricultural Geography: A Social and Economic Analysis*, Oxford University Press.
6. Mohammad, N., 1992: *New Dimension in Agriculture Geography*, Vol. I to VIII, Concept Pub., New Delhi.
7. Roling, N.G., and Wagerutgers, M.A.E.,(ed.) 1998: *Facilitating Sustainable Agriculture*, Cambridge University Press, Cambridge.
8. Shafi, M., 2006: *Agricultural Geography*, Doring Kindersley India Pvt. Ltd., New Delhi
9. Singh, J., and Dhillon, S.S., 1984: *Agricultural Geography*, Tata McGraw Hill, New Delhi.
10. Tarrant J. R., 1973: *Agricultural Geography*, David and Charles, Devon.

TITLE OF THE COURSE	: FUNDAMENTAL OF DISASTER MANAGEMENT
COURSE CODE	: GGRN-801
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18=70 (End-Sem) + 30 (In-Sem)

Course Description:

Fundamental of Disaster Management (GGRM-801) introduces students to the concepts, causes, impacts, and management of natural and man-made disasters. The course covers hazards, risks, vulnerability, and disaster classification along with major disasters in India such as floods, landslides, droughts, earthquakes, tsunamis, and cyclones. It also emphasizes disaster response, mitigation, preparedness, community participation, and the role of disaster management institutions. The practical component develops skills in disaster data collection and preparation of case study reports on local disasters.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Disaster and Hazard Concepts

- 1.1 Explain the concepts of hazards, disasters, risk, and vulnerability.
- 1.2 Understand the classification and types of disasters.
- 1.3 Analyze the relationship between hazards and disasters.
- 1.4 Develop awareness regarding disaster risks and vulnerability assessment.

CO2: Knowledge of Natural and Man-Made Disasters

- 2.1 Explain the causes, impacts, and distribution of major natural disasters in India.
- 2.2 Understand the characteristics of floods, landslides, droughts, earthquakes, tsunamis, and cyclones.
- 2.3 Analyze the causes and impacts of man-made disasters.
- 2.4 Examine case studies of industrial accidents and structural failures.

CO3: Understanding Disaster Response and Mitigation

- 3.1 Explain disaster mitigation and preparedness strategies.
- 3.2 Understand the role of NDMA, ASDMA, and NIDM in disaster management.
- 3.3 Analyze the importance of indigenous knowledge and community-based disaster management.
- 3.4 Develop awareness regarding safety measures and disaster response practices during and after disasters.

CO4: Practical Skills in Disaster Management

- 4.1 Collect data related to floods, landslides, bank erosion, and man-made disasters.
- 4.2 Prepare case study reports on disasters in local areas.
- 4.3 Analyze disaster impacts using field-based observations and data.
- 4.4 Develop practical understanding of disaster management and mitigation measures.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (12 Marks)	Introduction to Disaster	a. Disasters: Definition and Concepts: Hazards, Disasters b. Risk and Vulnerability & Classification	7	2	
Unit: II (20 Marks)	Introduction to Natural and Man-made Disaster	a. Disasters in India: Flood, Landslide, Drought, Earthquake and Tsunami, Cyclone; Causes, Impact and Distribution b. Causes, Impact and Distribution of Manmade disasters c.A Case Study of Industrial Accident and Structural failure	16	3	
Unit: III (20 Marks)	Response and Mitigation to Natural and Man-made Disaster	a. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA, ASDMA and NIDM;Indigenous Knowledge b. Community-Based Disaster Management; Do's and Don't's During and Post Disasters	14	3	
Unit: IV (18 Marks)	Practical	a.Data collection on flood/Landslide/bank erosion/ man-made disaster. b.Prepare a Case Study report on any one of the mentioned disasters of your locality.			30
		Total	37	8	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

TITLE OF THE COURSE	: GEOGRAPHY OF TOURISM
COURSE CODE	: GGRN-801
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 52+18=70 (End-Sem) + 30 (In-Sem)

Course Description:

Geography of Tourism (GGRN-801) focuses on the geographical dimensions of tourism, including its concepts, types, forms, resources, infrastructure, and impacts. The course examines the relationship between tourism and geography along with major tourism types such as nature, cultural, adventure, medical, pilgrimage, and MICE tourism. It also highlights recent tourism trends, tourism infrastructure, and tourism policies with special reference to India and North-East India. The practical component develops skills in tourism data analysis, thematic mapping, and preparation of tourism-based geographical reports and albums.

