

**LESSON PLAN**  
**1<sup>ST</sup> SEMESTER**  
**GEOGRAPHY (MAJOR)**  
**SESSION-2023-2024 (JULY-DECEMBER)**

**GEOADS01T - PHYSICAL GEOGRAPHY (3 CREDIT COURSE)**

**COURSE COORDINATOR: DR. RAJAT HALDER**

**TEACHER: DR.MADHAB MONDAL, DR, ADITI MATILAL, DR. RAJAT HALDER,  
PROF. SUSMITA HALDER, PROF. DEEPIKA MONDAL**

**COURSE OUTCOME:**

1. Students will be able to understand the basic concepts of Physical Geography, with emphasis on internal structure of earth based on seismic evidence, lithology of land form, landform development etc.
2. Students will be able to classify the different type of hazards and disasters in Indian perspective.
3. Students will develop ideas on and concepts of atmospheric layering distribution of pressure belts and planetary wind system etc
4. Students will be able to understand the factors of soil formation, the evolution of an ideal soil profile.
5. Students will understand the fundamental concept of ecology and biomes.

MONTH	TEACHER	HOURS	TOPIC
August	MM	1	Internal structure of earth based on seismic evidence
		1	Influence of lithology on land forms
September	MM	1	Factors controlling landform development: endogenic & exogenic force
		2	Evolution of Land Forms Under Fluvial Process
October	MM	1	Granite land forms cont.
		1	Granite land forms
November	MM	1	Revision
December	MM	2	Basalt landform.
August	AM	1	Nature of Classification of Hazards In Indian Context
		1	Distribution of Pressure Belts
September	AM	1	Nature, Composition and Layering of The Atmosphere
		1	Index Cycle
October	AM	1	Jet Stream cont.

December	AM	2	Jet Stream
		2	Planetary Wind System
August	RH	3	Factors of soil formation
		2	Evolution of an ideal soil profile
September	RH	3	Concept of ecosystem
		4	Basic ecological principles
October	RH	2	Succession
November	RH	2	Habitat
December	RH	2	Ecotone
		2	Communities
		2	Niche
August	SH	1	Concept of Biome
September	SH	1	Tropical rain forest biome cont
October	SH	1	Tropical rain forest biome
November	SH	1	Savannah
December	SH	1	Desert
		1	Revision
August	DM	2	Taiga biome (cont.)
		2	Taiga biome
September	DM	2	Tundra biome (cont.)
		1	Tundra biome
October	DM	2	Temperate grassland biome cont
November	DM	1	Temperate grassland biome
		1	Revision
December	DM	2	Revision
		1	Class test

## **GEOADS01P- PHYSICAL GEOGRAPHY (LAB)**

**COURSE COORDINATOR: DR. ADITI MATILAL**

**TEACHER: DR.MADHAB MONDAL, DR, ADITI MATILAL, DR. RAJAT HALDER,  
PROF. SUSMTA HALDER,**

MONTH	TEACHER	HOURS	TOPIC
August	RH	1	Altimetric frequency distribution
September		1	Demarcation of broad physiographic zones
October		1	Demarcation of broad physiographic zones
		1	Construction and interpretation of wind rose diagram cont.
November		1	Construction and interpretation of wind rose diagram
December		1	Class test
August	AM	1	Concept of topographical map
September		1	Identification of drainage patterns cont
		1	drainage patterns
		1	Identification of channel patterns cont.
		1	channel patterns
November		1	Revision
		1	Class test
August	MM	1	Denoting Drainage attributes
September		1	Geomorphic attributes and Settlement attributes
October		1	Transport attributes cont.
November		1	Transport attributes and Practice
December		1	Class test
August	SH	1	Concept of scale, classification, Concept of linear scale
September		1	Calculation of linear scale
October		1	Diagram of linear scale
November		1	Practice
December		1	Class test

