LESSON PLAN (2019-20)
DEPARTMENT OF GEOGRAPHY
GEOGRAPHY HONOURS

JULY-DECEMBER, 2019
LESSON PLAN
FOR
1st SEMESTER

DISTRIBUTION OF SYLLABUS FOR FIRST SEMESTER

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

GEO-TECTONICS AND GEOMORPHOLOGY (GEOACOR01T)

Course outcome:

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

COURSE COORDINATOR: Dr. Rajat Halder (RH)
Teachers: Dr. Rajat Halder, Dr. Aditi Matilal (AM)

GEOACOR01T				
MONTH	HOURS	TEACHER	TOPIC	Remarks
UNIT-1 (GEO-TECTONIC)				Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
July	1	**RH**	Earth's tectonic structure	
	1		Structural evolution : concept and process	
	1		Geological time scale	
August	2		Study of earth's structural evolution in the perspective of geological time scale	
	1		Earth's interior structure	
	1		Layers of earth's interior in detail	
	1		Seismology: Concept and its association with	

			earth's interior.	
September	3		Plate tectonic: Basic concept, characteristics, significance	
	3		Classification of plate boundaries and associated landforms	
	2		Hotspots and vulcanicity	
	1		Revision	
UNIT-II (GEOMORPHOLOGY)				
July	1	**AM**	Degradational Processes: Concept, causes and significance	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	2		Weathering: Concept, Definition, classification and impact of landforms	
	2		Mass-wasting: Concept, definition, categorization and impact of landforms	
August	2		Development of river network and landforms on folded structure	
	3		Glacier: Conceptual framework, classification, erosional and depositional landforms	
	3		Glacio-fluvial processes and landforms	
September	3		Wind: Conceptual framework, classification, erosional and depositional landforms	
	3		Fluvial action: Conceptual framework, classification, erosional and depositional landforms	
	3		Fluvio-aeolian processes and landforms	
	2		Cycle of erosion: Davis	
	2		Model of landscape evolution: Hack	
	1		Revision	

GEO-TECTONICS AND GEOMORPHOLOGY LAB (GEOACOR01P)

Course outcome:

1. Students will be able to identify the rocks and minerals.
2. Students will be able to use the rocks and minerals based on their character.
3. From the geological map, the students will able to establish the correlation between the structure and landform
4. Students will be able to identify the appropriate landform for certain human activities and interpret the landforms as a tourist guide.
5. Know about the basic characteristics of rocks and minerals and method of identification.

COURSE COORDINATOR: Dr. Rajat Halder
Teacher: RH, Susmita Halder (SH)

GEOACOR01P			
MONTH	HOURS	TEACHER	TOPIC
December	3	R.H	Megascopic identification: Rocks: Granite, basalt, laterite, sandstone, conglomerate, slate, phyllite, schist, gneiss, marble
	3	R.H	Megascopic identification: Minerals: bauxite, calcite, chalcopyrite, galena, hematite, mica, quartz, tourmaline
November	4	S.H	Interpretation of geological maps with unconformity and intrusions on uniclinal structure
	4		Interpretation of geological maps with unconformity and intrusions on uniclinal structure

CARTOGRAPHIC TECHNIQUES (GEOACOR02T)

Course outcome:

1. Students will get knowledge about projection, map and map making process.
2. Students will be able to apply the concept of scale according to their character.
3. Achieve hand hold knowledge about the scale, projection construction.
4. Understand about the differences among the scales as well as among the projections and also their applicability.
5. The concept of drainage basin delineation, relative relief, slope map, stream ordering, will help student for drainage basin management

COURSE COORDINATOR: Dr. Aditi Matilal
Teacher: SH

GEOACOR02T				
MONTH	HOURS	TEACHER	TOPIC	Remarks
July	1	SH	Maps: Concept and classification	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	1		Components of Map	
	1		Scale: Concept and application	
	1		Classification of scale	
	1		Plain scale	
	1		Comparative scale	
	1		Diagonal scale	
August	1		Survey of India topographical maps: concept, margin information	
	1		Reference scheme of old and open series	
	2		Coordinate system: concept and classification	

	2		Polar coordinate system	
	2		Rectangular coordinate system	
	1		Concept of generating globe	
	1		Revision	
	2		UTM projection: concept and characteristics	
September	6		Map projection: Definition, classification, properties and uses.	

CARTOGRAPHIC TECHNIQUES LAB (GEOACOR02P)

Course outcome:

1. Students will get hand hold knowledge about the scale, projection construction.
2. Students will understand about the differences among the scales as well as among the projections and also their applicability.
3. The concept of drainage basin delineation, relative relief, slope map, stream ordering, will help student for drainage basin management.
4. Know about map making process through different projection.
5. Student will be able to inculcated aesthetic values in them themselves.

