

DEPARTMENT OF GEOGRAPHY

LESSON PLAN GEOGRAPHY HONOURS

JULY-DECEMBER, 2021 (2021-22)

ODD SEMESTER

1ST SEMESTER

CREDIT DISTRIBUTION ACROSS COURSE FOR FIRST SEMESTER

COURSE CODE	TITLE	CREDIT	MARKS	ALLOTTED CLASSES
GEOACOR01T	GEOTECTONICS AND GEOMORPHOLOGY	4	50	60
GEOACOR01P		2	25	60
GEOACOR02T	CARTOGRAPHIC TECHNIQUES	4	50	60
GEOACOR02P		2	25	60

GEOTECTONICS AND GEOMORPHOLOGY (GEOACOR01T)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHERS: DR. RAJAT HALDER AND DR. MADHAB MONDAL

COURSE OUTCOME

GEOACOR01T

- Students will be able to distinguish between endogenic and exogenic forces
- Students will realize the concept of Isostasy based on equilibrium concept. Students will be able to correlate between different types of geomorphic process and resultant landforms as a process response system.
- Students will be able to identify the landforms as a geoheritage.
- Students will be able to identify the appropriate landform for certain human activities.
- Students will be able to interpret the landforms as a tourist guide.

<u>GEOACOR01T</u>					
MONTH	Hrs	TEACHER	TOPICS		Remarks
UNIT-1 (GEO-TECTONIC)					
October	10	RH	Earth’s tectonic structure		Mode of teaching: online (PowerPoint presentations and use of google jam)
			Structural evolution: concept and process		
			Geological time scale		
			Study of earth’s structural evolution in the perspective of geological time scale		
November	6		Earth’s interior structure		
			Layers of earth’s interior in detail		

			Seismology: Concept and its association with earth's interior.	board, teaching board and Microsoft paint
December	5		Plate tectonic: Basic concept, characteristics, significance	
	8		Classification of plate boundaries and associated landforms	
	2		Revision	
	1		Internal Assessment	
UNIT-II (GEOMORPHOLOGY)				
October	2	MM	Degradational Processes: Concept, causes and significance	
	3		Weathering: Concept, Definition, classification and impact of landforms	
	3		Mass-wasting: Concept, definition, categorization and impact of landforms	
	3		Development of river network and landforms on folded structure	
November	3		Glacier: Conceptual framework, classification, erosional and depositional landforms	
	3		Glacio-fluvial processes and landforms	
	3		Wind: Conceptual framework, classification, erosional and depositional landforms	
December	3		Fluvial action: Conceptual framework, classification, erosional and depositional landforms	
	3		Fluvio-aeolian processes and landforms	
	3		Cycle of erosion: Davis	
	3		Model of landscape evolution: Hack	
	1		Revision	
	1		Internal assessment	

GEOTECTONICS AND GEOMORPHOLOGY (GEOACOR01P)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHERS: DR RAJAT HALDER & DIPIKA MONDAL

COURSE OUTCOME

GEOACOR01P

- Students will be able to identify the rocks and minerals.
- Students will be able to use the rocks and minerals based on their character.
- Learn about thickness, dip and structure of rocks from geological maps.
- From the geological map, the students will be able to establish the correlation between the structure and landform.
- Understand the geological structure and its impact on drainage basin.

GEOACOR01P				
MONTH	HOURS	TEACHER	TOPIC	Remarks
December	15	DM	Interpretation of geological maps with unconformity and intrusions on uniclinal and folded structure	(Hands on training through PowerPoint presentation and continuous internal assessment through practice classes)
December	3	RH	Megascopic identification: Minerals:	(Hands on training through

			bauxite, calcite, chalcopryrite, galena, hematite, mica, quartz, tourmaline	PowerPoint presentation and continuous internal assessment through practice classes)
December	3		Megascopic identification: Rocks: Granite, basalt, laterite, sandstone, conglomerate, slate, phyllite, schist, gneiss, marble	
	1		Internal assessment	

CARTOGRAPHIC TECHNIQUES (GEOACOR02T)

COURSE COORDINATOR: DR. MADHAB MONDAL

TEACHERS: DR ADITI MATILAL, PROF. SUSMITA HALDER AND DIPIKA MONDAL

COURSE OUTCOME

GEOACOR02T

- Students will get knowledge about projection, map and map making process.
- Students will be able to apply the concept of scale according to their character.
- Know about the uses of different scale in different geographical purposes.
- Learn about the layout of Indian topographical Map.
- Learn about how to interpret topographical map.

GEOACOR02T				Remarks
MONTH	HOURS	TEACHER	TOPIC	
October	3	S.H	Maps: Concept and classification	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint
	2		Components of Map	
	2		Scale: Concept and application	
	2		Classification of scale	
November	2		Plain scale	
	2		Comparative scale	
	2		Diagonal scale	
	2		Uses of different scales	
	2		Revision	
	1		Internal assessment	
October	4	AM	Survey of India topographical maps: concept, margin information	
	4		Reference scheme of old and open series	
	2		Coordinate system: concept and classification	
November	3		Polar coordinate system	
	3		Rectangular coordinate system	
	3		Concept of generating globe	
	3		UTM projection: concept and characteristics	
	1		Internal assessment	
October	5	DM	Map projection: Definition, classification, properties and uses.	

CARTOGRAPHIC TECHNIQUES (GEOACOR02P)

COURSE COORDINATOR: DR. MADHAB MONDAL

TEACHERS: DR ADITI MATILAL, PROF SUSMITA HALDER, PROF DIPIKA MONDAL

COURSE OUTCOME

GEOACOR02P

- Students will get hand hold knowledge about the scale, projection construction.
- Students will understand about the differences among the scales as well as among the projections and also their applicability.
- The concept of drainage basin delineation, relative relief, slope map, stream ordering, will help student for drainage basin management.
- Know about the implication projection to drawing a map.
- Understand the role of physical property on anthropocentric aspects through the study of topographical map.