**GEOSE-01M-REMOTE SENSING (SKILL ENHANCEMENT COURSES  
OFFERED BY GEOGRAPHY)**

**COURSE COORDINATOR: DR. MADHAB MONDAL  
TEACHER: DR.MADHAB MONDAL, DR, ADITI MATILAL**

**Course Outcome**

1. Understand the basic principles of Remote Sensing, Types of RS satellites and sensors
2. Elucidate sensor resolutions and their applications with reference to IRS and Land sat missions
3. Prepare False Color Composites from IRS LISS-3 and Land sat TM and OLI data.
4. Explain the principles of image correction and interpretation
5. Prepare inventories of land use land cover (LULC) features from satellite images.
6. Explain concept of GIS and its applicability with emphasis on GIS data structures: types: spatial and non-spatial, raster and vector
7. Identify principles of GNSS positioning and way point collection and transferring waypoints to GIS and ability to perform area and length calculations from GNSS data.
8. Georeferencing of maps and images using Open Source software (QGIS), preparation of FCC and identification of features using standard FCC and other band combinations
9. Perform digitization of features, data attachment, overlay and preparation of annotated thematic maps (Choropleth, pie chart and bar graphs).

MONTH	TEACHER	HOURS	TOPIC
AUGUST	AM	6	Principles of Remote Sensing (RS):
	MM	3	Classification of RS satellites and sensors
SEPTEMBER	AM	5	Sensor resolutions and their applications with reference to IRS and Land sat missions,
	AM	3	Image referencing schemes and data acquisition.
	MM	5	Preparation of False Color Composites from IRS LISS-3 Cont.
OCTOBER	AM	4	Land sat TM and OLI data.
	MM	1	Preparation of False Color Composites from IRS LISS-3 Cont.
NOVEMBER	AM	3	Principles of image: rectification and enhancement
	MM	1	Preparation of False Color Composites from IRS LISS-3 Cont

DECEMBER	MM	2	Principles of image rectification and enhancement
	MM	2	Principles of image interpretation and feature extraction
	AM	5	Preparation of inventories of Land cover features from satellite images
	AM	5	Revision of land use map
	AM	5	Revision of land cover map

## DEPARTMENT OF GEOGRAPHY

### LESSON PLAN GEOGRAPHY HONOURS JULY-DECEMBER, 2023 (2023-24) ODD SEMESTER

## 3rd SEMESTER

### CREDIT DISTRIBUTION ACROSS COURSE FOR THIRD SEMESTER

Course core	Title	Credit	Marks	Allotted classes
GEOACOR05T	Climatology	04	50	60
GEOACOR05P	Climatology lab	02	25	60
GEOACOR06T	Geography of India	06	75	60
GEOACOR07T	Statistical Method in geography	04	50	60
GEOACOR07P	Statistical Method in geography lab	02	25	60

## CLIMATOLOGY (GEOACOR05T)

Course coordinator: Dr. Madhab Mondal

Teachers: Dr. Madhab Mondal, Prof Susmita Halder

### COURSE OUTCOME

1. Students will be able to learn about the elements of atmosphere i.e. nature, composition, insolation, distribution of temperature, green house gas etc. These topic helps the student to understand about the change of climate and they will be able to correlate to their local climatic condition
2. Students will be able to learn about the atmospheric phenomena and also climatic condition such as condensation process, air mass, front, cyclone, monsoon circulation in India.
3. Students will be able to select suitable crop according to the climatic condition.
4. The knowledge about cyclone help in student to take necessary action any cyclonic event as a disaster management.
5. Student will be able to correlate the Indian climatic condition with global perspective

