

**LESSON PLAN****DEPART NAME : GEOGRAPHY ( MORNING)****NAME OF FACULTY : ALOKA MUKHOPADHYAY****PAPER NAME & CODE : PHYSICAL GEOGRAPHY & GEOG-MD-CC01-I-TH**

Planned				After Implementation	
Unit/Group/ Module/Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
Unit I	CARTOGRAPHY	Fundamentals of Cartography by R.P. MISHRA	5	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
Unit II	GEOTECHTONICS	PRINCIPLES OF PHYSICAL GEOGRAPHY BY F.J. MONKHOUSE	3		
Unit III	GEO MORPHOLOGY	Introduction to Geomorphology by KALE, V.S, GUPTA	10		
Unit IV	CLIMETOLOGY	Atmosphere Weather and Climate by BARRY, R.J, CHORLEY	9		
Unit V	SOIL GEOGRAPHY	The Nature & Properties of Soil by Weil, R.R BRADY	8		
Unit VI	BIOGEOGRAPHY	Ecology & Environment by SHARMA, P.D	5		
Unit VII	GEOGRAPHY OF HAZARDS	Environmental Hazards : Assessing Risk & Reducing Disaster by SMITH, K	5		

**LESSON PLAN****DEPART NAME : GEOGRAPHY ( MORNING)****NAME OF FACULTY : ALOKA MUKHOPADHYAY****PAPER NAME & CODE : METHODS IN GEOGRAPHY & GEOG-H-SEC01-1-TH**

<b>Planned</b>				<b>After Implementation</b>	
<b>Unit/Group/ Module/Article</b>	<b>Topics</b>	<b>Reference Books</b>	<b>No. of Lecture Planned</b>	<b>Content Delivery Technique</b>	<b>Remarks/ Comments</b>
Unit I	FIELD DATA COLLECTION & COMPILATION	Geography of Fieldwork and Skills by Lenon B ,Cleves, P	24	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
Unit II	METHODS IN PHYSICAL GEOGRAPHY	Key Methods in Geography by Clifford, N, Cope	18		
Unit III	METHODS IN HUMAN GEOGRAPHY	Fieldwork for Human Geography by Phillips, R, John J	18		

**LESSON PLAN****DEPART NAME : GEOGRAPHY ( MORNING)****NAME OF FACULTY : ALOKA MUKHOPADHYAY****PAPER NAME & CODE : GEOMATICS & SPATIAL ANALYSIS & GEOG-IDC01-TH**

Planned				After Implementation	
Unit/Group/ Module/Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
Unit I	CARTOGRAPHY	Fundamentals of Cartography by R.P. MISHRA Maps & Diagrams by Monkhouse	14	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
Unit II	SURVEYING	Practical Geography: A Systematic Approach by Sarkar, A	12		
Unit III	REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM	Fundamentals of Remote Sensing by Joseph, G, Jagannathan	18		

**LESSON PLAN**

**DEPART NAME : GEOGRAPHY ( MORNING)**

**NAME OF FACULTY : ALOKA MUKHOPADHYAY**

**PAPER NAME & CODE : ECONOMIC GEOGRAPHY & GEOG-H-CC04/MD-CC03-3/5 -TH**

Planned				After Implementation	
Unit/Group/ Module/Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks / Commen ts
Unit I	<b>CONCEPTS</b> i) Economic geogrphy ii) Concepts in economic geography	Economic Geography by W.P. Anderson  Economic Geography by Anish Chattopadhyay	9	CHALK & TALK PPT PRESENTA TION PRESENTA TION WITH TEACHING AIDS	
Unit II	<b>ECONOMIC ACTIVITIES</b> ii) Classification of economic activities iii) Location of economic activities iv) Primary activities vi) Secondary activities vii) Tertiary activities viii) Economic Globalisation ix) International Trade' role of WTO x) Emergence of economic blocs (post WW – IIBRICS)	WEBSITES: BRICS:htto://infobrics  World Trade Organisation: https://www.wto.org	36		

LESSON PLAN

DEPART NAME : GEOGRAPHY ( MORNING)

NAME OF FACULTY : ALOKA MUKHOPADHYAY

PAPER NAME & CODE : ECONOMIC GEOGRAPHY LAB & GEO-H-CC04/MD-CC03-3/5-P

Planned				After Implementation	
Unit/ Group/ Module/ Article	Topics	Reference Books	No. of lecture Planned	Content Delivery Technique	Remarks/ Comments
1.	Construction & interpretation of gender-wise bar showing work participation rate	Census of India: <a href="http://www.censusindia.gov.in">www.censusindia.gov.in</a>	8	Chalk & Talk , presentation with Teaching Aids	
2.	Construction & interpretation of proportional divided circles .	Economic Geography of India by T,C Sharma	8		
3.	Preparation of crop calendar	Maps & Diagrams by F. J Monkhouse	6		
4.	Time series analysis of industrial production of India using moving average		8		

## LESSON PLAN

**DEPART NAME : GEOGRAPHY ( MORNING)**

**NAME OF FACULTY : ALOKA MUKHOPADHYAY PAPER NAME & CODE : REGIONAL DEVELOPMENT & GEO-G-DSC-A-5- 01-TH**

Planned			After Implementation	
Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
1. Strategies/models for regional planning: growth pole model of perroux	Regional planning & development by Chandana ,R.C  Regional planning in India by Chand ,M, R,M., Puri, V. K.	5	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
2. Growth central model in Indian context. Concept of village cluster	Regional Development:& Regional planning by Raza ,M	4		
3. Problem regions and regional planning. Backward regions and regional plans: special area development plans in India. Damodar valley corporation: Success and failure.		5		
4. Changing concept of development and under development; efficiency-equity debate		5		
5. Indicators of development: Economic, demographic and environmental. Concept of human development		5		
6. Regional Development Of India, regional inequality, disparity and diversity		5		
7. Development and regional disparities in India since Independence: Disparities in agricultural development		5		
8. Development and regional disparities in India since Independence: Disparities in industrial development				
9. Development and regional disparities in India since Independence: Disparities in human resource development in terms of education and health		5		

**LESSON PLAN****DEPART NAME : GEOGRAPHY ( MORNING)****NAME OF FACULTY : ALOKA MUKHOPADHYAY****PAPER NAME & CODE : FOREST & WILDLIFE MANAGEMENT & GEO-G-SEC-A-3/5-TH**

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<b>Topics</b>	<b>Reference Books</b>	<b>No. of Lecture Planned</b>	<b>Content Delivery Technique</b>	<b>Remarks/ Comments</b>
<b>1. Forest &amp; Wildlife Management: Importance and strategies. Role &amp; significance of stakeholders. Tangible and Intangible benefits of forest &amp; Wildlife Management</b>	<ul style="list-style-type: none"><li>• Principles of Wildlife management by Bailey, J.A</li><li>• Forest conservation planning &amp; management, Callisto Reference by Fisher M</li></ul>	7	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
<b>2 Legal framework of forest and wildlife protection in India; The Indian Forest Act 1927, Forest conservation Act 1980 Wildlife protection Act 1972 , Biodiversity Act 2002</b>	<ul style="list-style-type: none"><li>• Fundamentals of Wildlife Management by Gopal G</li></ul>	5		
<b>3 Forest as common property resource: Forest rights: Tribal &amp; forests. Gender dimension of forest management. Management of poaching &amp; illegal logging</b>		5		