GEOACOR02P				Remarks
MONTH	HOURS	TEACHER	TOPIC	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint
December	4	SH	Graphical construction of Plain scale	
	4		Graphical construction of Comparative scale	
	4		Graphical construction of Diagonal scale	
	1		Internal Assessment	
October	5	DM	Polar-zenithal Stereographic Projection: calculation & graphical construction	
November	5		Bonne's cylindrical equal area projection: calculation & graphical construction	
	2		Practice class and continuous internal evaluation	
December	4	AM	Mercator's projection: calculation & graphical construction	
	2		Delineation of drainage basin from Survey of India topographical map	
	3		Relative relief map: Calculation, diagrammatic representation & interpretation	
	3		Average slope map: Calculation, diagrammatic representation & interpretation	
	3		Stream ordering (Strahler): Calculation, diagrammatic representation & interpretation	
	2		Transect Chart: correlation between physical and cultural features from Survey of India topographical maps.	

3rd SEMESTER

CREDIT DISTRIBUTION ACROSS COURSE FOR THIRD SEMESTER

COURSE CODE	COURSENAME	CREDIT	MARKS	Allotted classes according to syllabus
GEOACOR05T	Climatology	04	50	60
GEOACOR05P	Climatology (Lab)	02	25	60
GEOACOR06T	Geography of India	06	75	90
GEOACOR07T	Statistical Methods in Geography	04	50	60
GEOACOR07P	Statistical Methods in Geography Lab	02	25	60

CLIMATOLOGY (GEOACOR05T)

COURSE COORDINATOR: DR. ADITI MATILAL

TEACHER: DR. ADITI MATILAL & DR. RAJAT HALDER

COURSE OUTCOME:

GEOACOR05T

- Students will be able to learn about the elements of atmosphere i.e. nature, composition of the atmosphere, insolation, distribution of temperature, green house gases and its role.
- understand about the change of climate and they will be able to correlate to their local climatic condition
- 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.
- Students will be able to select suitable crop according to the climatic condition.
- The knowledge about cyclone help in student to take necessary action any cyclonic event as a disaster management.

Month	h	TEACHER	Topic	Remarks
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	ur s				
Unit-1					
September	4	AM	Nature, composition and layering of the atmosphere	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint	
	3		Insolation		
	5		Controlling factors of insolation, Heat budget of the atmosphere		
	6		Temperature: horizontal and vertical distribution		
October	6		Inversion of temperature: types, causes and consequences		
	3		Greenhouse effect and importance of ozone layer		
	2		Revision		
	1		Internal Assessment		
Unit-2					
September	2	RH	Condensation: Process and forms, mechanism of precipitation		
	4		Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation		
	4		Airmass: Typology, origin, characteristics		
	4		Airmass: modification, Fronts: warm and cold		
	4		Frontogenesis and Frontolysis		
	3		Weather: stability and instability; barotropic and baroclinic conditions		
October	3		Circulation in the atmosphere: Planetary winds		
	3		Jetstream, index cycle		
	3		Mid-latitude cyclone		
	2		Tropical cyclones		
November	3		Monsoon circulation		
	3		Monsoon circulation and mechanism with reference to India		
	3		Monsoon and jet stream		
	1		Climatic classification after Köppen		
	1		Revision		
	1		Internal Assessment		

CLIMATOLOGY (GEOACOR05P)

Course Coordinator: Dr. Aditi Matilal

Teacher: Dr. Aditi Matilal & DR. Rajat Halder

COURSE OUTCOME:

GEOACOR05P

- Students will be able to interpret the weather map of India. These will increase the analytical ability of student.
- Students will be able to learn construct the hythergraph and climograph.
- Learn about to identify the climatic characteristics of a region
- Know about the role of climate on human livelihood pattern.
- Learn about to interpret Indian Daily Weather map with the help of Synoptic chart.

Mon th	Tea cher	Hou rs/Cl asses	Topic	Remarks
Nov emb er	AM	4	Concept of weather map and introduction to symbols of weather map	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint
		2	Introduction to Pre-monsoon weather map	
		2	Introduction to monsoon weather map	
		2	Introduction to post-monsoon weather map	
		2	Concept of air pressure and its horizontal and vertical distribution in different phases of monsoon	
		1	Discussion	
Dece mber		2	Pressure profile preparation and interpretation for three monsoonal phases	
		2	Comparative Isobar study of pre-monsoon, monsoon and post monsoon, pressure gradient map preparation	
		2	Tabulation of wind direction from three types of maps	
		2	Wind rose diagram, zonal wind distribution for all three seasons	
		2	Preparation of wind velocity map	
		2	Relationship between pressure gradient and wind velocity and preparation of profile	
		3	Study and representation of sky condition	
		2	Study and representation of cloud condition	
Dece mbe r	RH	2	Isohyet map preparation	
		2	Study of sea condition	
		2	Transect chart	
		1	Internal assessment	
		2	Hythergraph	
		2	Climograph	
		1	Practice of Hythergraph and Climograph	

GEOGRAPHY OF INDIA (GEOACOR06T)

Course Coordinator: DR. Aditi Matilal

Teacher: Dr. Madhab Mondal&Deepika
Mondal

COURSE OUTCOME:

GEOACOR 06T

- Students will be able to know about the distribution of physiographic features, climatic provinces, soil, vegetation, population etc.
- Know about the vastness of India in respect of its area and geomorphic features.
- Students will be able to know about the distribution of resources in India and West Bengal also. and allocation of industry.
- 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.
- Acquire knowledge about social stratification with special reference to tribes in India.

<u>UNIT- 1 (GEOGRAPHY OF INDIA)</u>				
Month	Teacher	Hours/Cla sses	Topic	Remarks
September	MM	4	Tectonic provinces of India	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint
		3	Stratigraphic provinces of India	
		4	Physiographic divisions of India	
		3	Climate of India: Characteristics and classification	
		2	Soil: Characteristics and classification	
		2	Vegetation: Characteristics and classification	
		2	Population: Distribution, growth, structure and policy	
		1	Internal assessment	
October	MM	2	Tribes of India with special reference Toda	
		2	Tribes of India with special reference Jarwa	
		2	Agricultural regions. Green revolution and its consequences	
		2	Power resources distribution coal, petroleum	
		1	Natural gas	
		2	Mineral utilization: iron ore, coal, petroleum	
November	MM	3	Industrial development: Automobile and information	

			technology	
		3	Economic regionalization in economic (P.Sengupta)	