Month	Hrs	Teacher	Topic	Remark
Unit -1				Mode of teaching: offline (PowerPoint presentations will be used occasionally or wherever necessary)
SEP	3	MM	Nature, composition and layering of atmosphere	
	1		Insolation: controlling factors, heat budget of Atmosphere	
OCT	4		Temperature: horizontal and vertical distribution	
	3		Inversion of temperature; types, causes and consequences	
	3		Green house effect and importance of ozone layer	
	1		Revision	
	1		Internal assessment	
Unit 2				
SEP	1	SH	Condensation: process, forms	
	1		Mechanism and form of precipitation. Bergeron findeisen theory, collision and coalescence	
	2		Air mass, typology, origin, character	
	1		Frontogenesis and frontolysis	
OCT	1		Weather: stability and instability, barotropic and baroclinic condition CON.	
NOV	3	MM	Weather and Circulation of atmosphere; Planetary winds	
	4		Jet stream, Index cycle	
	4		Mid latitude cyclone	

DEC	3	MM	Tropical cyclone	
	2		Monsoon circulation	
	2		Mechanism of monsoon circulation reference to India	
	3		Monsoon and Jet stream	
	3		Climatic classification : Koppen	
	2		Climatic classification: Thornthwaite (1955)	
	1		Climatic classification: oliver	
	1		Internal assessment	

## CLIMATOLOGY (GEOACOR05P)

Course coordinator: Dr. Madhab Mondal

Teachers: Dr. Madhab Mondal and Prof. Susmita Mondal

### COURSE OUTCOME:

1. Students will be able to interpret the different types of weather map of India such as pre monsoon, monsoon and post monsoon. These will increase the analytical ability of student.
2. Students will be able to interpret the air pressure, isobar etc.
3. Students will be able to interpret the wind rose
4. Students will be able to learn construct the hythergraph and climograph. Students will be able to correlate between two variables
5. Students will be able to work in a group.

Month	Hrs	Teacher	Topic	Remark
SEP	1	MM	Concept of weather map: introduction of symbols of weather map and Introduction to weather map: pre-monsoon	Mode of teaching: offline (PowerPoint presentations will be used occasionally or wherever necessary
OCT	1	SH	Introduction to weather map: monsoon	
	1		Introduction to weather map: post monsoon	
NOV	2	SH	Air pressure: concept and distribution	
	1		Pressure profile	
	1		Isobar: pre monsoon, monsoon, post monsoon	
	1		Tabulation of wind direction	
	1		Wind rose	
	1		Preparation of wind velocity map	
	1		Relationship: pressure gradient and wind velocity	

DEC	1	SH	Sky condition: study and representation	
	1		Cloud condition: study and representation	
	2		Isohyet map : preparation	
	2		Sea condition: study	
	3		Transect chart	
	1		Internal assessment	
	2		Hythergraph	
	2		Climograph	
	1		Practice :	

## GEOGRAPHY OF INDIA (GEOACOR06T)

Course coordinator: Dr. Rajat Halder

Teachers: Dr. Rajat Halder, Dr Aditi Matilal & Prof Mousume Ghosh

### COURSE OUTCOME

1. Students will be able to know about the distribution of physiographic features, climatic provinces, soil, vegetation, population etc.
2. Students will realize the vastness of India as well as West Bengal and also realize the unity in diversity.
3. Students will be able to know about the distribution of resources in India.
4. Students will be able to know about the distribution of resources in West Bengal. Students will be able to realize about the allocation of industry according to the distribution of resource.
5. Students will be able to know about the regional disparity of India and they will be able to suggest the proper planning for the less developed part of India.

### Unit 1

Month	Hrs	Teacher	Topic	Remark
SEP	1	AM	Tectonic province of India	Mode of teaching: offline (PowerPoint presentations will be used occasionally or wherever
	1		Stratigraphic province of India	
	1		Physiographic province of India	
	1		Climate of India	
	1		Soil of India ; Classification and character	
	1		Vegetation of India: Classification and character	
	1		Population of india: Distribution, growth, stricter and policy	
OCT	1	AM	Internal assessment	
	1			