COURSE COORDINATOR: Dr. Aditi Matilal
Teachers: SH, RH & AM

GEOACOR02P				
MONTH	HOURS	TEACHER	TOPIC	Remarks
October	2	SH	Graphical construction of Plain scale	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	2		Graphical construction of Comparative scale	
	2		Graphical construction of Diagonal scale	
	1		Practice class	
October	4	RH	Polar-zenithal Stereographic Projection: calculation & graphical construction	
	4		Bonne's cylindrical equal area projection: calculation & graphical construction	
	4		Mercator's projection: calculation & graphical construction	
	1		Practice class	
October	2	AM	Delineation of drainage basin from Survey of India topographical map	
	2		Relative relief map: Calculation, diagrammatic representation & interpretation	

November	2		Average slope map: Calculation, diagrammatic representation & interpretation	
	2		Stream ordering (Strahler): Calculation, diagrammatic representation & interpretation	
	2		Transect Chart: correlation between physical and cultural features from Survey of India topographical maps.	

LESSON PLAN FOR 3RD SEMESTER (2019-20)

DISTRIBUTION OF COURSES IN THIRD SEMESTER HONOURS

COURSE CODE	COURSE NAME	CREDIT	MARKS	Allotted classes according to syllabus
GEOACOR05T	Climatology	04	50	
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 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. Students will be able to correlate Indian climatic condition with the global respect.

COURSE COORDINATOR: DR.Aditi Matilal
Teacher: DR. Madhab Mondal (MM) & Dr.Aditi Matilal (AM)

Month	hours	Teacher	Topic	Remarks
July	2	MM	Nature, composition and layering of the atmosphere	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	1		insolation	
August	2		Controlling factors of insolation, Heat budget of the atmosphere	
	1		Temperature: horizontal and vertical distribution	
	1		Inversion of temperature: types, causes and consequences	
	2		Greenhouse effect and importance of ozone layer	
	1		Revision	
	2	AM	Condensation: Process and forms, Mechanism of precipitation	
	1		Internalassessmentofunit1	
Septembe r	2		Bergeron-Findeisen theory, collision and coalescence.Forms of precipitatin	
	1		Airmass: Typology, origin, characteristics	
	2		Airmass: modification, Fronts: warm and cold	
	1		Frontogenesis and Frontolysis	
	2		Weather:stabilityandinstability;barotropicandbaroclin icconditions	
	1		Internal assessment	
	2		Circulation in the atmosphere: Planetary winds	
	1		Jet stream, index cycle	
	2		Mid-latitude cyclone	
	1		Tropical cyclones	
October	2		Monsoon circulation	
	1		Monsoon circulation and mechanism with reference to India	
	2		Monsoon and jet stream	
	1		Climatic classification after Köppen	
	2		Climatic classification after Thornthwaite(1955)	
	1		Climatic classification after Oliver	

November	1		Climatology question answer discussion	

CLIMATOLOGY (GEOACOR05P)

Course outcome:

1. Students will be able to interpret the weather map of India. These will increase the analytical ability of student
2. Students will be able to learn construct the hythergraph and climograph. Students will be able to correlate between two variables.
3. Student will able to understand about the windrose.
4. Student will be able to inculcated aesthetic values in them themselves.
5. Student will be able to work in a group.

COURSE-COORDINATOR: DR.ADITI MATILAL
Teacher: Prof.Susmita Halder

Month	Hours /Classes	Teacher	Topic	Remarks
August	2	SH	Concept of weather map and introduction to symbols of weather map	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	1		Introduction to Pre-monsoon weather map	
	2		Introduction to monsoon weather map	
	1		Introduction to post-monsoon weather map	
	2		Concept of air pressure and its horizontal and vertical distribution in different phases of monsoon	
	1		Pressure profile preparation and interpretation for three monsoonal phases	
September	2		ComparativeIsobarstudyofpre-monsoon,monsoonandpostmonsoon,pressuregradientmap preparation	
	1		Tabulation of wind direction from three types of maps	
	2		Wind rose diagram, zonal wind distribution for all three seasons	
	1		Preparation of wind velocity map	
	2		Relationship between pressure gradient and wind velocity and preparation of profile	

	2		Study and representation of sky condition	
	1		Study and representation of cloud condition	
October	2		Isohyet map preparation	
	1		Study of sea condition	
	2		Transect chart	
	1		Class assessment	
November	1		Discussion	
	2		Internal assessment	
	1		Hythergraph	
December	2		Climograph	
	1		Practice of hythergraph and climograph	
	2		Internal assessment	
	1		Revision	
	2		Discussion and feedback on preparation of project profile	

GEOGRAPHY OF INDIA (GEOACOR06T)

Course outcome:

1. Students will be able to know about the distribution of physiographic features, climatic provinces, soil, vegetation, population etc. Students will realize the vastness of India as well as West Bengal and and also realize the unity in diversity.
2. Students will be able to know about the distribution of recourses in India.
3. Students will be able to know about the distribution of recourses in West Bengal
4. Students will be able to realize about the allocation of industry in India and West Bengal.
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.