UNIT- 2 (GEOGRAPHY OF WEST BENGAL)				<p>Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint)</p>
Month	Teacher	Hours/Cla sses	<u>Topic</u>	
September	DM	3	Physiographic divisions of West Bengal	
		2	Forest resources of West Bengal	
		2	Water resources of West Bengal	
		2	Agricultural resources of West Bengal	
		2	Mining resources of West Bengal	
		2	Industrial resources of West Bengal	
		2	Population: Growth and distribution in West Bengal	
October		2	Human development: concept and trends in W.B	
		3	Darjeeling Hills	
		3	Sundarban area	

STATISTICAL METHODS IN GEOGRAPHY (GEOCOR07T)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHER: DR. RAJAT HALDER (RH), SUSMITA HALDER (SH) AND DR. MADHAB MONDAL (MM)

COURSE OUTCOME:

GEOACOR 07T

- Students will be able to know about the theoretical concept of statistical data.
- Students will be able to know about the sources of geographical data for statistical analysis.
- 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.
- Know about the representation of statistical data in Geography

- Students will be able to analysis the sample data set through scatter diagram and linear regression

Month		Hours	Topic	Remarks
September	SH	3	Statistics: Concept, definition, importance and significance	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint
		2	Discrete and continuous data: concept and examples	
		3	Population and sample	
		3	Scale of measurement (interval and ratio)	
		2	Scale of measurement (nominal and ordinal)	
		3	Sources of geographical data and uses	
		2	Method of data collection	
		2	Formation of statistical table	
October		3	Sampling and its concept	
		3	Need and types of sampling	
		5	Sampling and its classification	
		2	Significance and methods of random sampling	
November		3	Frequency distribution	
		3	Normal distribution, cumulative frequency	
		4	Probability distribution	
		2	Revision	
		1	Internal assessment	
December		2	Concept of central tendencies	
		3	Mean-concept, definition, uses, advantages and disadvantages	
		3	Median-concept, definition, uses, advantages and disadvantages	
		3	Mode-concept, definition, uses, advantages and disadvantages	
		2	Partition values	
		2	Measures of dispersion: mean deviation, quartile deviation	
		1	Standard deviation-definition, uses	
		1	Coefficient of variation-significance	
November	MM	2	Rank correlation	
		2	Product moment correlation	
		1	Linear regression	

		1	Non-linear regression	
December	RH	2	Time series analysis by moving average	
		2	Time series analysis by least square method	

STATISTICAL METHODS IN GEOGRAPHY (LAB) (GEOCOR07P)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHER: DEEPIKA MONDAL & DR. MADHAB MONDAL

COURSE OUTCOME:

GEOACOR07P

- Students will be able to represent the geographical data for frequency table and will be able to measure
- Students will be able to analysis the sample data set through scatter diagram and linear regression.
- Students will be able to analysis the collected data from the scatter diagram and linear regression.
- Know about the method of time series data analysis.
- Learn about the measurement of dispersion

Month	Hours/Classes	Teacher	Topic	Remarks
November	1	DM	Construction of data matrix	Mode of teaching: online (PowerPoint presentations and use of Google jam board, teaching board and Microsoft paint
	1		Tally marks, frequency table construction	
	2		Mean: by different methods	
	2		Median and mode and their graphical representation	
	2		Quartiles and their graphical representation	
December	4		Histogram, frequency polygon, ogive	
	6		Measures of dispersion: Range, quartile deviation, mean deviation	
	4		Standard deviation and coefficient of variation	
	1		Revision	
	1		Continuous assessment	
December	2	MM	Concept of scatter diagram and correlation	
	2		Diagrammatic representation	
	4		Pearson's correlation coefficient and Spearman's Rank correlation	
	4		Regression by least square method and line of best fit	

	4		Residual calculation and mapping	
	1		Continuous Internal Assessment	

REMOTE SENSING (GEOGSSECO1M)

COURSE COORDINATOR – MOUSUME GHOSH

TEACHER- DEEPIKA MONDAL

COURSE OUTCOME

GEOGSSECO1M

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 digitisation of features, data attachment, overlay and preparation of annotated thematic maps (choropleth, pie chart and bar graphs)

MONTH	TEACHER	HOURS	TOPIC	
JULY	DM	1	Principles of Remote Sensing (RS):	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint)
AUGUST		1	Classification of RS satellites and sensors	
		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	
SEPTEMBER		1	Land sat TM and OLI data.	
		1	Principles of image rectification and enhancement.	
		1	CLASS TEST	
NOVEMBER		1	Principles of image interpretation and feature extraction	
		2	Preparation of inventories of land use features from satellite images	
		2	Preparation of inventories of Land cover features from satellite images	
DECEMBER		1	Revision of land use map	
		1	Revision of land cover map	
		1	Class test	

5th SEMESTER

DISTRIBUTION OF COURSES IN FIFTH SEMESTER HONOURS

Course	CourseCode	Title	Credit	Marks	remarks
Core	GEOACOR11T	Field Work and Research Methodology	4	50	compulsory
	GEOACOR11P	Field Work and Research Methodology (Lab)*	2	25	
	GEOACOR12T	Disaster management	4	50	compulsory
	GEOACOR12P	Disaster management lab	2	25	
DSE	GEOADSE01T	Soil and Biogeography	6	75	compulsory
DSE	GEOADSE02T	Settlement Geography	6	75	Students can opt any one out of 2
	GEOADSE03T	Population Geography	6	75	

FIELD WORK AND RESEARCH METHODOLOGY (GEOACOR11T)

COURSE COORDINATOR: DR. ADITI MATILAL

TEACHER: DR. RAJAT HALDER & PROF DEEPIKA MONDAL

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 etc,
6. Student will be able to learn about the method of data collection
7. Student will be able to learn about the post field methods, i.e. processing, quantitative and qualitative data analysis.