	1		Tribes of India: Gaddi	necessary
	1		Tribes of India: Toda	
	1		Tribes of India: Santal	
	1		Tribes of India: Jarwa	
	1		Agricultural region: Green revolution and it consequences	
	1		Mineral and power resources-distribution, utilization: Iron	
	1		Mineral and power resources-distribution, utilization: coal	
	1		Mineral and power resources-distribution, utilization: petroleum	
NOV	1	AM	Mineral and power resources-distribution, utilization: natural gas	
	1		Industry and development: automobile	
	1		Industry and development: information technology	
	1		Regionalization of India: Physiographic	
	1		Regionalization of India: economic	
Unit-II				
SEP	1	RH	Physiographic division of west Bengal	Mode of teaching: offline (PowerPoint presentations will be used occasionally or wherever necessary)
	2		Forest resources of West Bengal	
	2		Water resources of West Bengal	
SEP	1	MG	Agricultural resources of West Bengal	
OCT	1	MG	Mining resources of West Bengal	
	1		Industrial resources of West Bengal	
	1		Population : Growth and distribution	
NOV	1	MG	Human development: concept and trends	
DEC	2		Regional Issues: Darjeeling	
	2		Regional Issues: Sundarban area	

## STATISTICAL METHODS IN GEOGRAPHY (GEOACOR07T)

Course coordinator: Dr Aditi Matilal

Teachers: Dr. Rajat Halder , Dr.Aditi Matilal, Dr. Madhab Mondal

### COURSE OUTCOME

1. Students will be able to know about the theoretical concept of statistical data.
2. Students will be able to know about the sources of geographical data for statistical analysis.
3. Students will be able to know about the significances of frequency,

4. Students will be able to know about the significances of cumulative frequency, normal and probability etc.
5. Student will be able to correlate theses (cumulative frequency normal and probability etc.) with geography.

Month	Hrs	Teacher	Topic	Remark
DEC	1	AM	Statistics: concept, definition, importance and significances	Mode of teaching: offline Mode of teaching: offline
	1		Data: discret and continuous	
	2		Scale of measurement: nominal, ordinal, interval and ratio	
	1		Sources of geographical data	
	1		Method of data collection	
	1		Formation of statistical table	
	1		Sampling: classification	
	2		Need, types, significance	
	2		Random sampling	
	3		Frequency distribution	
DEC	1	MM	Normal distribution, cumulative frequency	
	1		Probability distribution	
	1		Revision	
	1		Internal assessment	
Unit 2				
OCT	1	RH	Concept of central tendency	
NOV	1	RH	Mean	
	1		Median	
	1		Mode	
	1		Partition value	
	1		Measure of dispersion: mean deviation	
DEC	1	RH	Measure of dispersion: standard deviation	
	1		Measure of dispersion: Quartile deviation	
	1		Coefficient of variation	
	1		Rank correlation	
	1		Product moment correlation	
	1		Regression: linear	
	1		Regression: non-linear	
	1		Time series analysis	
	1		Moving average	

## STATISTICAL METHODS IN GEOGRAPHY (GEOACOR07P)

Course coordinator: Dr Madhab Mondal

Teachers: Dr. Rajat Halder, Dr. Madhab Mondal, Prof. Susmita Halder

### COURSE OUTCOME

1. Students will be able to know about the theoretical concept of statistical data.
2. Students will be able to know about the sources of geographical data for statistical analysis.
3. Students will be able to know about the significances of frequency, cumulative frequency, normal and probability and will be able to correlate theses with geography.
4. Know about the representation of statistical data in Geography
5. Students will be able to analysis the sample data set through scatter diagram and linear regression

Month	Hrs	Teacher	Topic	Remark
DEC	1	RH	Construction of data matrix	Mode of teaching: offline (PowerPoint presentations will be used occasionally or wherever necessary)
	1		Tally marks, frequency table construction	
	1		Mean	
	1		Median	
SEP	1	MM	Median, mode : graphical representation	
	1		Quartile: graphical representation	
	1		Histogram, frequency polygon, ogive	
OCT	2	SH	Measure of dispersion: range, quartile deviation, mean deviation	
	2		Standard deviation and coefficient correlation	
	1		Scatter diagram: concept, correlation	
	1		Scatter diagram: diagrammatic representation	
DEC	1	SH	Pearson's correlation	
	1		Regression by least square method	
	1		Residual calculation and mapping	
	1		Continuous internal assessment	