COURSE COORDINATOR: DR. Aditi Matilal
Teacher: Dr.Aditi Matilal (AM), DipikaMondal (DM)

Month	Hours/C	Teacher	Topic	Remarks

	lass es			
July	1	AM	Tectonic provinces of India	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	2		Stratigraphic provinces of India	
August	1		Physiographic divisions of India	
	2		Physiographic divisions of India	
	1		Climate of India: Characteristics and classification	
	2		Soil: Characteristics and classification	
	1		Vegetation: Characteristics and classification	
	2		Population: Distribution, growth, structure and policy	
	1		Tribes of India with special reference to Gaddi,	
	2		Tribes of India with special reference Toda, Santal and Jarwa	
	1		Agricultural regions .Green revolution and its consequences	
September	2		Revision	
	1		Question answer discussion	
	2		Internal Assessment	
	1	DM	Power resources distribution coal, petroleum	
	1		Natural gas	
	2		Mineral utilization: iron ore,	
	1		Industrial development: Automobile and information technology	
November	2		Question answer discussion	
	2		Internal Assessment	
December	2		Regionalization of India: Physiographic(R.L. Singh)and	
	1		Economic regionalization in economic (P. Sengupta)	
	2		Internal assessment	
	1		Revision	
	2		Question answer discussion	

STATISTICAL METHODS IN GEOGRAPHY (GEOCORO7T)

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 cumulative frequency, normal and probability
5. will be able to correlate theses with geography.

COURSE COORDINATOR: Dr. Rajat Halder
Teacher: Dr.Rajat Halder

Month	Hours	Teacher	Topic	Remarks
JULY	1	RH	Concept and definition of statistics	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	1		Importance and significance of statistics	
AUG	1		Discrete and continuous data: concept and examples	
	1		Population and sample	
	1		Scale of measurement(interval and ratio)	
	1		Scale of measurement (nominal and ordinal)	
	1		Sources of geographical data	
	1		Use of geographical data for statistical analysis	
	1		Method of data collection	
	1		Formation of statistical table	
	1		Sampling and its concept	
	1		Need and types of sampling	
	1		Sampling and its classification	
	1		Significance and methods of random sampling	
	1		Frequency distribution	

SEPTEMBER	1		Normal distribution, cumulative frequency	
	1		Probability distribution	
	1		Revision	
	1		Internal assessment	
OCTOBER	1		Concept of central tendencies	
	1		Mean-concept, definition, uses, advantages and disadvantages	
	1		Median-concept, definition, uses, advantages and disadvantages	
	1		Mode-concept, definition, uses, advantages and disadvantages	
	1		Partition values	
	1		Internal assessment	
	1		Measures of dispersion: mean deviation, quartile deviation	
NOVEMBER	1		Standard deviation-definition, uses	
	1		Coefficient of variation-significance	
	1		Rank correlation	
DECEMBER	1		Product moment correlation	
	1		Linear regression	
	1		Non-linear regression	
	1		Time series analysis by moving average	
	1		Time series analysis by least square method	
	1		Revision	
	1		Question answer discussion	
	1		Doubt clearing	

STATISTICAL METHODS IN GEOGRAPHY
LAB (GEOCORO7P)
JULY-DEC, 2019

Course outcome:

1. Students will be able to represent the geographical data for frequency table and will be able to measure
2. Students will be able to analysis the sample data set through scatter diagram and linear regression.
3. Students will be able to analysis the collected data from the scatter diagram and linear regression
4. Students will be able to inculcate the aesthetic values in the.
5. Students will be able to work in a group.

Course coordinator: DR. RAJAT HALDER
Teacher: Dr. Rajat Halder (R.H), Dr. Madhaab Mondal (M.M) and Dr. Aditi Matilal (A.M)

Month	Hours/Classes	Teacher	Topic	Remarks
September	1	R.H	Construction of data matrix	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	1		Tally marks, frequency table construction	
	1		Mean: by different methods	
	1		Median and mode and their graphical representation	
	1		Quartiles and their graphical representation	
	1		Histogram, frequency polygon, ogive	
	1		Measures of dispersion: Range, quartile deviation, mean deviation	
	1		Standard deviation and coefficient of variation	
October	2	A.M	Drawing sample set from data matrix	
	1		Use of random sampling	
	2		Use of systematic sampling	
	1		Use of stratified sampling	

	2		Mapping the samples	
November	1		Revision and discussion	
Decem be r	2	M.M	Concept of scatter diagram and correlation	
	1		Diagrammatic representation	
	2		Pearson's correlation coefficient and Spearman's rank correlation	
	1		Regression by least square method and line of best fit	
	2		Residual calculation and mapping	
	1		Revision and discussion	