<b>4 Principles of community participation &amp; joint forest management. Causes &amp; management of human-wildlife conflicts with special reference to Jangal Mahal, Sundarbans &amp; Duars</b>		10		
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**SEMESTER 1 (MAJOR & MINOR)**  
**CCF SYLLABUS**

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Cartography	1a. Concept and applications of scales	1. Fundamentals of Practical Geography By Dr. L.R Singh	2	Chalk and Talk	
	1b. Concept and applications of projections	1. Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
	1c. Components and classification of maps	1. Fundamentals of Practical Geography By Dr. L.R Singh 2. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and Talk	
Unit II: Geotectonics	2a. Seismic waves	1. Physical Geography by S. Singh	1	Chalk and Talk	
	2b. Internal structure of the earth	1. Physical Geography by S. Singh	2	Chalk and Talk	
Unit III: Geomorphology	3a. Classification of weathering	1. Geomorphology by S. Singh	1	Chalk and Talk	
	3b. Agents of erosion	1. Geomorphology by S. Singh	1	Chalk and Talk	
	4. Fluvial processes and landforms	1. Geomorphology by S. Singh	2	Chalk and Talk	
Unit IV:	5. Nature, composition, and	1. Climatology by D.S Lal	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Climatology	layering of the atmosphere	2. Climatology by S. Singh			
	6a. Circulation in the atmosphere: Planetary winds	1. Climatology by D.S Lal 2. Climatology by S. Singh	2	Chalk and Talk	
	6b. Jet streams, and index cycle	1. Climatology by D.S Lal 2. Climatology by S. Singh	2	Chalk and Talk	
Unit V: Soil Geography	7. Factors of soil formation	1. Text Book of Soil Science by Daji 2. Ecology and Environment by P.D Sharma	1	Chalk and Talk	
	8. Evolution of an ideal soil profile	1. Text Book of Soil Science by Daji 2. Ecology and Environment by P.D Sharma	1	Chalk and Talk	
Unit VI: Biogeography	9. Plant adaptation and distribution in relation to water	1. Ecology and Environment by P.D Sharma	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	availability				
Unit VII: Geography of Hazards	10a. Nature and classification of hazards in Indian context	1. Environmental Geography by S. Singh	2	Chalk and Talk	
	10b. Nature and classification of disasters in Indian context	1. Environmental Geography by S. Singh	2	Chalk and Talk	
		Total	25		

This theory paper is fully taught by Prakriti Das, Assistant Professor, Dept of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1a.Graphical construction of Plain scales	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	1b.Graphical construction of Comparative scales	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and Talk	
	1c.Graphical construction of diagonal scales	1. Practical Geography: A Systematic Approach by A. Sarkar	4	Chalk and Talk	
	1d.Graphical construction of Vernier scales	1. Practical Geography: A Systematic Approach by A. Sarkar	4	Chalk and Talk	
	2a. Delineation of drainage basins on Survey of India 1:50k topographical maps	1. Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
	2b. Determining stream ordering (Strahler)	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	2c. Bifurcation ratio in a drainage basin (c. 5' x	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	5)				
	3a. Identification of drainage pattern from Survey of India 1:50k topographical maps	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	3b. Identification of channel patterns from Survey of India 1:50k topographical maps	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	4. Construction and interpretation of wind rose diagram	1. Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
		Total	28		

This practical paper is fully taught by Prakriti Das, Assistant Professor, Dept of Geography, VIC

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC 01-1/2/3-Th)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: I Cartography	1. Concept of scales	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk	
	1. Scales: types, significance and classification	2. Elements of Practical Geography by R.L. Singh	1	Chalk and talk	
	1. Maps projections: concept	3. Maps and Diagrams by F.J. Monkhouse	1	Chalk and talk	
	1. Maps projections: Classification and significance	4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	1		
	2. Bearing: Magnetic and true	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk	
	2. Bearing: Whole circle and reduced	2. Elements of Practical Geography by R.L. Singh	1	Chalk and talk	
	2. Concept of Geoid and Spheroid	3. Elements of Cartography by Robinson and J.L.	1	Chalk and talk	

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC 01-1/2/3-Th)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: I Cartography	2. Geoid in special reference to WGS-84	Morrison  4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	1	Chalk and talk and laptop	
	3. Map projection Classification	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk and laptop and globe	
	3. Map projection: properties and uses of Simple Conical Projection	2. Elements of Practical Geography by R.L. Singh.  3. Elements of Cartography by Robinson and J.L. Morrison	2	Chalk and talk and laptop	
	3. Concept and significance of UTM projection		2	Chalk and talk and laptop and globe	
	4. Basic concepts	1. Practical Geography: A Systematic Approach by A.	2	Chalk and talk and laptop	



# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC 01-1/2/3-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	of Surveying	Sarkar			
	4. Survey equipment and its uses: Dumpy level	2. Elements of Practical Geography by R.L. Singh 3. Elements of Cartography by Robinson and J.L. Morrison	2	Dumpy level and demonstration	
	4. Survey equipment and its uses: Theodolite	4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	2	Theodolite and demonstration	
		Total	19		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit 2	2a. Basic concepts of surveying, survey equipment, and their capabilities: Total Station	<a href="https://www.constructionplacements.com/total-station-in-surveying-types-uses-and-applications/">https://www.constructionplacements.com/total-station-in-surveying-types-uses-and-applications/</a> <a href="https://gisresources.com/total-station-and-its-applications-in-surveying/#google_vignette">https://gisresources.com/total-station-and-its-applications-in-surveying/#google_vignette</a>	4	Practical work with field measurement	
	2a. Basic concepts of surveying, survey equipment, and their capabilities: Global Navigation Satellite System (GNSS)	Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others by B Bhatta (CRC Press)	2	Practical work with field measurement	
		Total	6		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit III: Remote Sensing and Geographical Information System	5a. Principles of remote sensing	1. Remote Sensing & GIS by Bhatta 2. Fundamentals of Remote Sensing by Canada Centre for Remote Sensing (e-book)	2	Chalk and Talk	
	5b. Types of RS satellites and sensors with reference to IRS and Landsat missions	1. Remote Sensing & GIS by Bhatta 2. Fundamentals of Remote Sensing by Canada Centre for Remote Sensing (e-book)	3	Chalk and Talk	
	6a. Principles of preparing standard false colour composites (FCCs)	<a href="https://theqgeo.com/">https://theqgeo.com/</a> (website)	2	Chalk and Talk	
	6b. Principles of preparing Supervised image classification	<a href="https://theqgeo.com/">https://theqgeo.com/</a> (website)	2	Chalk and Talk	
	7a. GIS data types: Spatial and non-spatial (attribute table)	1. A Primer of GIS: Fundamental Geographic and Cartographic concepts by	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	and metadata)	Harvey 2. GIS: Fundamentals, Applications and Implementations by Elangovan			
	7b. Raster and vector	1. A Primer of GIS: Fundamental Geographic and Cartographic concepts by Harvey 2. GIS: Fundamentals, Applications and Implementations by Elangovan	1	Chalk and Talk	
	8a. Principles of preparing attribute tables, data manipulation, query	1. A Primer of GIS: Fundamental Geographic and Cartographic concepts by Harvey 2. GIS: Fundamentals, Applications and Implementations by Elangovan	3	Chalk and Talk	
	8b. Principles of preparing of	Introduction to Buffer and Overlay Analysis by	2	Chalk and Talk	