Course Outcomes (COs)

After successful completion of the course, students will be able to:

CO1: Understanding Tourism Geography

- 1.1 Explain the meaning, nature, and scope of tourism geography.
- 1.2 Understand the relationship between tourism and geography.
- 1.3 Analyze the geographical parameters of tourism proposed by Robinson.
- 1.4 Differentiate between various types and forms of tourism.

CO2: Knowledge of Tourism Resources and Trends

- 2.1 Explain the importance of tourism infrastructure and services.
- 2.2 Analyze recent international and regional tourism trends.
- 2.3 Understand tourism development in India and North-East India.
- 2.4 Evaluate tourism infrastructure through case studies of the Himalayas, deserts, coastal areas, and North-East India.

CO3: Understanding Tourism Impacts and Policies

- 3.1 Analyze the economic impact of tourism.
- 3.2 Understand the environmental and social impacts of tourism activities.
- 3.3 Explain the National Tourism Policy of India.
- 3.4 Evaluate tourism policies and development strategies of North-East India.

CO4: Practical Skills in Tourism Studies

- 4.1 Represent trends of tourist growth in India and Assam using suitable diagrams.
- 4.2 Analyze tourism income trends using moving average methods.
- 4.3 Prepare thematic maps showing tourist destinations and transport connectivity in Assam.

4.4 Develop tourism albums highlighting important places, monuments, and cultural features of Assam.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (20 Marks)	Introduction, Types and Forms	a. Meaning, nature and scope. b. Tourism: concept and relationship with geography. c. Geographical parameters of tourism(Robinson) d. Types: Nature tourism, cultural tourism, adventure tourism, medical tourism, pilgrimage, Meetings, Incentives, Conferences, and Exhibitions (MICE) tourism. e. Forms: Domestic, inbound and outbound.	16	2	
Unit: II (20 Marks)	Resources and Trends	a. Infrastructure and services. b. Recent trends of tourism: international and regional (special reference to India and NE India). c. Tourism infrastructure: case studies of Himalayas, Deserts, Coastal and NE India.	15	2	
Unit: III (12 Marks)	Impacts and Policy	a. Impact of tourism on: Economy, Environment and Society. b. National tourism policy. c. Tourism policy of NE India.	8	2	
Unit: IV (18 Marks)	Practical	a. Trends of growth of tourists in India/ Assam using suitable diagram. b. Trend of income earned from tourism in India by using moving average method. c. Preparation of a map of Assam to show important tourist destinations along with their road, railway and air connectivity. d. Prepare a tourism album of Assam showing important places, monuments and cultures.			30
		Total	39	6	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.

2. Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation – Environment, Place and Space, Routledge, London.
3. Kamra, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.
4. Page, S. J. (2011) Tourism Management: An Introduction, Butterworth-Heinemann- USA. Chapter 2.
5. Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and Pilgrimage Festivals Management: An International perspective by, CABI, Cambridge, USA, www.cabi.org.
6. Tourism Recreation and Research Journal, Center for Tourism Research and Development, Lucknow
7. Singh Jagbir (2014) “Eco-Tourism” Published by - I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com)

TITLE OF THE COURSE	: URBAN GEOGRAPHY
COURSE CODE	: GGRM-804
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS
DISTRIBUTION OF MARKS	: 70 (End- Sem) + 30 (In-Sem)

Course Description:

Urban Geography (GGRM-804) focuses on the study of urban settlements, urbanization, and spatial organization of cities. The course covers the origin, growth, classification, and morphology of towns and cities in both global and national contexts. It also examines urban theories, urban hierarchy, urban regions, and contemporary urban issues such as housing, slums, pollution, transportation, and waste management. The course aims to develop an understanding of urban processes and challenges in rapidly urbanizing societies.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Urban Geography

- 1.1 Explain the meaning and scope of Urban Geography.
- 1.2 Understand the origin and growth of towns in global and national contexts.
- 1.3 Identify the types and characteristics of towns.
- 1.4 Analyze functional and city classification schemes proposed by J.M. Houston and G. Taylor.