REMOTE SENSING (GEOGSSECO1M)

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 OLIdata.
4. Explain the principles of image correction and interpretation
5. Prepare inventories of landuse 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 bargraphs)

COURSE COORDINATOR – Mousume Ghosh (MG)
Teacher- Deepika Mondal (DM)

MONTH	TEACHER	HOURS	TOPIC	Remarks
JUIY	DM	1	Principles of Remote Sensing (RS):	Mode of teaching: offline (PowerPoint presentations are used
		1	Classification of RS satellites and sensors	
AUGUST		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	Landsat TM and OLI data.	occasionally or wherever necessary)
		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	

LESSON PLAN
JANUARY- JUNE, 2020

2nd SEMESTER

HUMAN GEOGRAPHY (GEOACOR03T)

Course outcome:

1. Student will 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 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.

COURSE COORDINATOR: Dr.Rajat Halder (RH)
Teachers: Dr. Aditi Matilal (AM) & Susmita Halder (SH)

UNIT-1 (NATURE AND PRINCIPLES)

MONTH	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
January	3	AM	Human Geography: Concepts. Nature and scope	Mode of teaching: offline (PowerPoint presentations
	2		Recent trends in Human Geography	
	2		Elements of Human Geography	
	2		Approaches to human geography	

February	2		Resource and human geography	are used occasionally or wherever necessary)
	2		Locational approach in human geography	
	2		Landscape approach in human geography	
	2		Environmental approach in human geography	
	4		Concept of race: Definition, classification	
March	3		Races of India	
	2		Ethnicity: concept, definition, categorization	
	3		Space in human geography	
	3		Society: concept, nature and characteristics	
	4		Cultural regions of India	
April	3		Linguistic regions of India	
	5		Religion: Concept, origin, characteristics	

UNIT- 2 (SOCIETY, DEMOGRAPHY AND EKISTICS)

MONTH	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
January	2	S.H	Evolution of human society	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	3		Hunting and food gathering: Characteristics, evolution	
	3		Pastoral nomadism: evolution, characteristics, locational attributes	
	1		Characteristics of subsistence farming	
	3		Nature of industrial society: evolution, nature and features	
February	3		Human adaptation to environment : Eskimo	
	3		Human adaptation to environment : Masai	
	3		Human adaptation to environment : Maori	
	3		Growth of population: Controlling factors	
	4		Distribution of population: nature and influencing factors	
March	3		Population composition	
	4		Demographic transition	
	3		Population resource regions: Concept and classification	
	3		Rural settlements: Types and patterns	
	7		Morphology or urban settlements: Critical analysis of settlement theories of	

			Burgess, Hoyt and C.D. Harris and E. Ullman	
	1		Revision	
	1		Internal assessment	

CARTOGRAMS AND THEMATIC MAPPING (GEOACOR04T)

Course outcome:

1. Students will get a clear concept about the cartograms. thematic mapping.
2. Students will get a clear concept about the thematic mapping.
3. Students will be able to differentiate them.
4. Student will get a theoretical concept about the surveying.
5. Student will get the concept about the survey equipments

COURSE COORDINATOR: Dr. Aditi Matilal
Teachers: Dr Rajat Halder, Pinki Ghosh

MONTH	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
January	3	RH	Concepts of rounding	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	3		Concepts of scientific notation	
	4		Logarithm: concept and uses	
February	4		Anti-logarithm: concept and uses	
	5		Natural and log scales	
	1		Revision and practice	
	1		Internal assessment	
January	7	PG	Diagrammatic data representation: Line graph: concept, uses, advantages and disadvantages, construction principles	
February	5		Bar graph: Concept, classification, uses, advantages and disadvantages	
	5		Isopleths: Concepts, construction principles, advantages and disadvantages	
March	6		Representation of area data- Dots and sphere: Concepts, construction principles, advantages and disadvantages	
	5		Proportional Circles: Concepts, construction principles, advantages and disadvantages	
April	5		Choropleth: Concepts, construction	

			principles, advantages and disadvantages	
	1		Preparation and interpretation of land-use and land cover maps	
	1		Preparation and interpretation of socio-economic maps	
May	1		Revision	
	1		Internal Assessment	
March	4	R.H	Bearing: Magnetic and true	
	4		Whole-circle and reduced bearing	
	4		Basic concept of surveying and survey equipment	
	4		Prismatic Compass: Instrument parts and functioning, uses, significance	
	4		Dumpy level: Instrument parts and functioning, uses, significance	
	4		Theodolite: Instrument parts and functioning, uses, significance	

CARTOGRAMS AND THEMATIC MAPPING (GEOACOR04P)

Course outcome:

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.
4. These will help them in higher studies during the field work.
5. Students will be able to work in a group