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Prakriti Das**

**Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)**

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Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	overlay	Humboldt State University			
		Total	14		

**This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC**

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC-01-1/2/3-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1. Map projection: properties and uses of Simple Conical Projection	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk	
	1. Calculation of Simple Conical Projection	2. Elements of Practical Geography by R.L. Singh	2	Chalk and talk	
	1. Drawing of Simple Conical Projection	3. Maps and Diagrams by F.J. Monkhouse	2	Chalk and talk	
	1. Checking final sheet for lab note book.	4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	1		
	Total		06		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr.Raj Kumar Bhattacharya

Paper Name & Code: Geomatics & Spatial Analysis Lab (GEO-H-IDC01-1/2/3-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	2.Traverse survey and plotting UTM coordinates using Smartphone GNSS application	Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others by B Bhatta (CRC Press)	8	Practical work with field survey	
	4. Change detection of riverbank or coastline shift from multi-dated maps and images	1. Practical geography: A Systematic Approach by A. Sarkar 2.Advanced Practical Geography by P. Basu 3. USGS Global Visualization Viewer: <a href="https://glovis.usgs.gov">https://glovis.usgs.gov</a> 4. USGS Landsat Missions: <a href="https://www.usgs.gov/landsat-missions">https://www.usgs.gov/landsat-missions</a> 5. ISRO Bhuvan 2D and 3D Platforms: <a href="https://bhuvan-app1.nrsc.gov.in/globe/3d.php">https://bhuvan-app1.nrsc.gov.in/globe/3d.php</a>	8	Practical work with satellite images	
		Total	16		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Geomatics & Spatial Analysis Lab (GEO-H-IDC01-1/2/3-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3a. Concept of land use and land cover features	1. Practical geography: A Systematic Approach by A. Sarkar 2. Advanced Practical Geography by P. Basu	1	Practical work with satellite images	
	3b. Identification of land use / land cover features from standard FCCs		4		
	3c. Preparation of LULC inventories		3		
		Total	8		

This practical paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Field Data Collection and Compilation	1a. Designing of primary survey based on diverse research problems	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	1b. Relevance of pilot survey	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	2. Sampling types and strategy based on diverse research problems	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	3	Chalk and Talk	
	3a. Preparation of questionnaire	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	3b. Preparation of interview	1. Research Methodology: Methods & Techniques by	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

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Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	schedule	C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick			
		Total	11		

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Methods in Geography (GEOG-H\_SEC-01/MD-SEC-1/2/3-Th)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Field Data Collection and Compilation	4. Data Compilation into master table		2	Chalk and talk	
	4. Data matrix in master table		2	Chalk and talk	
	5. Computer assisted field data entry- concept		2	Chalk and talk	
	5. Tabulation of data into frequency distribution tables		2	Chalk and talk	
	6. Statistical analysis of data: measures of central tendency: Mean		2	Chalk and talk	
	6. Statistical analysis of data: measures of central tendency: Median and mode		2	Chalk and talk	
	6. Statistical analysis of data: dispersion		1	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Methods in Geography (GEOG-H\_SEC-01/MD-SEC-1/2/3-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Methods in Physical Geography	7.Use of minor survey Instruments: distometer	<a href="https://www.slideshare.net">https://www.slideshare.net</a>	2	Distometer and demonstration	
		Total	15		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Methods in Physical Geography	7a. Application of minor survey instruments in Physical Geography study Brunton Compass, distometer	<a href="https://www.jove.com/v/10086/brunton-compass-strike-and-dip-measurement-of-rock-layers">https://www.jove.com/v/10086/brunton-compass-strike-and-dip-measurement-of-rock-layers</a>	1	Chalk and Talk	
	7b. Use of minor survey instruments: Smartphone levelling	<a href="https://d-nb.info/1145331696/34">https://d-nb.info/1145331696/34</a>	3	Field survey and computation	
	8. Textural analysis of grains using sieves	1. Practical Geography: A Systematic Approach by Ashis Sakar	4	Field survey and computation	
	9a. Mapping areal extraction of flooded areas from satellite images models	1. Practical Geography: A Systematic Approach by Ashis Sakar 2. Advanced Practical Geography by Pijushkanti Saha and Partha Basu	3	Hands - on - Training & Practice	
	9b. Mapping areal extraction		2	Hands - on - Training &	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	of flooded areas from digital elevation models			Practice	
	10a. Mapping areal and linear extents of riverbank and coastline shift from Survey of India 1:50kmaps and/ or satellite images		5	Hands - on - Training & Practice	
		Total	18		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 TOPIC NO 11	Dominant and distinctive functions- Basic concept	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about theory		1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about calculation		1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about diagram and applicability		1	Chalk and Talk	

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: PUBALI GHOSH**

**Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 TOPIC 12	Ternary diagram – Basic concept	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
	Ternary diagram showing occupational 3 TOPIC 12 patterns – fundamental concept		1	Chalk and Talk	
	Ternary diagram showing occupational patterns- calculation		1	Chalk and Talk	
	Ternary diagram showing occupational patterns- Diagram and applicability		1	Chalk and Talk	
3	Accessibility Map- Basic	Statistical Methods in Geographical Studies by A.	1	Chalk and Talk	



# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: PUBALI GHOSH**

**Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 TOPIC 13	concept	Mahmood			
	Accessibility Map- types	Practical Geography by A. Sarkar	1	Chalk and Talk	
	Accessibility Map- preparation	Elements of Practical Geography by R.L.Singh	2	Chalk and Talk	
	Accessibility Map- applicability	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
3 TOPIC 14	Basic concept of Flowchart	Statistical Methods in Geographical Studies by A. Mahmood	1	Chalk and Talk	
	Preparation of Flowchart using	Practical Geography by A. Sarkar	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	transportation data- calculation	Elements of Practical Geography by R.L.Singh			
	Preparation of Flowchart using transportation data- applicability		2	Chalk and Talk	
		TOTAL	18		