## REMOTE SENSING (GEOGSSECO1M)

Course Coordinator: Prof. Mousume Ghosh

Teacher- Prof. Deepika Mondal

### COURSE OUTCOME

1. Understand the basic principles of Remote Sensing, Types of RS satellites and sensors.
2. Elucidate sensor resolutions and their applications with reference to IRS and Landsat mission
3. Prepare False Colour Composites from IRS LISS-3 and Landsat TM and OLI data.
4. Explain the principles of image correction and interpretation
5. Prepare inventories of land use land cover (LULC) features from satellite images.
6. Explain concept of GIS and its applicability with emphasis on GIS data structures: types: spatial and non-spatial, raster and vector
7. Identify principles of GNSS positioning and waypoint collection and transferring waypoints to GIS and ability to perform area and length calculations from GNSS data
8. Georeferencing of maps and images using Open Source software (QGIS), preparation of FCC and identification of features using standard FCC and other band combinations.
9. Perform digitization of features, data attachment, overlay and preparation of annotated thematic maps (choropleth, pie chart and bargraphs)

Month	Teacher	Hours	Topic	Remarks
SEP	DM	1	Principles of Remote Sensing (RS):	Mode of teaching: offline (PowerPoint presentations will be used occasionally or wherever necessary)
		1	Classification of RS satellites and sensors	
OCT	DM	1	Sensor resolutions and their applications with reference to IRS and Land sat missions,	
		1	Image referencing schemes and data acquisition.	
		1	Preparation of False Color Composites from IRS LISS-3	
NOV	DM	1	Land sat TM and OLI data.	
		1	Principles of image rectification and enhancement.	
DEC	DM	1	Principles of image interpretation and feature extraction	
		1	Preparation of inventories of land use features from satellite images	
		1	Preparation of inventories of Land cover features from satellite images	

## DEPARTMENT OF GEOGRAPHY

### LESSON PLAN GEOGRAPHY HONOURS JULY-DECEMBER, 2023 (2023-24) ODD SEMESTER 5<sup>th</sup> SEMESTER

#### DISTRIBUTION OF COURSES IN FIFTH SEMESTER

Course	Course Code	Title	Credit	Marks	Remarks
Core	GEOACOR11T	Field Work and Research Methodology	4	50	compulsory
	GEOACOR11P	Field Work and Research Methodology(Lab)*	2	25	
	GEOACOR12T	Remote Sensing and GIS	4	50	compulsory
	GEOACOR12P	Remote Sensing and GIS lab	2	25	
DSE	GEOADSE01T	Soil and Biogeography	6	75	compulsory
DSE	GEOADSE02T	Settlement Geography	6	75	Students can opt anyone out of 2
	GEOADSE03T	Population Geography	6	75	

# FIELD WORK AND RESEARCH METHODOLOGY (GEOACOR11T)

Course coordinator: Dr. Aditi Matilal  
Teacher: *Dr. Rajat Halder & Dr. Aditi Matilal*

## COURSE OUTCOME

### GEOCOR011T

1. Student will be able to learn about the meaning and significance of research
2. Student will be able to learn about the techniques of literature review
3. Student will be able to learn about the research problems, objectives, hypothesis as well as research materials and method.
4. Student will be able to learn about the selection of study area, and pre-field preparation.
5. Student will be able to learn about the field technique of survey method, the method of data collection and the post field methods, i.e. processing, quantitative and qualitative data analysis.