COURSE COORDINATOR: Dr. Aditi Matilal

Teachers: Dr. Aditi Matilal, Dr. Rajat Halder, Prof Susmita Halder (SH)

MONTH	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
April	1	AM	Thematic mapping: Concept and principles	Mode of teaching: offline (PowerPoint presentations are used occasionally or wherever necessary)
	5		Choropleth map: Construction and interpretation	
	2		Practice	
May	4		Dots and spheres: Construction and interpretation	
May	4	S.H	Proportional pie-diagrams: Construction and interpretation	
	2		Internal Assessment	
April	8	R.H	Traverse survey using prismatic	

			compass: Data collection, tabulation, calculation and diagrammatic representation	
	10		Profile survey using dumpy level: Data collection, tabulation, calculation and diagrammatic representation	
May	6		Practice class	

4TH SEMESTER

Distribution Of Courses In 4th Semester Honours

Semester	Course code	Course name	Credit	Marks	Allotted classes according to syllabus
4TH	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 Spatial Statistical Techniques	02	25	60

REGIONAL PLANNING AND DEVELOPMENT (GEOACOR08T)

Course outcome

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

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

Month	No of classes	Name of teacher	Topic	Remarks
UNIT-1 (REGIONAL PLANNING)				
JANUARY	2	AM	Concept of regions	Mode of teaching: offline (PowerPoint presentations are also used occasionally)
	3		Types of regions: Formal and functional	
	2		Delineation of region	
	2		Types of regional planning	
	3		Principles of regional planning	
	3		Objectives of Regional Planning	
	5		Tools and techniques of regional delineation	
	1		Need for regional planning in India	
	2		Multi-level planning: an Indian perspective	
	2		Revision and discussion	
	1		**Internal Assessment**	
	6		Concept of metropolis: nature, characteristics, growth	
	5		Urban agglomeration: growth and characteristics	
	1		Revision	
UNIT- 2 REGIONAL DEVELOPMENT				
JANUARY	2	AM	Concept of growth	Mode of teaching: offline(Power Point presentations are also used occasionally)
FEBRUARY	3		Concept of development	
	3		Growth vs development	
	2		Indicators of development	
	2		Economic development	
	2		Social development	
	2		Environmental development	
	4		Human development : concept and measurement	
	2		Revision and discussion	
	1		**Internal Assessment**	
	2		Measures of Human development :	
	2		Indicators of human development	
	5		Myrdal's theory of Cumulative Causation	
	5		Rostow's theory of stages of development	
JANUARY	6	RH	Growth pole Model, Perroux	
	5		Underdevelopment- concept and causes	
	5		Regional development in India	
	5		Regional disparity in India: nature and causes	

	2		Regional diversity in India	
	5		Need and measures for balanced development in India	
	4		Revision	
	1		**Internal Assessment**	

ECONOMIC GEOGRAPHY (GEOACOR09T)

Course outcome

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.
5. Understand the economic blocs: WTO, GATT and BRICS

COURSE COORDINATOR: Dr. Rajat Halder (RH)
Teachers: Susmita Halder (SH), Dr.Aditi Matilal (AM)

Month	No of classes	Name of teacher	Topic	Remarks
UNIT- 1 (CONCEPTS)				
JANUARY	3	SH	Meaning and approaches of economic geography	Mode of teaching: offline(PowerPoint presentations are also used occasionally)
	2		Concepts of goods and services	
	3		Concept of production, exchange and consumption	
	2		Economic Man: Concept and characteristics	
	2		Theories of choice	
	3		Economic distance	
	2		Transport cost	
	1		**Internal Assessment**	
UNIT-2 (Economic activities)				
FEBRUARY	2	SH	Economic activities: Concept and classification	
	4		Agricultural locational theory of Von Thunen	
	5		Industrial locational theory of Weber	
	2		Primary activities : Agriculture	
	2		Forestry as a primary economic activity	
	1		Fishing as a primary economic activity	

	2		Mining as a primary economic activity	
	2		Secondary activity: nature and characteristics	
	1		Manufacturing industry: concept, characteristics	
	1		**Internal Assessment**	
MARCH	5	SH	Cotton textile industry: growth, factors of development, location etc	
	5		Iron and steel industry: growth, factors of development, location etc	
	3		Tertiary activities: Transport, trade and services	
	3		Tea plantation in India	
	3		Mixed farming in Europe	
MARCH	4	AM	Trans-national sea routes	
	3		Railways of India	
	3		Highways of India: State, National etc	
	4		International trade	
	6		Economic blocks: WTO, GATT, BRICS: Evolution, structure and functions	

ENVIRONMENTAL GEOGRAPHY (GEOACOR10T)

Course outcome

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

COURSE COORDINATOR: Dr. Aditi Matilal
Teacher: Dr. Rajat Halder & Dr.Aditi Matilal