This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Cartography	1a. Concept and applications of scales	1. Fundamentals of Practical Geography By Dr. L.R Singh	2	Chalk and Talk	
	1b. Concept and applications of projections	1. Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
	1c. Components and classification of maps	1. Fundamentals of Practical Geography By Dr. L.R Singh 2. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and Talk	
Unit II: Geotectonics	2a. Seismic waves	1. Physical Geography by S. Singh	1	Chalk and Talk	
	2b. Internal structure of the earth	1. Physical Geography by S. Singh	2	Chalk and Talk	
Unit III: Geomorphology	3a. Classification of weathering	1. Geomorphology by S. Singh	1	Chalk and Talk	
	3b. Agents of erosion	1. Geomorphology by S. Singh	1	Chalk and Talk	
	4. Fluvial processes and landforms	1. Geomorphology by S. Singh	2	Chalk and Talk	
Unit IV:	5. Nature, composition, and	1. Climatology by D.S Lal	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Climatology	layering of the atmosphere	2. Climatology by S. Singh			
	6a. Circulation in the atmosphere: Planetary winds	1. Climatology by D.S Lal 2. Climatology by S. Singh	2	Chalk and Talk	
	6b. Jet streams, and index cycle	1. Climatology by D.S Lal 2. Climatology by S. Singh	2	Chalk and Talk	
Unit V: Soil Geography	7. Factors of soil formation	1. Text Book of Soil Science by Daji 2. Ecology and Environment by P.D Sharma	1	Chalk and Talk	
	8. Evolution of an ideal soil profile	1. Text Book of Soil Science by Daji 2. Ecology and Environment by P.D Sharma	1	Chalk and Talk	
Unit VI: Biogeography	9. Plant adaptation and distribution in relation to water	1. Ecology and Environment by P.D Sharma	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	availability				
Unit VII: Geography of Hazards	10a. Nature and classification of hazards in Indian context	1. Environmental Geography by S. Singh	2	Chalk and Talk	
	10b. Nature and classification of disasters in Indian context	1. Environmental Geography by S. Singh	2	Chalk and Talk	
		Total	25		

This theory paper is fully taught by Prakriti Das, Assistant Professor, Dept of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1a.Graphical construction of Plain scales	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	1b.Graphical construction of Comparative scales	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and Talk	
	1c.Graphical construction of diagonal scales	1. Practical Geography: A Systematic Approach by A. Sarkar	4	Chalk and Talk	
	1d.Graphical construction of Vernier scales	1. Practical Geography: A Systematic Approach by A. Sarkar	4	Chalk and Talk	
	2a. Delineation of drainage basins on Survey of India 1:50k topographical maps	1. Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
	2b. Determining stream ordering (Strahler)	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	2c. Bifurcation ratio in a drainage basin (c. 5' x	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Physical Geography (GEOG-MD-CC01-1/3-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	5)				
	3a. Identification of drainage pattern from Survey of India 1:50k topographical maps	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	3b. Identification of channel patterns from Survey of India 1:50k topographical maps	1. Practical Geography: A Systematic Approach by A. Sarkar	3	Chalk and Talk	
	4. Construction and interpretation of wind rose diagram	1. Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
		Total	28		

This practical paper is fully taught by Prakriti Das, Assistant Professor, Dept of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Field Data Collection and Compilation	1a. Designing of primary survey based on diverse research problems	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	1b. Relevance of pilot survey	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	2. Sampling types and strategy based on diverse research problems	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	3	Chalk and Talk	
	3a. Preparation of questionnaire	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	3b. Preparation of interview	1. Research Methodology: Methods & Techniques by	2	Chalk and Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	schedule	C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick			
		Total	11		

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Methods in Geography (GEOG-H\_SEC-01/MD-SEC-1/2/3-Th)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Field Data Collection and Compilation	4. Data Compilation into master table		2	Chalk and talk	
	4. Data matrix in master table		2	Chalk and talk	
	5. Computer assisted field data entry- concept		2	Chalk and talk	
	5. Tabulation of data into frequency distribution tables		2	Chalk and talk	
	6. Statistical analysis of data: measures of central tendency: Mean		2	Chalk and talk	
	6. Statistical analysis of data: measures of central tendency: Median and mode		2	Chalk and talk	
	6. Statistical analysis of data: dispersion		1	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Methods in Geography (GEOG-H\_SEC-01/MD-SEC-1/2/3-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Methods in Physical Geography	7.Use of minor survey Instruments: distometer	<a href="https://www.slideshare.net">https://www.slideshare.net</a>	2	Distometer and demonstration	
		Total	15		

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Dr. Raj Kumar Bhattacharya**

**Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY**

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Methods in Physical Geography	7a. Application of minor survey instruments in Physical Geography study Brunton Compass, distometer	<a href="https://www.jove.com/v/10086/brunton-compass-strike-and-dip-measurement-of-rock-layers">https://www.jove.com/v/10086/brunton-compass-strike-and-dip-measurement-of-rock-layers</a>	1	Chalk and Talk	
	7b. Use of minor survey instruments: Smartphone levelling	<a href="https://d-nb.info/1145331696/34">https://d-nb.info/1145331696/34</a>	3	Field survey and computation	
	8. Textural analysis of grains using sieves	1. Practical Geography: A Systematic Approach by Ashis Sakar	4	Field survey and computation	
	9a. Mapping areal extraction of flooded areas from satellite images models	1. Practical Geography: A Systematic Approach by Ashis Sakar 2. Advanced Practical Geography by Pijushkanti Saha and Partha Basu	3	Hands - on - Training & Practice	
	9b. Mapping areal extraction		2	Hands - on - Training &	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	of flooded areas from digital elevation models			Practice	
	10a. Mapping areal and linear extents of riverbank and coastline shift from Survey of India 1:50kmaps and/ or satellite images		5	Hands - on - Training & Practice	
		Total	18		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 TOPIC NO 11	Dominant and distinctive functions- Basic concept	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about theory		1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about calculation		1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about diagram and applicability		1	Chalk and Talk	

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: PUBALI GHOSH**

**Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 TOPIC 12	Ternary diagram – Basic concept	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
	Ternary diagram showing occupational 3 TOPIC 12 patterns – fundamental concept		1	Chalk and Talk	
	Ternary diagram showing occupational patterns- calculation		1	Chalk and Talk	
	Ternary diagram showing occupational patterns- Diagram and applicability		1	Chalk and Talk	
3	Accessibility Map- Basic	Statistical Methods in Geographical Studies by A.	1	Chalk and Talk	

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: PUBALI GHOSH**

**Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3  TOPIC 13	concept	Mahmood			
	Accessibility Map- types	Practical Geography by A. Sarkar	1	Chalk and Talk	
	Accessibility Map- preparation	Elements of Practical Geography by R.L.Singh	2	Chalk and Talk	
	Accessibility Map- applicability	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
3  TOPIC 14	Basic concept of Flowchart	Statistical Methods in Geographical Studies by A. Mahmood	1	Chalk and Talk	
	Preparation of Flowchart using	Practical Geography by A. Sarkar	2	Chalk and Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	transportation data- calculation	Elements of Practical Geography by R.L.Singh			
	Preparation of Flowchart using transportation data- applicability		2	Chalk and Talk	
		TOTAL	18		