Month	Hrs	Teacher	Topic	REMARKS
<b>UNIT- 1 (RESEARCH METHODOLOGY)</b>				
September	1	<b>RH</b>	Meaning of research	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint
	2		Types of research	
	1		Significance of research	
	2		Literature review	
	1		Formulation of research design	
	1		Defining research problem	
	1		Research objectives	
	1		Research hypothesis	
October	2	<b>RH</b>	Interactive session	
	2		Question answer	
	2		Internal assessment	
	2		Research methods	
	2		Research materials	
	2		Techniques of writing scientific reports	
	1		Preparing research notes	
	1		Bibliography	
<b>UNIT- II (FIELD WORK)</b>				
September	2		Field work in Geographical studies: Role and significance	

	1	<b>AM</b>	Selection of study area and objectives	
	2		Pre-field academic preparations.	
	1		Ethics of field work	
	2		Field techniques and tools	
	3		Participant Observation and Non participant Observation, Interview	
October	2	<b>AM</b>	Questionnaires (open, closed, structured ,non-structured)	
	4		Field techniques and tools: Landscape survey using transects and quadrants, Constructing a sketch, photo and video recording	
	3		Preparation of inventory from field data	
	2		Discussion	
	2		Internal assessment	
	2		Post-field tabulation, processing and analysis of quantitative and qualitative data	

## **FIELD WORK AND RESEARCH METHODOLOGY (LAB) (GEOACOR11P)**

Course coordinator: Dr. Rajat Halder  
Teachers: Dr. Rajat Halder and Dr Aditi Matilal

### **COURSE OUTCOME**

#### **GEOCOR011P**

1. Student will be able to select the study area based on the discussion in the class room
2. Students will be able to learn about the techniques of primary data collection
3. Students will be able to learn about the techniques of preparation of field report
4. Students will be able to learn to work in a group
5. Student will be able to learn about the field technique of survey method and about the method of data collection

Month	Hours	Topic	
November	8	Literature Review	Dr. Rajat Halder will guide the students in completing a project on literature review
November	5	Field Report	Dr. Aditi Matilal will help students to complete the project work.

## **REMOTE SENSING AND GIS (GEOACOR12T)**

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHER: DR. RAJAT HALDER AND DR. ADITI MATILAL

### **COURSE OUTCOME**

#### **GEOACOR012T:**

1. Understand the basic principles of Remote Sensing, Types of RS satellites and sensors.
2. Elucidate sensor resolutions and their applications with reference to IRS and Landsat missions.
3. Prepare False Colour Composites from IRS LISS-3 and Landsat TM and OLI data.
4. Explain the principles of image correction and interpretation
5. Prepare inventories of land-use land cover (LULC) features from satellite images.
6. Explain concept of GIS and its applicability with emphasis on GIS data structures: types: spatial and non-spatial, raster and vector.
7. Identify principles of GNSS positioning and waypoint collection and transferring waypoints to GIS and ability to perform area and length calculations from GNSS data.
8. Geo-referencing of maps and images using Open-Source software (QGIS), preparation of FCC and identification of features using standard FCC and other band combinations

Month	Teacher	Hrs	Topic	
September	RH	1	Principles of Remote Sensing (RS)	Mode of teaching: Online (PowerPoint presentation and use of google jam board, teaching board and Microsoft paint)
		2	Types of RS satellites and sensors	
October		1	Sensor resolutions	
		2	Their applications with reference to IRS and Landsat missions	
		2	Preparation of False Colour Composites from IRS LISS-3 and Landsat TM and OLI data	
		4	Principles of image correction and interpretation	
		3	Preparation of inventories of land-use land cover (LULC)	
November		2	Features from satellite images	
		1	Revision	
		2	Question Answer	
		2	Internal assessment	

September	AM	2	Concept of GIS and its application	
		1	Types and data structure of GIS	
October		1	Concept of attribute tables and principles	
		1	Data structure	
		2	Overlay analysis	
		1	GNSS	
		2	Principles of GNSS positioning	
		1	Concept of GPS and its advantages and disadvantages	
		2	Concept of waypoint	
		2	Principles of waypoint collection	
		1	Data collection through GPS	
November		2	Principles of data transfer from GPS receiver to computer	
	1	Transferring way points to GIS		
	2	Area and length calculation from GNSS data		
	2	Revision		
	1	Internal assessment		

### **REMOTE SENSING AND GIS (GEOACOE012P)**

**Course Coordinator: DR. MADHAB MONDAL**

TEACHER: DR.MADHAB MONDAL AND SUSMITA HALDER

### **COURSE OUTCOME**

#### **GEOACOR014P**

1. Student will be able to learn about the practical application of geo-referencing of maps using QGIS software
2. Student will be able to learn about the preparation of FCC
3. Student will be able to learn about the image processing through QGIS software
4. This programme can help the student as profession in future.
5. Learn about to interpret satellite images.