Month	No of classes	Name of teacher	Topic	Remarks
UNIT- 1 (CONCEPTS)				

MARCH	3	AM	Geographers approach to environmental studies	Mode of teaching: offline(PowerPoint presentations are also used occasionally)
	3		Concept of holistic environment	
	4		System approach in environmental study	
	3		Concept of eco system	
	3		Structure of eco-system	
APRIL	4		Function of eco-system	
	6		Space-time hierarchy of environmental problems: local, regional and global	
	6		Space-time hierarchy of environmental problems: local, regional and global (continued)	
UNIT -2 (ENVIRONMENTAL PROBLEMS AND POLICIES)				
FEBRURARY	5	RH	Environmental pollution and degradation	
	5		Land pollution: Causes, types, impact, remedial measures and conservation	
	5		Water pollution: Causes, types, impact, remedial measures and conservation	
	5		Air pollution: Causes, types, impact, remedial measures and conservation	
	5		Urban environmental issues with special reference to waste management	
	6		Environmental policies	
MARCH	5		National environmental policy 2006	
	4		Revision	
APRIL	6		Earth Summit (Stockholm, Rio and Johannesburg)	
	10		Environmental Management (Montreal Protocol, Kyoto protocol, Paris climatic summit)	
	4		Revision	
	1		**Internal Assessment**	

ENVIRONMENTAL GEOGRAPHY (GEOACOR10P)

COURSE COORDINATOR: Dr. Rajat Halder
Teachers: Dr.Aditi Matilal, Dr.Rajat Halder & Susmita Halder

Month	No of classes	Name of teacher	Topic	Remarks
MARCH	20	RH	Preparation of questionnaire for perception survey on environmental problems	Mode of teaching: offline(PowerPoint presentations are also
APRIL	20	SH	Preparation of check-list for environmental Impact assessment on urban / industrial project	
			Practice	

APRIL	20	AM	Interpretation of air quality using CPCB / WBPCB data	used occasionally)

SKILL ENHANCEMENT COURSE
Advanced spatial statistical techniques (GEOSSEC02M)

Course outcome

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.
5. Student will identify the Industrial project and interpret air quality using CPCB / WBPCB data

COURSE COORDINATOR: Susmita Halder
Teacher: SDG, PPR, MG

MONTH	NO OF CLASSES	NAME OF TEACHER	TOPIC	REMARKS
FEB	1	SDG	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			
FEBRUARY	2	PPR	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	MG	Time series Analysis	

LESSON PLAN FOR PART-III (2019-20)
GEOGRAPHY HONOURS

PAPER-V

SOCIAL, POLITICAL AND REGIONAL GEOGRAPHY

Course outcome:

1. Understand the concept of culture and its components with special emphasis on India: language, religion and ethnicity.
2. Describe the social geography of rural and urban India with special reference to caste structure, social stratification, tribes, social ecology and social space
3. Identify the forms, pattern, types, features of rural and urban settlements
4. Understand the concept of political geography with emphasis on geo-politics, frontier and boundary, cold war, bi-polarisation and uni-polarisation.
5. Understand the regional disparities in India with emphasis on causes and implications
6. Elucidate the concepts of regions; basis of regionalization with reference to India physical, economic and planning

COURSE COORDINATOR: Dr.Rajat Halder
Teachers: Dr. Aditi Matilal, Susmita Halder, Dr.Rajat Halder

Phase	Teacher	No of classes	Topic	Remarks
GROUP A: SOCIAL AND CULTURAL GEOGRAPHY				
I	RH	1	Concept of culture and its components with special emphasis on India	Lecture series with extensive use of black board. Occasional
		1	Concept of language, linguistic diversity in India	
		1	Concept of religion, religious diversities of India	
		1	Concept of ethnicity with special emphasis on India	
		1	Social geography of rural India:	
		1	Caste structure and social stratification	
		1	Tribes of India: Santhals and Lepcha	

		1	Urban social Geography	power-point presentations are given. Unit tests will be taken for evaluation
		1	Social ecology	
		1	Social space	
		2	Rural settlements – its forms, site and situations	
		3	Urban settlement – morphology and hierarchy.	
GROUP B: POLITICAL GEOGRAPHY				
I	**AM**	1	Concept of Political Geography	
		1	Concept of geo-politics	
		2	concept of frontier and boundary	
		2	Concept of cold war	
		1	Bi-polarisation and unipolarisation	
		1	Political geography of India: Administrative settings of India	
		1	Problem of border states	
		2	Partition and its geo-political implications	
GROUP B: REGIONAL GEOGRAPHY				
I	AM	2	Concepts of regions; basis of regionalization with reference to India physical, economic and planning	
II	SH	2	Physiographic Regions of India with special reference to Kashmir Himalaya	
		2	Agricultural Region of India of India with special reference to Punjab-Haryana	
		2	Industrial Region of India with special reference to Mumbai-Pune industrial belt	
		2	Regional disparities in India: causes and implications	

PAPER-VI: PHILOSOPHY OF GEOGRAPHY AND CONTEMPORARY ISSUES

Course Outcome:

1. Understand the definition, nature and evolution of Geography in the perspective of changing paradigms viz. determinism, possibilism, positivism, quantitative revolution, behaviouralism, humanistic approach, structural approach.