CO2: Knowledge of Urban Morphology and Urbanization

- 2.1 Explain patterns of urbanization in developed and developing countries.
- 2.2 Understand components of urbanization and urban population growth.
- 2.3 Analyze urban morphology and land use structure of towns and cities.
- 2.4 Explain theories of internal urban structure such as Sector Theory and Multiple Nuclei Theory.
- 2.5 Understand concepts such as primate city, rank-size rule, metropolis, megalopolis, ecumenopolis, conurbation, and necropolis.

CO3: Understanding Urbanization and Spatial Organization

- 3.1 Explain the concepts of city-region, urban agglomeration, and urban sprawl.
- 3.2 Understand rural-urban dichotomy and rural-urban continuum.
- 3.3 Analyze concepts of urban fringe, satellite towns, and new towns.
- 3.4 Evaluate the significance of smart cities in urban development.

CO4: Knowledge of Urban Issues and Problems

- 4.1 Identify major urban problems such as housing shortages and slum development.
- 4.2 Analyze issues related to transportation, drinking water, and civic amenities.
- 4.3 Understand problems of pollution, urban waste disposal, and crime in urban areas.
- 4.4 Examine emerging urban issues in the Delhi NCR region.

UNITS	NAME	CONTENT	TOTAL HOUR		
			L	T	P
Unit:I (20 Marks)	Introduction to Urban Geography	a.Meaning and scope of Urban Geography. b.Origin and growth of towns in global and national contexts; Types and characteristics of towns; c.Functional classification of towns; Schemes of city classification (J.M. Houston's and G. Taylor's	18	4	
Unit: II (20 Marks)	Urban Morphology	a. Patterns of Urbanisation in Developed and developing countries; Component of Urbanization and urban population growth b. Organization of urban space: Urban Morphology and land use structure; c. Theories of the internal structure of Towns: the Sector Theory of Homer and Hoyt, and the Multiple Nuclei Theory of Harris and Ullman, d . Urban morphology and Hierarchy, Concept of Primate City and Rank-Size	18	4	

		Rule, Metropolis, Megalopolis, Ecumopolis, Conurbation and Necropolis.			
Unit: III (15 Marks)	Urbanization and Spatial Organization	a. Concept of city-region, Urban Agglomeration, Urban Sprawl, Umland and Periphery b. Rural-urban dichotomy and continuum, urban fringe, satellite town, new town, smart cities.	13	2	
Unit: IV (15 Marks)	Urban Issues	a. Urban issues and problems: Housing, slums, civic amenities (transportation and drinking water), traffic congestion, pollution (air, land, water, noise), urban waste disposal and crime. b. Emerging urban issues in Delhi National Capital Region (NCR)	13	3	
		Total	62	13	

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Mandal, R.B.: Urban Geography, Concept Publishing Co., New Delhi
2. Carter, H. The study of Urban Geography, Arnold Publishers, London
3. Pacione, M. Urban Geography: A Global Perspective Taylor and Francis, UK
4. Fyfe, N.R. and Kenny, J.T.: The Urban Geography Reader, London, UK
5. Gallion, A.B. and Eisner, S.: The Urban Pattern: City Planning and Design: CBS Publishers, New Delhi.

TITLE OF THE COURSE : GEOINFORMATICS
COURSE CODE : GGRM-804
NATURE OF THE COURSE : MAJOR
TOTAL CREDITS : 4 CREDITS
DISTRIBUTION OF MARKS : 52+18 =70 (End Sem) + 30 (In-Sem)

Course Description:

Geoinformatics (GGRM-804) introduces students to the principles, techniques, and applications of Remote Sensing, GIS, and GPS in geographical studies. The course covers the history of remote sensing and space programmes, electromagnetic radiation, remote sensing systems, sensors, satellite platforms, GIS database management, and GPS applications. It also emphasizes digital image processing, spatial data analysis, and satellite image interpretation. The practical component develops technical skills in GIS operations, geo-referencing, image classification, spatial analysis, and ground verification using GPS.

Course Outcomes (COs):

After successful completion of the course, students will be able to:

CO1: Understanding Remote Sensing and Electromagnetic Radiation

- 1.1 Explain the meaning and historical development of Remote Sensing.
- 1.2 Understand the evolution of Indian and global space programmes.
- 1.3 Analyze electromagnetic radiation (EMR), atmospheric windows, and interaction of EMR with matter.
- 1.4 Explain the concepts of radiometry including radiance, reflectance, and emittance.