Month	Hrs	Teacher	Topic	REMARKS
UNIT- 1 (RESEARCH METHODOLOGY)				
September	1	DM	Meaning of research	Mode of teaching:
	3		Types of research	

	1		Significance of research	online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint	
	2		Literature review		
	2		Formulation of research design		
	1		Defining research problem		
	1		Research objectives		
	2		Research hypothesis		
	1		Interactive session		
	1		Question answer		
	1		Internal assessment		
	2		Research methods		
October	2		Research materials		
	3		Techniques of writing scientific reports		
	2		Preparing research notes		
	1		Bibliography		
	1		Abstract		
	1		Keywords		
	1		Interactive session		
	1		Questionanswer		
UNIT- II (FIELD WORK)					
September	4	RH	Field work in Geographical studies: Role and significance		
	4		Selection of study area and objectives		
	4		Pre-field academic preparations.		
	2		Ethics of field work		
	2		Field techniques and tools		
	4		Participant Observation and Non participant Observation, Interview		
October	2		Questionnaires (open, closed, structured, non-structured)		
	2		Field techniques and tools: Landscape survey using transects and quadrants, Constructing a sketch, photo and video recording		
	2		Preparation of inventory from field data		
	2		Discussion		
	1		Internal assessment		
	4		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, DR. MADHAB MONDAL 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. Know about the methodology of report writing.

Month	Hours	Topic	
December	10	Literature Review	Dr. MadhabMondal and Dr. AditiMatilal will guide the students in completing a project on literature review
	13	Field Report	Field report will be prepared with secondary data sources. Dr. RajatHalder and Dr. AditiMatilal will help students to complete the project work.

DISASTER MANAGEMENT (GEOACOR012T)

COURSE COORDINATOR: DR. MADHAB MONDAL & DR. ADITI MATILAL

TEACHER: DR. MADHAB MONDAL & DR. ADITI MATILAL

COURSE OUTCOME

GEOACOR12T

1. Student will be able to know difference between hazards and disaster.
2. Learn to identify the hazards or disaster, when it hit in their locality.
3. Student will be able to identify the factors of hazards which they will face in their locality.
4. Student will be able to take primary remedial activities against any hazards. This will save them and their locality.
5. Student will be aware about the importance of their local resources.

Month	Hrs	Teacher	Topic
UNIT- 1 (CONCEPTS)			
September	3	MM	Classification of hazard and disaster
	3		Approaches to hazard study
	2		Risk perception
	3		Vulnerability assessment
	4		Hazard Paradigm
	4		Responses to hazard
	4		Preparedness to hazard
	3		Hazard related trauma and aftermath
October	3		Resilience
	3		Capacity building
	3		Hazard Mapping
	4		Data and geo-spatial techniques
UNIT- 2 (HAZARD SPECIFIC STUDY WITH FOCUS ON INDIA)			
September	6	AM	Earthquake: Concept, definition, characteristics, causal factors and mechanism
	4		Consequences of earthquake, vulnerability and management
	6		Tropical cyclone: Concept, definition, characteristics, causal factors and mechanism
	4		Consequences of cyclone: vulnerability and management
	6		River bank erosion: Concept, definition, characteristics, causal factors and mechanism

	4		Consequences and management
	2		Discussion and interaction
	2		Doubt clearing and question answer discussion
	1		Internal Assessment

DISASTER MANAGEMENT (GEOACOE012P)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHER: DR. MADHAB MONDAL, DR. ADITI MATILAL, DR. RAJAT HALDER

COURSE OUTCOME

GEOACOR12P

1. Student will learn how to prepare a project report.
2. A group work may inculcate the leadership, unity, humanity, togetherness, empathy among the students.
3. The completion of project report will help the student in hazards based higher study.
4. Learn about individual report writing on the basis secondary data.
5. Learn about oral paper presentation.

Month	Hrs	Teacher	Topic
December	5	MM	Dr. Madhab Mondal, Dr. AditiMatilal and Dr. RajatHalder will guide students to accomplish the project on disaster management.
	8	AM	
	8	RH	

DSEGEOADSE01T SOIL AND BIOGEOGRAPHY

COURSE COORDINATOR: DR. MADHAB MONDAL

TEACHER: SUSMITA MONDAL & DEEPIKA MONDAL

Month	Hrs	Teacher	Topic
UNIT- 1 (SOIL GEOGRAPHY)			
September	2	SH	Soil formation features
	3		Factors of soil formation
	1		Man as active agent of soil formation
	2		Soil profile
	4		Origin and profile characteristics: laterite
October	3		Origin and profile characteristics: chernozem
	3		Definition and significance of soil properties
	2		Soil Texture,
November	3		Soil structure: types, significance
	2		Soil moisture
	1		Revision
	1		Internal Assessment
December	2		Soil PH
	1		Soil organic matter
	1		NPK
	1		Soil erosion

	2		Features of soil erosion
	2		Processes of soil erosion
November	4	DM	Soil degradation: Factors, processes and mitigation measures
	2		Principles of genetic soil classification
	3		USDA classification
	2		Concept of land capability and classification of land
UNIT-II (BIO-GEOGRAPHY)			
DECEMBER	1	DM	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

SOIL AND BIOGEOGRAPHY (GEOADSE01T)

COURSE COORDINATOR: DR. MADHAB MONDAL
TEACHER: SUSMITA MONDAL & 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)				
September	2	SH	Soil formation features	Mode of teaching: online (PowerPoint presentations and use of google jam board, teaching board and Microsoft paint)
	3		Factors of soil formation	
	1		Man as active agent of soil formation	
	2		Soil profile	
	4		Origin and profile characteristics: laterite	
October	3		Origin and profile characteristics: chernozem	
	3		Definition and significance of soil properties	
	2		Soil Texture,	
November	3		Soil structure: types, significance	
	2		Soil moisture	
	1		Revision	
	1		Internal Assessment	
December	2		Soil PH	
	1		Soil organic matter	
	1		NPK	
	1		Soil erosion	
	2		Features of soil erosion	
	2		Processes of soil erosion	
November	4	DM	Soil degradation: Factors, processes and mitigation measures	
	2		Principles of genetic soil classification	
	3		USDA classification	
	2		Concept of land capability and classification of land	
UNIT-II (BIO-GEOGRAPHY)				
DECEMBER	1	DM	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. ADITIMATILAL