This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

**SEMESTER 3 (MAJOR & MINOR)**  
**CCF SYLLABUS**

# LESSON PLAN

Department Name: Dr. Raj Kumar Bhattacharya

Name of Faculty: Geography

Paper Name & Code: Geotectonics GEOG-H-CC03-3-Th

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1a.Relative dating of rocks	1.Structural Geology by H, Fossen 2.Fundamentals of Historical Geology and Stratigraphy of India by Ravindra Kumar (New Age International Publisher)	2	Chalk and talk	
	1b. Absolute dating of rocks		2	Chalk and talk	
	2a. Basic concept of the geological time scale		2	Chalk and talk	
	2b. The geological time scale with special reference to the events of the Pleistocene		2	Chalk and talk	

# LESSON PLAN

Department Name: Dr. Raj Kumar Bhattacharya

Name of Faculty: Geography

Paper Name & Code: Geotectonics GEOG-H-CC03-3-Th

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3a. Formation of the Earth	1.Fundamentals of Geophysics by William Lowrie 2. Introducing Physical Geography by A. Strahler	1	Chalk and talk	
	3b. Structural differentiation of the Earth		1	Chalk and talk	
	7a. Major relief features of the ocean floor: Characteristics	1.Oceanography by Savindra Singh	2	Chalk and talk	
	7b. Major relief features of the ocean floor: Origin according to Plate Tectonics	2.Oceanography For Geographers by M. Vatal, R.C. Sharma	3	Chalk and talk	

## LESSON PLAN

Department Name: Dr. Raj Kumar Bhattacharya

Name of Faculty: Geography

Paper Name & Code: Geotectonics GEOG-H-CC03-3-Th

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	10a. Significance of morphometric indices of the tectonic activity	1. Advanced Practical Geography by Pijishkanti	1	Chalk and talk	
	10b. Basin asymmetry factor, transverse topographic symmetry factor, and mountain front sinuosity	Saha and Partha Basu 2. Practical Geography: A Systematic Approach by Ashis Sarkar	3	Chalk and talk	
		Total	21		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H- CC 03-3-TH- GEOTECTONICS

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4	Basic concept of Isostasy	Tectonic Geomorphology by Burbank, Essentials of Geology by Lutgens, Tarbuck, Tasa	1	Chalk & talk	
	Model of Airy and its applicability		2	Chalk & talk	
	Model of Pratt and its applicability		2	Chalk & talk	
5	Basic concept of Plate Tectonics	Plate Tectonics by Firsch,	2	Chalk & talk	
	Processes at Plate margins	Global Tectonics by Kearey,	2	Chalk & talk	
	Landforms at Plate margins	A Brief History of Earth by Knoll,	2	Chalk & talk	
	Discussion about Hotspots		1	Chalk & talk	
6	Genetic classification of mountains	A Brief History of Earth by Knoll, Introducing Physical Geography by Strahler,	2	Chalk & talk	
	Types of volcanic eruptions	Global Geomorphology by Summerfield	2	Chalk & talk	
8	Formation of	Structural Geology by	2	Chalk & talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H- CC 03-3-TH- GEOTECTONICS

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Folds	Billings, Structural Geology by Fossen			
8	Classification of Folds	Same as above	2	Chalk & talk	
9	Formation of Faults	Structural Geology by Billings,	2	Chalk & talk	
	Classification of Faults	Structural Geology by Fossen	2	Chalk & talk	
		TOTAL	24		

This theory paper is shared by Pubali Ghosh, Associate Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC03-3-TH-GEOTECTONICS

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
1	Concept of Dip and Strike	Advanced Practical Geography by P. Basu,	1	Chalk & Talk	
	Basic concept about Clinometer	Practical Geography by A. Sarkar.	1	Chalk & Talk	
	Measurement of dip and strike by Clinometer		3	Chalk & Talk	
2	Basic concept about identification of rocks and minerals	The Illustrated Guide to Rocks and Minerals by Farndon,	1	Chalk & Talk	
	Megascopic identification of mineral samples as prescribed in the syllabus	Smithsonian Handbooks: Rocks and Minerals by Pillent,	2	Chalk & Talk	
	Megascopic identification of rock samples as	Practical Geography by A. Sarkar	3	Chalk & Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC03-3-TH-GEOTECTONICS

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Planned				Content Delivery Technique	Remarks / Comments
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned		
	prescribed in the syllabus				
		TOTAL	11		

# LESSON PLAN

Department Name: Dr. Raj Kumar Bhattacharya

Name of Faculty: Geography

Paper Name & Code: Geotectonics Lab & GEOG-H-CC-03-3-P

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3a. Analysis of tectonic activity from Survey of India topographical maps: Basin asymmetry factor	1. Practical Geography: A Systematic Approach by A. Sarkar 2. Practical Geography - A Modern Approach by S. Mukhopadhyay and M. Bardhan	2	Practical work with Topographical Map	
	3b. Analysis of tectonic activity from Survey of India topographical maps: Transverse topographic symmetry factor		2	Practical work with Topographical Map	
	4a. Basic concept of Geological map and its different types		2	Chalk and Talk	

## LESSON PLAN

Department Name: Dr. Raj Kumar Bhattacharya

Name of Faculty: Geography

Paper Name & Code: Geotectonics Lab & GEOG-H-CC-03-3-P

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	4b. Interpretation of uniclinal structure		3	Practical work with Geological Map	
	4c. Interpretation of folds structure		3	Practical work with Geological Map	
	4d. Interpretation of unconformity structure		4	Practical work with Geological Map	
	4e. Interpretation of intrusions structure		3	Practical work with Geological Map	
		Total	19		

This practical paper is shared by Pubali Ghosh, Associate Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Economic Geography- GEOG-H-CC04/ MD-CC03TH**