CO2: Knowledge of Remote Sensing Systems

- 2.1 Differentiate between active and passive remote sensing systems.
- 2.2 Understand the concepts of satellite orbits, platforms, sensors, and scanners.
- 2.3 Analyze different types of sensor resolutions such as spatial, spectral, radiometric, and temporal.
- 2.4 Identify commonly used remote sensing satellite systems such as IRS, Landsat, MODIS, and RISAT.
- 2.5 Explain the elements of image interpretation.

CO3: Understanding GIS and GPS

- 3.1 Explain the concept, history, and components of GIS.
- 3.2 Differentiate between spatial and non-spatial data.
- 3.3 Understand Raster and Vector data models and database management systems.
- 3.4 Explain the principles, types, and applications of GPS in geographical studies.

CO4: Knowledge of GIS Applications and Database Management

- 4.1 Explain the role of DBMS in GIS applications.
- 4.2 Analyze the applications of GIS in geographical studies and spatial analysis.
- 4.3 Understand the integration of GIS, Remote Sensing, and GPS technologies.
- 4.4 Develop knowledge about spatial database handling and management.

CO5: Practical Skills in Geoinformatics

- 5.1 Import raster and vector data into GIS interfaces and perform geo-referencing.
- 5.2 Create shape files and digitize spatial layers using point, line, and polygon features.
- 5.3 Apply digital image processing techniques including correction, enhancement, and classification.
- 5.4 Interpret satellite images for landforms, river basins, land use/land cover, and river bank migration studies.
- 5.5 Conduct GPS-based ground verification and spatial data validation.

UNITS	NAME	CONTENT	TOTAL HOUR
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			L	T	P
Unit:I (12 Marks)	Introduction, History and EMR	a. Introduction to Remote Sensing, b. History of Remote Sensing. c. History of Space programs of India and World d. EMR wavelength regions and their applications, e. Atmospheric windows, f. Interaction of EMR with matter g. Fundamentals of Radiometry: Concept & Laws, radiance, reflectance, emittance	8	2	
Unit: II (18 Marks)	Remote Sensing System	a. Remote Sensing Systems (Active & Passive; Imaging & Non-imaging), Orbit and Platforms of earth Observation, sensors, and scanners. b. Cameras and Sensor classification: Opto-Mechanical & Push broom, Resolutions– spatial, spectral, radiometric, temporal c. Introduction to commonly used multi-spectral remote sensing satellite systems (IRS Series of satellites, Landsat, MODIS and RISAT d. Elements of image interpretation	12	1	
Unit: III (12 Marks)	Introduction to GPS	a. Basic concepts of GIS: Definition, and history of GIS b. Components of GIS – details of hardware, software and management c. Types of data- Spatial and Non-spatial d. Raster and Vector, Database Management System	10	2	
Unit: IV (10 Marks)	DBMS and GPS	a. Database Management System (DBMS) b. Application of GIS in geographical studies c. GPS: Basic concept, types principles and Application	8	2	
Unit:V (18 Marks)	Practical	a. Import Raster and Vector data to GIS interface b. Geo-referencing and Data layer creation: Creation of Shape Files, Digitization of different layers using point, line and polygon, attribute data input . c. Image Processing (Digital) and Data Analysis: Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Unsupervised) d. Satellite Image interpretation; Delineation of landforms, river basin, land use/land cover; A. Spatio-temporal change: land use/land cover, river bank migration e. GPS: Ground verification			30
		Total	38	7	30

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT: 30 Marks

Two Internal Examination - 20 Marks

Others (Any one) - 10 Marks

Group Discussion/Seminar presentation on any of the relevant topics/Debate/ Home assignment

Reading List:

1. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press.
2. Jensen, J.R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
3. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
4. Lillesand, T.M., Kiefer, R.W. and Chipman J.W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
5. Nag, P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
6. Rees, W.G., 2001: Physical Principles of Remote Sensing, Cambridge University Press.
7. Singh, R.B. and Murai, S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.
8. Wolf, P.R. and Dewitt, B.A., 2000: Elements of Photogrammetry: With Applications in GIS, McGraw-Hill.
9. Sarkar, A. (2015): Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
10. Chauniyal, D.D. (2010) Sudur Samvedanevam Bhogolik Suchana Pranali, Sharda Pustak Bhawan, Allahabad.