TEACHERS: DR. RAJAT HALDER, DR. ADITI MATILAL, DR. MADHABMONDAL

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	Teac hers	Topic	
Nove mber	1	M.M	Development of Population Geography as a field of specialization	Mode of teaching: online (PowerPoint presentation s and use of google jam board, teaching board and Microsoft paint
	1		Relation between population geography and demography	
	1		Sources of population data	
	1		Level of reliability of population data	
	1		Problems of mapping	
	2		Population distribution	
	2		Population density and growth	
	2		Population growth	
	4		Classical and modern theories in population distribution and growth	
December	2		Demographic transition model	
	2		World patterns determinants of population distribution and growth	
	2		Concept of optimum population, over-population, under-population	
	2		Population distribution, density and growth profile in India	
	1		Revision	
	1		Question answer discussion	
	1		Internal assessment	
Novem ber	1	RH	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	
	1		mortality: measurement and controlling factors	
	1		Fertility: developed and developing nations	
	1		Cohort and life tables	
	1		Population composition	
	1		Population composition in India	
	2		Urbanization: causes and consequences	
	1		Types of urban centers	
	1		Occupational structure	
	1		Occupational structure: rural and urban India	

DECEMBER	1		Revision	
	2		Migration theories	
	2		Causes of migration	
	2		Types of migration	
NOVEMBER	1	AM	Consequences of migration	
	1		National and international migration trends	
	2		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	

LESSON PLAN
GEOGRAPHY HONOURS
JANUARY-JUNE, 2022 (2021-22)
EVEN SEMESTER

2ND SEMESTER

Distribution of courses in 2nd semester honours

Semester	Course code	Course name	Credit	Marks	Allotted classes according to syllabus
2 ND	GEOACOR03T	Human Geography	06	75	90
	GEOACOR04T	Cartograms And Thematic Mapping	04	50	60
	GEOACOR04P	Cartograms And Thematic Mapping	02	25	60

HUMAN GEOGRAPHY (GEOACOR03T)

COURSE COORDINATOR: DR. RAJAT HALDER (RH)

TEACHERS: DR. MADHAB MONDAL (MM), DR. RAJAT HALDER (RH) AND
DR. ADITI MATILAL (AM)

COURSE OUTCOME

GEOACOR03T

1. Student will be able to interpret about the impact of environment on human society.
2. In future student will be able to plan of new urban site based on urban morphology.
3. Student will be able to scientific discussion about the heterogeneity of races, ethnicity etc.
4. Student will be able to realize about the evolution of human society therefore be able to show respect every human society.
5. Student will be able to find out the proper location for a new settlement.

Unit-1 (Nature and principles)

MONT H	NO OF CLASSES	NAME OF TEAC HER	TOPIC	REMA RKS
FEB	5	RH	Human Geography: Concepts. Nature and scope	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
MARCH	2		Recent trends in Human Geography	
	2		Elements of Human Geography	
	3		Approaches to human geography	
	4		Resource and human geography	
	4		Locational approach in human geography	
APRIL	6		Landscape approach in human geography	
	5		Environmental approach in human geography	
MAY	5		Concept of race: Definition, classification	
	10		Races of India	
JUNE	3		Ethnicity: concept, definition, categorization	
	3		Space in human geography	
	2		Society: concept, nature and characteristics	
FEB	3	AM	Cultural regions of India	
MARCH	7		Linguistic regions of India	
	6		Religion: Concept, origin, characteristics	

Unit- 2 (Society, demography and ekistics)

Month	No of classes	Name of teacher	Topic	Remarks
APRIL	8	AM	Evolution of human society	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
MAY	8		Hunting and food gathering: Characteristics, evolution	
JUNE	7		Pastoral nomadism: evolution, characteristics, locational attributes	
FEB	3	MM	Characteristics of subsistence farming	
	3		Nature of industrial society: evolution, nature and features	
	3		Human adaptation to environment: Eskimo	
	3		Human adaptation to environment: Masai	
	3		Human adaptation to environment: Maori	
MARCH	2		Growth of population: Controlling factors	
	3		Distribution of population: nature and influencing	

			factors	
	3		Population composition	
	2		Demographic transition	
	2		Population resource regions: Concept and classification	
APRIL	4		Rural settlements: Types and patterns	
	8		Morphology or urban settlements: Critical analysis of settlement theories of Burgess, Hoyt and C.D. Harris and E. Ullman	

CARTOGRAMS AND THEMATIC MAPPING (GEOACOR04T)

COURSE COORDINATOR: DR. ADITI MATILAL

TEACHERS: DR. RAJATHALDER, SUSMITA HALDER, DEEPIKA MONDAL

COURSE OUTCOME

GEOACOR04T

1. Students will get a clear concept about the cartograms and thematic mapping and also be able to differentiate them.
2. Student will get a theoretical concept about the surveying and also survey equipments.
3. Know about the calculation of logarithm and anti-logarithm.
4. Learn about scientific notation and rounding off.
5. learn about the method of graphical representation of data.

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
JUNE	1	RH	Concepts of rounding	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
	1		Concepts of scientific notation	
	1		Logarithm: concept and uses	
	1		Anti-logarithm: concept and uses	
	1		Natural and log scales	
	1		Diagrammatic data representation: Line graph: concept, uses, advantages and disadvantages, construction principles	
	1		Bar graph: Concept, classification, uses, advantages and disadvantages	
	1		Isopleths: Concepts, construction principles, advantages and disadvantages	
FEB	3	SH	Representation of area data- Dots and sphere: Concepts, construction principles, advantages and disadvantages	
MARCH	4		Proportional Circles: Concepts, construction principles, advantages and disadvantages	
	4		Choropleth: Concepts, construction principles, advantages and disadvantages	
	4		Preparation and interpretation of land-use and land cover maps	
APRIL	3		Preparation and interpretation of socio-	

			economic maps	
	3		Bearing: Magnetic and true	
	3		Whole-circle and reduced bearing	
MAY	4		Basic concept of surveying and survey equipment	
	5		Prismatic Compass: Instrument parts and functioning, uses, significance	
JUNE	3		Dumpy level: Instrument parts and functioning, uses, significance	
	4		Theodolite: Instrument parts and functioning, uses, significance	

CARTOGRAMS AND THEMATIC MAPPING (GEOACOR04P)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHER: RAJAT HALDER (RH) & DEEPIKA MONDAL (DM)

COURSE OUTCOME

GEOACOR04P

1. Student will able to represent the statistical data into a graphical picture.
2. This multi dimensional creativity will create an aesthetic value in them.
3. Students will get hand hold training about prismatic and Dumpy Level survey. These will help them in higher studies during the field work.
4. Learn to measure elevation of landform through dumpy level survey.
5. Learn to construct thematic map on the basis geographical data.