<b>Planned</b>					
<b>Unit / Group / Module / Article</b>	<b>Topics</b>	<b>Reference Books</b>	<b>No of Lecture Planned</b>	<b>Content Delivery Technique</b>	<b>Remarks / Comments</b>
Unit-1	1.a) Economic Geography: Scope	Economic Geography: A study of resources by P. Roy	2	Chalk and Talk	
	1.b) Economic Geography: approach		2	Chalk and Talk	
Unit-II	3. a) Classification of economic activities: Primary	Economic Geography by Dr. Y.I Singh	1	Chalk and Talk	
	b) Classification of economic activities: Secondary and Tertiary	Economic Geography by K. Siddhartha		2	Chalk and Talk
	c) Classification of economic activities: Quaternary and quinary	Economic Geography by H.M Saxena	1		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Economic Geography- GEOG-H-CC04/ MD-CC03TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	4. Location of economic activities: Agriculture (after Von Thunen)	1. Economic and Social geography by R. Knowles and J. Wareing.	3	Chalk and Talk	
	4. Location of economic activities: Industry (after Weber)	2. An Introduction to Regional Planning Concepts, Theory and Practice by John Glasson.	3		
	5. Primary activities: Agriculture	Economic Geography: A study of resources by P. Roy	2	Chalk and Talk	
	5. Primary activities: Forestry & Fishing	Economic Geography by Dr. Y.I Singh	2		
	5. Primary activities: Mining	Economic Geography by H.M Saxena	2		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Economic Geography- GEOG-H-CC04/ MD-CC03TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	10. Emergence of economic blocs (Post WW-II)	<a href="http://www.econstor.eu">http://www.econstor.eu</a>	2	Chalk and Talk	
	10.Emergence of BRICS: evolution and significance	<a href="https://www.drishtiiias.com">https://www.drishtiiias.com</a> <a href="http://cuts-international.org">http://cuts-international.org</a>	2	Chalk and Talk	
		Total	24		

# LESSON PLAN

Department Name: Prakriti Das

Name of Faculty: Geography

Paper Name & Code: Economic Geography & GEOG-H-CC04/Th

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit 1: Concepts	2a.Acquaintance with various concepts in Economic geography	Economic Geography: A study of resources by P. Roy  Economic Geography by Dr. Y.I Singh	1	Chalk and talk	
	2b. Concept of Goods and services	Economic Geography by K. Siddhartha	2	Chalk and talk	
	2c. Concept of production and Exchange and consumption	Economic Geography by H.M Saxena	2	Chalk and talk	
	2d.Concept of economic man	Advanced Economic Geography by Dr. Alka Gautam	1	Chalk and talk	

## LESSON PLAN

Department Name: Prakriti Das

Name of Faculty: Geography

Paper Name & Code: Economic Geography & GEOG-H-CC04/Th

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Economic Activities	6a. Concept of Secondary activities	Economic Geography: A study of resources by P.Roy  Advanced Economic Geography by Dr.. Alka Gautam  International trade by Francis Cherunilam	1	Chalk and talk	
	6b. Classification of manufacturing industries		1	Chalk and talk	
	6c. Concept and types of special economic zones		1	Chalk and talk	
	6d. Concept of technology parks		1	Chalk and talk	
	7a. Concept and classification of Tertiary activities	Transport Geography by H.M Saxena  Advanced Economic Geography by Dr. Alka	1	Chalk and talk	



## LESSON PLAN

Department Name: Prakriti Das

Name of Faculty: Geography

Paper Name & Code: Economic Geography & GEOG-H-CC04/Th

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Gautam			
	7b. Transport	Geography of Transport Development in India by B.C Vaidya	2	Chalk and talk	
	7c. Trade and services	International trade by Francis Cherunilam	2	Chalk and talk	
	8a. Concept of Economic Globalisation	<a href="https://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2000_1.pdf">https://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2000_1.pdf</a>	1	Chalk and talk	
	8b. Contemporary issues of economic globalization		2	Chalk and talk	
	9a. International trade	International trade by Francis Cherunilam	2	Chalk and talk	

# LESSON PLAN

Department Name: Prakriti Das

Name of Faculty: Geography

Paper Name & Code: Economic Geography & GEOG-H-CC04/Th

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	9b. WTO: Evolution, structure and functions	Advanced Economic Geography by Dr. Alka Gautam	2	Chalk and talk	
		Total	22		

This theory paper is shared by Dr. Saswati Nayak, Associate Professor, and Prakriti Das, Assistant Professor, Department of Geography, VIC

## LESSON PLAN

Department Name: Prakriti Das

Name of Faculty: Geography

Paper Name & Code: Economic Geography Lab & GEOG-H-CC04/P

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1a. Work participation rate: Definition, concept and significance	Maps and Diagrams: Their Compilation and Construction by Monkhouse and Wilkinson	2	Chalk and Talk	
	1b. Construction of gender-wise bar diagram showing WPR		3	Chalk and Talk	
	1c. Interpretation		1	Chalk and Talk	
	3a. Crop calendar: Definition, concept and uses	Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
	3b. Construction of Ergograph		3	Chalk and Talk	
	3c. Interpretation		1	Chalk and Talk	

# LESSON PLAN

Department Name: Prakriti Das

Name of Faculty: Geography

Paper Name & Code: Economic Geography Lab & GEOG-H-CC04/P

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Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Total	12		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Saswati Nayak

Paper Name & Code: Economic Geography (GEOG-H-CC-04/MD-CC03-3/5-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Economic Geography Lab: 2. Construction and interpretation of proportional divided circles showing state-wise variation in occupational structure	1. Calculation of proportional divided circles	1. Maps and diagrams: their compilation and construction by F.J. Monkhouse and H.R. Wilkinson. 2. Statistical Methods by N.G.Das	1	Lecture using Laptop	
	2. Construction of proportional divided circles		1	Chalk and talk	
	3. Collection of state-wise data on occupational structure in India and its calculation		2	Chalk and talk	
	4. Interpretation and analysis of the diagram represented		1	Chalk and talk	
	5. Checking and completion of final sheet for Practical Lab book		3	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Saswati Nayak

Paper Name & Code: Economic Geography (GEOG-H-CC-04/MD-CC03-3/5-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4. Time series analysis of industrial production of India using moving average	1.Collection of industrial production data of India and introduction of Time series analysis.	1. Statistical techniques by N.G Das. 2. Maps and diagrams: their compilation and construction by F.J. Monkhouse and H.R.Wilkinson.	1	Lecture using Laptop	
	2. Types of Time series analysis using moving average		2	Chalk and talk	
	3. Calculation and representation of graph on time series analysis on the selected data		2	Chalk and talk	
	4. Analysis of data and interpretation		1	Chalk and talk	
	5. Checking and prepare for the final sheet		2		
		Total	16		

# **LESSON PLAN**

**Department Name: Geography**

**Name of Faculty: Saswati Nayak**

**Paper Name & Code: Economic Geography (GEOG-H-CC-04/MD-CC03-3/5-P)**

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This practical paper is shared by Dr. Saswati Nayak, Associate Professor, and Prakriti Das, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 02-3-TH-ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLANNING

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
<u>UNIT1</u> Conceptual framework 1	Definition and scope of Environmental Impact Assessment (EIA)	Environmental Impact by Gilpin,	2	Chalk & Talk	
	Definition and scope of Environmental Management Planning (EMP)	Environmental Management Plans by Tinsley	2	Chalk & Talk	
2	Legal and Policy Framework for Management-Air	Environmental Impact by Gilpin, Environmental Management Plans by Tinsley	1	Chalk & Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 02-3-TH-ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLANNING

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Legal and Policy Framework for Management-Water	Environmental Impact Assessment Methodologies by Yerramill & Manickam	1	Chalk & Talk	
2	Legal and Policy Framework for Management-Forest		1	Chalk & Talk	
	Legal and Policy Framework for Management-Environment Protection Act (EPA)		2	Chalk & Talk	
3	Structure of governance	Example of an EIA report- Bengaluru Metro Rail Project	2	Chalk & Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 02-3-TH-ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLANNING

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Implementation of strategies	<a href="https://www.adb.org/sites/default/files/project-documents/53326/53326-001-ela-en.pdf">https://www.adb.org/sites/default/files/project-documents/53326/53326-001-ela-en.pdf</a>	2	Chalk & Talk	
<u>UNIT 2</u> <u>Processes</u>  4	Environmental Appraisal: Concept	Environmental Impact Assessment Methodologies by Yerramill & Manickam	2	Chalk & Talk	
	Environmental Appraisal: Objectives		2	Chalk & Talk	
		TOTAL	17		

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Dr. Raj Kumar Bhattacharya**

**Paper Name & Code:**

**Environmental Impact Assessment and Environmental Management Planning  
& GEOG-H-SEC02-3-Th**

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Process	4a. Stages of conducting EIA: Scoping using Environmental Information System (EIS)	<a href="https://www.iitr.ac.in/wfw/web_ua_water_for_welfare/education/Teachers_Manual/Teacher_manual_master_EIA.pdf">https://www.iitr.ac.in/wfw/web_ua_water_for_welfare/education/Teachers_Manual/Teacher_manual_master_EIA.pdf</a>	2	Chalk & Talk	
	4b. Stages of conducting EIA: Screening using Environmental Information System (EIS)	<a href="https://www.iisd.org/learning/eia/eia-7-steps/">https://www.iisd.org/learning/eia/eia-7-steps/</a> <a href="https://www.fao.org/4/V8350E/v8350e06.htm">https://www.fao.org/4/V8350E/v8350e06.htm</a>	2		
	6a. Stages and principle of the preparation of inventory	<a href="https://www.slideshare.net/slideshow/basic-inventory-principles/25654896#3">https://www.slideshare.net/slideshow/basic-inventory-principles/25654896#3</a> <a href="https://ebooks.inflibnet.ac.in/esp12/chapter/eia-methodology/">https://ebooks.inflibnet.ac.in/esp12/chapter/eia-methodology/</a>	2	Chalk & Talk	
	6b. Matrices of prepared inventory		2		
	7a. Methodologies of EIA: Impact assessment	<a href="https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000014ER/P000282/M027483/ET/1519194976Paper12_Module13_etext.pdf">https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000014ER/P000282/M027483/ET/1519194976Paper12_Module13_etext.pdf</a> <a href="https://wikis.ec.europa.eu/display/ExactExternalWiki/Environmental+impact+assessment+and+environmental+management+plan">https://wikis.ec.europa.eu/display/ExactExternalWiki/Environmental+impact+assessment+and+environmental+management+plan</a>	2	Chalk & Talk	
	7b. Methodologies of EIA: Risk assessment		2		
	7c. Methodologies of EIA: Cost-benefit analysis	<a href="https://gacbe.ac.in/pdf/ematerial/18MEC42C-U4.pdf">https://gacbe.ac.in/pdf/ematerial/18MEC42C-U4.pdf</a> <a href="https://doi.org/10.1016/0195-9255(90)90006-L">https://doi.org/10.1016/0195-9255(90)90006-L</a>	2	Chalk & Talk	
		Total	14		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Saswati Nayak

Paper Name & Code: EIA and EMP (GEOG-H-SEC02-3 Th)

Planned						
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments	
Unit: III- Methods	8.a) Stakeholders prediction: local bodies	<a href="http://www.iied.org">http://www.iied.org</a>	2	Lecture using Laptop		
	8.b) Stakeholders prediction: Citizens and relevant experts	<a href="http://www.researchgate.net">http://www.researchgate.net</a> <a href="http://jstore.org">http://jstore.org</a>	2	Chalk and talk		
	9.a) Prediction scenarios and mitigation		2	Chalk and talk		
	9.b) Assessing alternatives		2	Chalk and talk		
	10.a) Environmental Impact assessing		<a href="http://www.researchgate.net">http://www.researchgate.net</a>	2	Chalk and talk	
	10.b) Environmental Impact reporting		<a href="http://www.env.go.jp">http://www.env.go.jp</a>	2	Lecture using Laptop	
		Total	08			

# **LESSON PLAN**

**Department Name: Geography**

**Name of Faculty: Saswati Nayak**

**Paper Name & Code: EIA and EMP (GEOG-H-SEC02-3 Th)**

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# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Prakriti Das**

**Paper Name & Code:**

**Environmental Impact Assessment and Environmental Management Planning  
& GEOG-H-SEC02-3-Th**

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit III: Methods	11 a. EI monitoring: Definition & concept	<a href="https://egyankosh.ac.in/bitstream/123456789/9176/1/Unit-16.pdf">https://egyankosh.ac.in/bitstream/123456789/9176/1/Unit-16.pdf</a>	2	Chalk & Talk	
	b. EI monitoring: Significance	<a href="https://www.iitr.ac.in/wfw/web_ua_water_for_welfare/education/Teachers Manual/Teacher manual master EIA.pdf">https://www.iitr.ac.in/wfw/web_ua_water_for_welfare/education/Teachers Manual/Teacher manual master EIA.pdf</a>	1		
	c. EI review & concept	<a href="https://www.cambridgescholars.com/resources/pdfs/978-1-5275-6664-4-sample.pdf">https://www.cambridgescholars.com/resources/pdfs/978-1-5275-6664-4-sample.pdf</a>	1		
	d. EI review: merits & demerits		1		
	12a. Environmental audit: Definition and concept	<a href="https://penpoin.com/environmental-audit/">https://penpoin.com/environmental-audit/</a> <a href="https://www.egyankosh.ac.in/bitstream/123456789/86573/1/Unit-2.pdf">https://www.egyankosh.ac.in/bitstream/123456789/86573/1/Unit-2.pdf</a>	2	Chalk & Talk	
	b. Relevance and process of Environmental audit	<a href="http://cdn.cseindia.org/userfiles/environmental auditing.pdf">http://cdn.cseindia.org/userfiles/environmental auditing.pdf</a>	2		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code:

**Environmental Impact Assessment and Environmental Management Planning  
& GEOG-H-SEC02-3-Th**

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	13a. Selecting a metro rail project from India	<a href="https://www.aiib.org/en/projects/details/2023/download/India/Final-EIA_Phase-II_14112020.pdf">https://www.aiib.org/en/projects/details/2023/download/India/Final-EIA_Phase-II_14112020.pdf</a>	2	Chalk & Talk	
	b. EIA/EMP case study of a metro rail project		2		
	14a. Selection of a highway project	<a href="https://environmentclearance.nic.in/writereaddata/Form-1A/HomeLinks/highways-10_may.pdf">https://environmentclearance.nic.in/writereaddata/Form-1A/HomeLinks/highways-10_may.pdf</a> <a href="https://morth.nic.in/sites/default/files/NH_516E.pdf">https://morth.nic.in/sites/default/files/NH_516E.pdf</a>	2	Chalk & Talk	
	b. EIA/EMP case study of highway project		2		
		Total	17		