2. Trace the evolution of geography across different space and time from the contribution of philosophers and geographers of different ages like Aristotle, Strabo, Humboldt, Ritter, Vidal de la Blache, Carl Sauer and David Harvey etc
3. Understand the trends of natural hazards and disasters and their occurrence, causes and management in the Indian Sub-continent
4. Classify hazards and disasters and describe their environmental impact and management
5. Describe the concept of third world, development and under development with special reference to basic indicators of economic, human and gender development
6. Understand the problems of third world Poverty, Population explosion, food security and hunger, unemployment, malnutrition and child labour with emphasis on globalization and sustainable development.

COURSE COORDINATOR: Dr. Rajat Halder
Teachers: Dr.Rajat Halder, Dr. Aditi Matilal, Susmita Halder, Pinki Ghosh

7.

Phase	Teacher	No of classes	Topic	Remarks
GROUP A: PHILOSOPHY OF GEOGRAPHY				
I	AM	1	Definition and nature of Geography.	Lecture series with extensive use of black board. Occasional power-point presentations are given. Unit tests will be taken for evaluation
		1	Selected contributors in the evolution of geographical thought- Humboldt	
		1	Selected contributors in the evolution of geographical thought-Vidal de la Blache	
II	AM	1	Selected contributors in the evolution of geographical thought-Carl Sauer	
		1	Selected contributors in the evolution of geographical thought- David Harvey	
		2	Major postulates: Determinism	
		2	Major postulates: Possibilism,	
II	RH	1	Major postulates: Regional differentiation	
		1	Major postulates: time and space.	
		2	Changing approaches and methodology: Positivism,	
		2	Changing approaches and methodology: Quantitative Revolution,	
		2	Changing approaches and methodology: Welfare-Behavioural approach,	
		2	Changing approaches and methodology: radical approach	
GROUP B: CONTEMPORARY ISSUES IN GEOGRAPHY				
Section -1: Natural hazards and their management in the Indian Sub-continent				

1	SH	1	Concept of hazards and disasters: Natural, quasi-natural and man-made hazards	
		1	Concept of hazards and disasters: different approaches in hazard management	
		2	Climatic hazards: Flood – environmental impact and management	
		2	Climatic hazards: drought– environmental impact and management	
		2	Climatic hazards: cyclone mechanism– environmental impact and management	
		2	Geomorphic hazards: landslide- environmental impact and management	
		2	Geomorphic hazards: river bank erosion- environmental impact and management	
		2	Geomorphic hazards: coastal erosion -environmental impact and management	
		2	Edaphic and biotic hazards: Deforestation— environmental impact and management.	
		2	Edaphic and biotic hazards: desertification— environmental impact and management.	
		2	Edaphic and biotic hazards: loss of bio-diversity — environmental impact and management.	
II	SH	1	Concept of third world: Basic indicators of economic development	
		1	Concept of third world: human and gender development	
		2	Concept of development and under development: Basic indicators of economic development	
		2	Concept of development and under development: Human and gender development	
		1	Problems of third world – Poverty	
		1	Problems of third world –Population explosion,	
		1	Problems of third world – food security and hunger	
		1	Problems of third world - unemployment	
		1	Problems of third world –malnutrition	

		1	Problems of third world –child labour.	
		1	Concept of Globalization	
		1	Sustainable development	
		1	Problem of urbanization	

PAPER VII: APPLIED GEOGRAPHICAL TECHNIQUES (PRACTICAL)

Course Outcome:

1. Ability to draw and interpret geological maps, weather Maps (monsoon and Post Monsoon)
2. Understand the basic concepts of remote sensing and Geographical information System.
3. Ability to interpret aerial photograph and prepare aerial photo mosaics
4. Ability to geo-reference scanned maps, ascribe projection (Polyconic/ UTM), perform digitisation of point, line and polygon layers and preparation of thematic maps from attached data.
5. Preparation of field report over a rural mouza or ward through proper fiend survey, data collection, tabulation, analysis, graphical representation and interpretation thereby depicting the man-nature interaction across space.