MONTH	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
FEB	1	DM	Thematic mapping: Concept and principles	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
MARCH	2		Choropleth map: Construction and interpretation	
	2		Dots and spheres: Construction and interpretation	
APRIL	3		Proportional pie-diagrams: Construction and interpretation	
MAY	4	RH	Traverse survey using prismatic compass: Data collection, tabulation, calculation and diagrammatic representation	
JUNE	1		Profile survey using dumpy level: Data collection, tabulation, calculation and diagrammatic representation	
	1		Practice class	

4TH SEMESTER

Distribution Of Courses in 4th Semester Honours

Seme ster	Course code	Coursename	Credi t	Marks	Allotted classes according to syllabus
4 TH	GEOACOR08T	Regional Planning	06	75	90
	GEOACOR09T	Economic Geography	06	75	90
	GEOACOR10T	Environmental Geography	04	50	60
	GEOACOR10P	Environmental Geography	02	25	60
	GEOSSEC02M	Advanced Spital statistical Techniques	02	25	25

REGIONAL PLANNING AND DEVELOPMENT (GEOACOR08T)

COURSE COORDINATOR: DR. ADITI MATILAL

TEACHERS: DR. ADITI MATILAL (AM), DR. RAJAT HALDER (RH)

COURSE OUTCOME

GEOACOR08T

1. Understand the concept of regions, their classification and their delineation
2. Explain the types, principles, objectives, tools and techniques of Regional Planning with emphasis on need for regional planning in India, multi- level planning in India
3. Understand metropolitan concept and urban agglomerations
4. Elucidate concepts of growth, development, underdevelopment, indicators and measures of economic, social, environmental and human development
5. Critically analyze the theories and models for regional development: Cumulative causation(Myrdal), Stages of development (Rostow), growth pole model(Perroux)
6. Decipher the trends of regional development in India with emphasis on disparity and diversity

UNIT-1 (REGIONAL PLANNING)

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
FEB	3	RH	Concept of regions	Mode of teaching: offline(P owerPoin t presentati ons are used occasiona lly or
MARCH	6		Types of regions	
	4		Delineation of region	
	8		Types of regional planning	
	6		Principles of regional planning	
	3		Objectives of Regional Planning	
APRIL	2		Tools and techniques of regional delineation	
	3		Need for regional planning in India	
	4		Multi-level planning: an Indian perspective	

	5		Concept of metropolis: nature, characteristics, growth	wherever necessary)
	5		Urban agglomeration: growth and characteristics	

UNIT -2 REGIONAL DEVELOPMENT

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
MAY	3	RH	Concept of growth	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
	4		Concept of development	
	4		Growth vs development	
	6		Indicators of development	
	4		Economic development	
	4		Social development	
JUNE	4		Environmental development	
	6		Human development: concept and measurement	
	6		Indicators of human development	
FEB	4	AM	Myrdal's theory of Cumulative Causation	
	5		Rostow's theory of stages of development	
	5		Growth pole Model, Perroux	
	5		Underdevelopment- concept and causes	
	5		Regional development in India	
	5		Regional disparity in India: nature and causes	
	5		Regional diversity in India	
MAR	3		Need and measures for balanced development in India	

ECONOMIC GEOGRAPHY (GEOACOR09T)

COURSE COORDINATOR: DR. MADHAB MONDAL

TEACHERS: DR.ADITI MATILAL (AM) &DR.MADHAB MONDAL

COURSE OUTCOME

GEOACOR 9T

1. Explicate the meaning, concepts and approaches to Economic Geography with emphasis on goods and services, production, exchange and consumption, concept of economic man, theories of choices economic distance and transport costs, concept and classification of economic activities
2. Identify the factors affecting location of economic activity with special reference to agriculture (Von Thünen), and industry (Weber)
3. Classify economic activities and identify the nature, characteristics and significance of different types of primary, secondary and tertiary activities.
4. Understand the evolution, structure functions and significance of international trade and economic blocs: WTO, GATT and BRICS
5. Understand the nature and types of Indian communication system and its role on economy.

UNIT- 1 (CONCEPTS)

MONTH	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
MARCH	2	AM	Meaning and approaches of economic geography	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
	4		Concepts of goods and services	
	8		Concept of production, exchange and consumption	
	4		Economic Man: Concept and characteristics	
	2		Theories of choice	
	3		Economic distance	
	3		Transport cost	

UNIT- 2 (ECONOMIC ACTIVITIES)

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
APRIL	4	AM	Economic activities: Concept and classification	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
	6		Agricultural locational theory of Von Thunen	
	7		Industrial locational theory of Weber	
MAY	3		Primary activities: Agriculture	
	6		Forestry as a primary economic activity	
	6		Fishing as a primary economic activity	
	6		Mining as a primary economic activity	
	6		Secondary activity: nature and characteristics	
JUNE	8		Manufacturing industry: concept, characteristics	
	8		Cotton textile industry: growth, factors of development, location etc	
FEB	8	MM	Iron and steel industry: growth, factors of development, location etc	
MARCH	6		Tertiary activities: Transport, trade and services	
	4		Tea plantation in India	
	8		Mixed farming in Europe	
	2		Trans-national sea routes	
APRIL	6		Railways of India	
	4		Highways of India: State, National etc	
	4		International trade	
	7		Economic blocks: WTO, GATT, BRICS: Evolution, structure and functions	

ENVIRONMENTAL GEOGRAPHY (GEOACOR10T)

COURSE COORDINATOR: DR.MADHAB MONDAL

TEACHER: DR. MADHAB MONDAL AND SUSMITA HALDER

COURSE OUTCOME

GEOACOR 10T

1. Identify geographers' approach to environmental studies and acquire comprehensive knowledge about the concept of holistic environment and systems approach
2. Understand the concept structure and functions of ecosystem
3. Delineate the space–time hierarchy of Environmental problems at local, regional and global scales
4. Identify different environmental issues with special reference to the causes and consequences of land, water and air pollution and degradation, waste management
5. Elucidate important environmental policies viz. National Environmental Policy (2006), Earth Summits (Stockholm, Rio, Johannesburg) and Global initiatives for environmental management (special reference to Montreal Protocol, Kyoto Protocol, Paris Climate Summit)
6. Acquire skills of conducting perception survey on environmental problems and acquire knowledge on environmental impact assessment and air quality.
7. Identify the check-list for environmental impact assessment of an urban / industrial project and interpret air quality using CPCB / WBPCB data