October- November- December	Students will be assisted by Dr. Madhab Mondal and Dipika Mondal to accomplish a project work in QGIS. The project will include Geo-referencing of a map, preparation of FCC and image processing. Special Online classes will be scheduled after September aftermath completion of theory syllabus.
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## SOIL AND BIOGEOGRAPHY (DSEGEADSE01T)

Course Coordinator: Dr. Madhab Mondal

Teacher: Susmita Mondal & Deepika Mondal

Month	Hrs	Teacher	Topic
UNIT- 1 (SOIL GEOGRAPHY)			
September	1	SH	Soil formation features
October	1		Factors of soil formation
	1		Man as active agent of soil formation
	1		Soil profile
	1		Origin and profile characteristics: laterite
November	1		Origin and profile characteristics: chernozem
	1		Definition and significance of soil properties
December	1		Soil Texture,
	1		Soil structure: types, significance
	1		Soil moisture
	1		Revision
	1		Internal Assessment
	2		Soil PH
September	1	DM	Soil organic matter
	1		NPK
	1		Soil erosion
October	1		Features of soil erosion
	1		Processes of soil erosion
	1		Soil degradation: Factors, processes and mitigation measures
	1		Principles of genetic soil classification
	1		USDA classification
	2		Concept of land capability and classification of land
UNIT-II (BIO-GEOGRAPHY)			
November	1		Concept of biosphere
	1		Ecosystem
December	1		Biome, Eco-tone

	1	<b>DM</b>	Community, niche
	1		Succession, ecology
	1		Concepts of tropic structure
	1		Food chain
	1		Food web
	1		Energy flow
	1		Tropical rain forest
	1		Grass land biome
	1		Bio-diversity
	1		
September	1	<b>MG</b>	Man and biosphere
	1		Bio-geo chemical cycles: CO <sub>2</sub> Cycle
	1		Nitrogen cycle

## **SOIL AND BIOGEOGRAPHY (GEOADSE01T)**

Course coordinator: Dr. Madhab Mondal

Teacher: Dr. Madhab Mondal, Dr. Aditi Matilal, Prof. Mousume Ghosh & Deepika Mondal

### **COURSE OUTCOME**

#### **GEOADSE01T**

1. Student will be able to identify the factors of soil formation and also realize the importance of man in soil formation.
2. Student will be able to learn about the character of Lateritic soil, Podzol soil and Chernozem soil. On the basis of this knowledge they will be able to identify their local soil and their utility.
3. Student will be able to learn about the physical and chemical properties of soil and will be able to imply this knowledge on their local soil. On the basis of this knowledge they can select suitable crop for the concern soil.
4. Student will be able to take the suitable mitigation processes for local soil erosion and degradation.
5. Student will be able to get the primary concept about the ecosystem, biome etc and be able to identify the character of their local ecosystem as well as biome.
6. Student will be able to apply the knowledge of food chain, tropic structure etc on their local ecosystem. These can enhance the concept of micro level ecosystem management.
7. Student will be able to learn about the importance of bio diversity and can take the active participation in Man and Biosphere Programme from the grass root level.