COURSE COORDINATOR: Dr. Rajat Halder
Teachers: Dr.Rajat Halder, Dr. Aditi Matilal, Susmita Halder

Phase	Teacher	No of classes	Topic	Remarks
APPLIED GEOGRAPHICAL TECHNIQUES (PRACTICAL)				
II	AM	4	Interpretation of geological maps and drawing of sections: Uniclinal with unconformity and igneous intrusions	Lecture series with extensive use of black board. Occasional
		4	Interpretation of geological maps and drawing of sections: folds with unconformity and igneous intrusions	
III	SH	2	Interpretation of Indian Daily Weather Maps – Monsoon	
III		2	Interpretation of Indian Daily Weather Maps –Post	

			Monsoon.	power-point presentations are given. Unit tests will be taken for evaluation
II	RH	1	Remote Sensing: Basic concept of remote sensing, EMR, Band	
		2	Types of satellites and sensors with special reference to IRS series of satellites;	
		2	Types of resolutions and their applicability	
		2	Principles of preparing standard false colour composite,	
		1	Landuse and land cover mapping from standard FCC with header information.	
III	AM	4	Interpretation of aerial photograph – basic principles of aerial photography, side lap, end lap, flight line, air base, fudicial marks, .Principle Point, Nadir Point, Conjugate Principal Point,	
		4	Preparation of aerial photo mosaics, demarcation of effective area, extraction of cultural and physiographic features within this area with preparation of interpretation key.	
Geographical Information System (GIS)				
III	SH	1	Concept of GIS and its applicability: Spatial and attribute data, raster and vector data structure	
		1	Concept of information layers in GIS.	
		2	Georeferencing of scanned maps and ascribing projection (Polyconic/ UTM)	
		2	Digitisation of point, line and polygon layers; Attachment of appropriate attribute tables.	
		2	Preparation of thematic maps from attached data: choropleth,	
		2	Preparation of thematic maps from attached data: pie chart	
		2	Preparation of thematic maps from attached data: bar graphs	
Field Report:				
II	AM	**1**	Field Report: concept and introduction	
		1	Landuse survey and preparation of landuse map	
		3	Classification and tabulation of socio-economic and physical data	
III	AM	**8**	Preparation of maps and diagrams showing broad	

			Physiography, drainage, settlement, demographic characteristics etc	
		2	Preparation of report	

PAPER-VIII
STATISTICAL TECHNIQUES AND CONTEMPORARY ISSUES IN GEOGRAPHY (PRACTICAL)

Course Outcome

1. Perform basic statistical calculations, graphical representations (histogram, frequency polygon, ogive), with emphasis on measures of dispersion, correlation, regression and time series analysis.
2. Ability to represent and interpret climatic and hydrological data through climatic chart, Taylor's Climograph and Hythergraph, station models, rating curves, hydrographs and unit hydrographs of rivers
3. Ability to compute Human and Gender Development Index
4. Preparation of questionnaire schedule for assessment of development and for perception survey.
5. Ability to compute, graphically represent and interpret different measures of spatial and size-class distribution like dominant-distinctive function, rank-size rule and Lorenz curve.

COURSE COORDINATOR: Aditi Matilal
Teachers: Aditi Matilal, Susmita Halder, Dr.Rajat Halder

Phase	Teacher	No of classes	Topic	Remarks
GROUP-A: STATISTICAL TECHNIQUES				
III	RH	1	Nature of statistical data: discrete, continuous, parametric and non-parametric data	Lecture series with extensive use of black board. Occasional power-
		1	Tabulation and classification of statistical data	
		2	Frequency distribution: histogram, frequency polygon	
		1	Ogive	
		1	Normal and skewed distribution, measures of skewness	
		5	Measures of central tendency: mean, median, mode, partition values: quartile, decile and percentile.	
		4	Measures of dispersion: mean deviation, quartile deviation, semi-quartile range, standard deviation and	

			co-efficient of variation	point presentations are given. Unit tests will be taken for evaluation
		1	Semi-quartile range,	
		2	Standard deviation and co-efficient of variation	
		3	Simple bivariate correlation and regression trend line	
		2	Time series analysis	
GROUP-B: CONTEMPORARY ISSUES IN GEOGRAPHY				
Section-A : Representation of climatic and hydrological data of the Indian Sub-continent				
I	SH	4	Preparation and Interpretation of a climatic chart showing relationship between rainfall, temperature, pressure and relative humidity of a station for three months, preparation and interpretation of Taylor's Climograph and Hythergraph	Lecture series with extensive use of black board. Occasional power-point presentations are given. Unit tests will be taken for evaluation
		3	Preparation of station models for different meteorological stations of India with the help of Synoptic chart.	
III	AM	**6**	Preparation and interpretation of rating curves, hydrographs and unit hydrographs of rivers flowing through the Indian Sub-continent.	
Section-B: Economic and Human Development in Third World				
I	AM	3	Computation of Human and Gender Development Index and ranking of countries/states/districts based on HDI and GDI	
		1	Preparation of questionnaire schedule for assessment of development and for perception survey	
		3	Dominant-distinctive function	
		3	Rank-size rule	
		2	Lorenz curve	