UNIT 1 (Concepts)

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
MAY	4	MM	Geographers approach to environmental studies	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
	6		Concept of holistic environment	
	6		System approach in environmental study	
	6		Concept of eco system	
JUNE	6		Structure of eco-system	
	6		Function of eco-system	
	5		Space-time hierarchy of environmental problems: local, regional and global	

UNIT -2 (Environmental Problems And Policies)

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
FEB	5	SH	Environmental pollution and degradation	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
MARCH	8		Land pollution: Causes, types, impact, remedial measures and conservation	
	6		Water pollution: Causes, types, impact, remedial measures and conservation	
APRIL	4		Air pollution: Causes, types, impact, remedial measures and conservation	
	6		Urban environmental issues with special reference to waste management	
MAY	10		Environmental policies	

	5		National environmental policy 2006	necessary)
JUNE	5		Earth Summit (Stockholm, Rio and Johannesburg)	
	4		Environmental Management (Montreal Protocol, Kyoto protocol, Paris climatic summit)	

ENVIRONMENTAL GEOGRAPHY (GEOACOR10P)

COURSE COORDINATOR: DR.MADHAB MONDAL

TEACHER: DR. RAJAT HALDER, DR. ADITI MATILAL &DEEPIKA MONDAL

COURSE OUTCOME

GEOACOR10P

1. Student will be able to learn about the concept of questionnaire for survey on environmental problem.
2. Student will be able to learn about the concept of check list for Environmental Impact Assessment.
3. Student will acquire skills of conducting perception survey on environmental problems and acquire knowledge on environmental impact assessment and air quality.
4. Student will identify the check-list for environmental impact assessment of an urban / industrial project and
5. Learn about interpret air quality using CPCB / WBPCB data.

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
FEB	3	DM	Preparation of questionnaire for perception survey on environmental problems.	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
MARCH	7		Preparation of questionnaire for perception survey on environmental problems.	
APRIL	5	RH	Preparation of check-list for environmental Impact assessment on urban	
MAY	7		Preparation of check-list for environmental industrial project	
JUNE	5	AM	Interpretation of air quality using CPCB / WBPCB data	

SKILL ENHANCEMENT COURSE

ADVANCED SPATIAL STATISTICAL TECHNIQUES (GEOSSEC02M)

COURSE COORDINATOR: SUSMITA HALDER

TEACHER: SUSMITA HALDER, MOUSUME GHOSH, DEEPIKA MONDAL

COURSE OUTCOME

1. Understand probability theory, probability density functions with respect to Normal, Binomial and poisson distributions and their geographical applications.
2. Understand sampling, sampling plans for spatial and non-spatial data, sampling distributions, sampling estimates for large and small samples tests involving means and proportions
3. Perform correlation and regression analysis with special reference to rank order correlation and product moment correlation, linear regression, residuals from regression, simple curvilinear regression and multi-variate
4. Perform time series analysis with emphasis on time Series processes, smoothing time series, time series components.
5. Know about the types of sampling and its methods.

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
FEB	1	SH	Probability theory	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
	1		Probability density functions with respect to Normal distribution	
MARCH	5		Probability density functions with respect to Binomial distribution	
	4		Probability density functions with respect to Poisson distribution	
APRIL	2		Sampling: basic concept and uses	
MAY	2		Sampling Plans for spatial and non-spatial data	
	1		Sampling distributions	
	2		Sampling estimates for large and small sample tests involving means and proportions	
JUNE	2			
FEBRU ARY	2	MG	Correlation and Regression:Introduction and basic concept	
	2		Rank order correlation	
	2		Product moment correlation	
	2		Linear Regression	
	2		Residuals from regression	
	2		Multi-variate regression	
MAY	4	DM	Time series Analysis	

6TH SEMESTER

EVOLUTION OF GEOGRAPHICAL THOUGHT (GEOACOR13T)

COURSE COORINATOR: DR. RAJAT HALDER

TEACHER: DR. RAJAT HALDER (RH) & DR. ADITI MATILAL

COURSE OUTCOME

GEOACOR13T

1. Students will be able to get a clear picture about the development of geography from pre modern age to recent time.
2. Student will be able to know the contributions of great geographers which increase the will-force of the student.
3. Students will learn about the development of geography in different parts of the world, i.e. USA, France, Britain, Germany and will be able to find out the connectivity, uniqueness etc among these different schools. This capability will grow the holistic sense in the mind of students.
4. The long tradition and legacy of geography will create the humanity, values among the students.
5. Know about the history as well as the evolution of Geographical thought in India.

UNIT-1

MONTH	NO OF CLASS ES	NAM E OF TEA CHE R	TOPIC	REMA RKS
FEB	2	RH	Development of Geography: a temporal perspective	Mode of teaching: offline(P owerPoin t presentati ons are used occasionally or wherever necessary)
	3		Contribution of Greek geographers	
	3		Contribution of Chinese geographers	
MARCH	3		Impact of dark age in Geography	
	3		Contribution of Arab geographers	
	3		Geography during the age of Discovery and Exploration	
	2		Contribution of Columbus	
	2		Contribution of Vasco-da-Gama	
	2		Contribution of Magellan	
	3		Dualism and dichotomies in Geography	
	2		Idiographic and Nomothetic approach in Geography	
	2		Physical and Human Geography	
	5		Determinism and Possibilism in the perspective of man nature relationship	

UNIT-2

MONTH	NO OF CLA SSE S	NAME OF TEAC HER	TOPIC	REMAR KS
APRIL	4	RH	Evolution of geographical thoughts in Britain	Mode of teaching:
	4		Evolution of geographical thought in United States of	

			America	offline(PowerPoint presentations are used occasionally or wherever necessary)
	3		Contributions of Alexander Von Humboldt in the evolution of modern geography	
	2		Contributions of Carl Ritter	
	2		Contributions of Friedrich Ratzel and concept of living space	
	3		Contributions of Vidal-de-la Blache	
	1		Internal assessment	
MAY	6		Trends in geography in post Second world war	
	6	AM	Quantitative Revolution: Concept, origin, advantages and disadvantages	
	8		System Approach in Geography	
	5		Critical geography: Evolution and concept	
JUNE	6		Behavioural approach in geography: concept and origin, characteristics, significance	
	4		Humanistic approach in geography: concept, origin, characteristics and significance.	
	4		Radicalism: concept, origin, characteristics, significance	
	2		Time and space in Geography in 21 st century	