Month	Hrs	Teacher	Topic	REMARKS		
UNIT- 1 (SOIL GEOGRAPHY)						
December	1	MM	Soil formation features	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint		
	1		Factors of soil formation			
	1		Man as active agent of soil formation			
	1		Soil profile			
	1		Origin and profile characteristics: laterite			
	1		Origin and profile characteristics: chernozem			
	1		Definition and significance of soil properties			
	1		Soil Texture,			
	1		Soil structure: types, significance			
	1		Soil moisture			
	1		Revision			
	1		Internal Assessment			
	1		Soil PH			
	1		Soil organic matter			
	1		NPK			
	1		Soil erosion			
	1		Features of soil erosion			
	1		Processes of soil erosion			
	November		1		DM	Soil degradation: Factors, processes and mitigation measures
			1			Principles of genetic soil classification
October	3	MG	USDA classification			
	2		Concept of land capability and classification of land			
UNIT-II (BIO-GEOGRAPHY)						
December	1	AM	Concept of biosphere			
	1		Ecosystem			
	1		Biome,Eco-tone			
	1		Community,niche			
	1		Succession,ecology			
	1		Concepts of tropic structure			
	1		Food chain			
	1		Food web			
	1		Energy flow			
	2		Tropical rain forest			
	2		Grass land biome			
	1		Bio-diversity			

	1		Man and biosphere	
	1		Bio-geo chemical cycles	
	1		CO2 Cycle	
	1		Nitrogen cycle	

## **POPULATION GEOGRAPHY (GEOADSE03T)**

**Course Coordinator: Dr.Aditi Matilal**

Teachers: Dr. Rajat Halder, Dr.Aditi Matilal, Dr.Madhab Mondal

### **COURSE OUTCOME**

#### **GEOADSE03T**

1. The concept of population distribution helps the students to identify the allocation of the favorable conditions.
2. Student will be able to relate these two variables which increase the analytical power of the students.
3. Student will be able to identify the regional disparity based on the population pattern of world as well as India.
4. Student will be able to indicate the stage of development of a certain society based on age-sex composition, literacy, education and will be able to suggest the appropriate remedial actions.
5. Student will be able to identify the socio-economic condition of a region based on the character of migration. On the basis of the realization the students will be able to suggest the appropriate objectives of regional planning.

Month	Hrs	Teachers	Topic	
November	1	<b>MG</b>	Development of Population Geography as a field of specialization	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and
	1		Relation between population geography and demography	
	1		Sources of population data	
December	1	<b>MG</b>	Level of reliability of population data	
	1		Problems of mapping	
	1		Population distribution	
	1		Population density and growth	

	1		Population growth	Microsoft paint
	1		Classical and modern theories in population distribution and growth	
	1		Demographic transition model	
December	1	<b>DM</b>	World patterns determinants of population distribution and growth	
	1		Concept of optimum population, over-population ,under-population	
	1		Population distribution, density and growth profile in India	
	1		Revision	
	1		Question answer discussion	
	1		Internal assessment	
	1		Concept of age-sex composition	
	1		Rural urban composition in terms of age-sex structure	
	1		Literacy and education	
	1		Concept of fertility: measurement and controlling factors	
November	1	<b>DM</b>	mortality: measurement and controlling factors	
	1		Fertility: developed and developing nations	
	1		Cohort and life tables	
	1		Population composition	
	1		Population composition in India	
November	1	<b>AM</b>	Urbanization: causes and consequences	Microsoft paint
	1		Types of urban centers	
	1		Occupational structure	
	1		Occupational structure: rural and urban India	
	1		Revision	
	1		Migration theories	
	1		Causes of migration	
December	1	<b>AM</b>	Types of migration	
	1		Consequences of migration	
	1		National and international migration trends	
	1		Development: concept and definitions	
	1		Population resource regions and its types	
	1		Concept of HDI	
	1		Components of HDI	
	1		Qualitative dimension of human resources	
	1		Population policies in developed countries	
	1		Population policies in developed countries in less developed countries, India	
	1		Population policies in India	

	1		Population and environment	
	1		Contemporary Issues–Ageing of Population	
	1		Examples from developed and developing nations	
	1		Declining Sex Ratio	
	1		Sex ratio in India, child sex ratio	