REMOTE SENSING AND GIS (GEOACOR14T)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHER: DR. RAJAT HALDER AND DR. ADITI MATILAL

COURSE OUTCOME

GEOACOR014T:

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 andOLI 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	
February	RH	1	Principles of Remote Sensing (RS)	Mode of teaching: Online (PowerPoint presentations and use of
		2	Types of RS satellites and sensors	
March		1	Sensor resolutions	
		2	Their applications with reference to IRS and Landsat missions	

April		2	Preparation of False Colour Composites from IRS LISS-3 and Landsat TM and OLI data	google jam board, teaching board and Microsoft paint)
		4	Principles of image correction and interpretation	
		3	Preparation of inventories of land-use land cover (LULC)	
		2	Features from satellite images	
		1	Revision	
		2	Question Answer	
		2	Internal assessment	
Feb	AM	2	Concept of GIS and its application	
March		1	Types and data structure of GIS	
		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	
		April	2	
1			Transferring way points to GIS	
2			Area and length calculation from GNSS data	
2			Revision	
1			Internal assessment	

REMOTE SENSING AND GIS (GEOACOE014P)

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 georeferencing 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.

March-April-May	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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HYDROLOGY AND OCEANOGRAPHY, (GEOADSE04T)

COURSE COORDINATOR: DR. ADITI MATILAL
TEACHERS: DR. MADHAB MONDAL & SUSMITA HALDER

COURSE OUTCOME:

GEOADSE04T

1. Understand systems approach in hydrology and the concept of global hydrological cycle, its physical and biological role
2. Identify the controlling factors of run-off, with emphasis on infiltration and evapo-transpiration
3. Describe drainage basin as a hydrological unit and explain the principles of water harvesting and water shed management
4. Explain the concept of groundwater and identify the factors controlling recharge, discharge and movement
5. Describe the major relief features of the ocean floor, its characteristics and origin according to plate tectonics, physical and chemical properties of ocean water, water mass, T-S diagram, ocean temperature and salinity and marine resources.

UNIT -1 HYDROLOGY)

MONTH	NO OF CLASS ES	NAME OF TEACHER	TOPIC	REMAR KS
FEB	2	MM	System approach in hydrology: Concept of system and its application in hydrological study	Mode of teaching: offline(Po werPoint presentatio ns are used occasionall y or wherever necessary)
	2		Global hydrological cycle: Concept and significance	
	2		Hydrological cycle: Global and local perspectives	
	3		Hydrological cycle: Physical and biological role	
MARCH	2	SH	Run-off : Concept, definition, controlling factors	
	4		Infiltration and evapo-transpiration	
	4		Concept and significance of run-off	
	4		Run-off cycle: Concept and characteristics	
	6		Drainage basin as a hydrological unit	
	4		Principles of water harvesting, types, characteristics	
	3		Water-shed management	
	2		REVISION	
	1		INTERNAL ASSESSMENT	
APRIL	1		Ground water: Concept, type	
	6		Factors controlling ground water discharge and recharge	
	7		Ground water movement with special emphasis on Darcy's Law	
	5		Ground water movement: type and significances	

UNIT- 2, OCEANOGRAPHY

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
MAY	8	MM	Major relief features of ocean floor: Concept and classification	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
	8		Characteristics and origin of relief features in the light of Plate tectonics	
	4		Physical properties of ocean water	
	3		Chemical properties of ocean water	
	3		Water mass: Concept and classification	
			Characteristics of different water mass	
JUNE	4		T-S diagram	
	4		Ocean Temperature: Controlling factors	
	6		Horizontal distribution of ocean temperature	
	3			
FEB	1	SH	Vertical distribution of ocean temperature	
	1		Salinity of ocean water: Controlling waters	
	1		Variation in salinity: Regional scale	
MARCH	1		Marine resources: classification and sustainable utilization	
	1		Sea level change: types, causes and significance	
	1		REVISION	

RESOURCE GEOGRAPHY (GEOADSE06T)

COURSE COORDINATOR: DR. RAJAT HALDER

TEACHERS: SUSMITA HALDER, DR. ADITI MATILAL & DEEPIKA MONDAL

COURSE OUTCOME:

GEOADSE06T

1. Elucidate the concept of resource, uses, functionability, classification etc
2. Classify natural resources
3. Explain the utilitarian, conservational, community-based adaptation approaches to resource utilization:
4. Elucidate the problems of resource depletion—global scenario (forest, water, fossil fuels).
5. Understand the distribution, utilization, problems and management of mineral resources, energy resources

UNIT-1 (RESOURCE AND DEVELOPMENT)

MONT H	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMA RKS
MARCH	1	SH	Natural resources: concept and classification	Mode of teaching: offline (PowerPoint presentations)
	1		Approaches to resource utilization: Utilitarian	
	2		Approaches to resource utilization: Conservational	
APRIL	1		Approaches to resource utilization:	

			Community-based adaptation	ons are used occasionally or wherever necessary)
	1		Significance of resource: backbone of economic growth and development	
	1		Pressure on resources	
	1		Appraisal and conservation of natural resources	
	1		Problems of resource depletion: Global perspective	
	2		Forest resources of India	
JUNE	1	AM	Water resources of India	
	1		Fossil fuels: Concept, definition and characteristics	
	1		Sustainable resource development	
	1		Revision	

UNIT- 2 RESOURCES, CONFLICT AND MANAGEMENT

MONT H	NO OF CLASSES	NAME OF TEACH ER	TOPIC	REMA RKS
FEB	3	DM	Mineral resources: Bauxite (Distribution, utilization, problems and management)	Mode of teaching: offline(PowerPoint presentations are used occasionally or wherever necessary)
MARCH	9		Mineral resources: Iron ore (Distribution, utilization, problems and management)	
	9		Conventional resources: (Distribution, utilization, problems and management)	
APRIL	10		Non-conventional resources: (Distribution, utilization, problems and management)	
MAY	7		Contemporary energy crisis and future scenario	
	7		Limits to growth	
JUNE	5		Sustainable resource utilization	
	5		Resource sharing: Water	
	1		Revision	