This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC 01-1/2/3-Th)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: I Cartography	1. Concept of scales	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk	
	1. Scales: types, significance and classification	2. Elements of Practical Geography by R.L. Singh	1	Chalk and talk	
	1. Maps projections: concept	3. Maps and Diagrams by F.J. Monkhouse	1	Chalk and talk	
	1. Maps projections: Classification and significance	4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	1		
	2. Bearing: Magnetic and true	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk	
	2. Bearing: Whole circle and reduced	2. Elements of Practical Geography by R.L. Singh	1	Chalk and talk	
	2. Concept of Geoid and Spheroid	3. Elements of Cartography by Robinson and J.L.	1	Chalk and talk	



# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC 01-1/2/3-Th)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: I Cartography	2. Geoid in special reference to WGS-84	Morrison 4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	1	Chalk and talk and laptop	
	3. Map projection Classification	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk and laptop and globe	
	3. Map projection: properties and uses of Simple Conical Projection	2. Elements of Practical Geography by R.L. Singh. 3. Elements of Cartography by Robinson and J.L. Morrison	2	Chalk and talk and laptop	
	3. Concept and significance of UTM projection		2	Chalk and talk and laptop and globe	
	4. Basic concepts	1. Practical Geography: A Systematic Approach by A.	2	Chalk and talk and laptop	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC 01-1/2/3-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	of Surveying	Sarkar			
	4. Survey equipment and its uses: Dumpy level	2. Elements of Practical Geography by R.L. Singh 3. Elements of Cartography by Robinson and J.L. Morrison	2	Dumpy level and demonstration	
	4. Survey equipment and its uses: Theodolite	4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	2	Theodolite and demonstration	
		Total	19		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit 2	2a. Basic concepts of surveying, survey equipment, and their capabilities: Total Station	<a href="https://www.constructionplacements.com/total-station-in-surveying-types-uses-and-applications/">https://www.constructionplacements.com/total-station-in-surveying-types-uses-and-applications/</a> <a href="https://gisresources.com/total-station-and-its-applications-in-surveying/#google_vignette">https://gisresources.com/total-station-and-its-applications-in-surveying/#google_vignette</a>	4	Practical work with field measurement	
	2a. Basic concepts of surveying, survey equipment, and their capabilities: Global Navigation Satellite System (GNSS)	Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others by B Bhatta (CRC Press)	2	Practical work with field measurement	
		Total	6		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit III: Remote Sensing and Geographical Information System	5a. Principles of remote sensing	1. Remote Sensing & GIS by Bhatta 2. Fundamentals of Remote Sensing by Canada Centre for Remote Sensing (e-book)	2	Chalk and Talk	
	5b. Types of RS satellites and sensors with reference to IRS and Landsat missions	1. Remote Sensing & GIS by Bhatta 2. Fundamentals of Remote Sensing by Canada Centre for Remote Sensing (e-book)	3	Chalk and Talk	
	6a. Principles of preparing standard false colour composites (FCCs)	<a href="https://theqgeo.com/">https://theqgeo.com/</a> (website)	2	Chalk and Talk	
	6b. Principles of preparing Supervised image classification	<a href="https://theqgeo.com/">https://theqgeo.com/</a> (website)	2	Chalk and Talk	
	7a. GIS data types: Spatial and non-spatial (attribute table)	1. A Primer of GIS: Fundamental Geographic and Cartographic concepts by	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	and metadata)	Harvey 2. GIS: Fundamentals, Applications and Implementations by Elangovan			
	7b. Raster and vector	1. A Primer of GIS: Fundamental Geographic and Cartographic concepts by Harvey 2. GIS: Fundamentals, Applications and Implementations by Elangovan	1	Chalk and Talk	
	8a. Principles of preparing attribute tables, data manipulation, query	1. A Primer of GIS: Fundamental Geographic and Cartographic concepts by Harvey 2. GIS: Fundamentals, Applications and Implementations by Elangovan	3	Chalk and Talk	
	8b. Principles of preparing of	Introduction to Buffer and Overlay Analysis by	2	Chalk and Talk	

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Prakriti Das**

**Paper Name & Code: Geomatics & Spatial Analysis (GEO-H-IDC01-1/2/3-Th)**

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Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	overlay	Humboldt State University			
		Total	14		

**This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC**

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Geomatics and Spatial Analysis (GEO-H-IDC-01-1/2/3-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1. Map projection: properties and uses of Simple Conical Projection	1. Practical Geography: A Systematic Approach by A. Sarkar	1	Chalk and talk	
	1. Calculation of Simple Conical Projection	2. Elements of Practical Geography by R.L. Singh	2	Chalk and talk	
	1. Drawing of Simple Conical Projection	3. Maps and Diagrams by F.J. Monkhouse	2	Chalk and talk	
	1. Checking final sheet for lab note book.	4. Surveying and Levelling by T. P. Kanetkar and S.V. Kulkarni	1		
	Total		06		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr.Raj Kumar Bhattacharya

Paper Name & Code: Geomatics & Spatial Analysis Lab (GEO-H-IDC01-1/2/3-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	2.Traverse survey and plotting UTM coordinates using Smartphone GNSS application	Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others by B Bhatta (CRC Press)	8	Practical work with field survey	
	4. Change detection of riverbank or coastline shift from multi-dated maps and images	1. Practical geography: A Systematic Approach by A. Sarkar 2.Advanced Practical Geography by P. Basu 3. USGS Global Visualization Viewer: <a href="https://glovis.usgs.gov">https://glovis.usgs.gov</a> 4. USGS Landsat Missions: <a href="https://www.usgs.gov/landsat-missions">https://www.usgs.gov/landsat-missions</a> 5. ISRO Bhuvan 2D and 3D Platforms: <a href="https://bhuvan-app1.nrsc.gov.in/globe/3d.php">https://bhuvan-app1.nrsc.gov.in/globe/3d.php</a>	8	Practical work with satellite images	
		Total	16		



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Geomatics & Spatial Analysis Lab (GEO-H-IDC01-1/2/3-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3a. Concept of land use and land cover features	1. Practical geography: A Systematic Approach by A. Sarkar 2. Advanced Practical Geography by P. Basu	1	Practical work with satellite images	
	3b. Identification of land use / land cover features from standard FCCs		4		
	3c. Preparation of LULC inventories		3		
		Total	8		

This practical paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit 1: Concepts	1.a) Economic Geography: Scope	Economic Geography: A study of resources by P. Roy	2	Chalk and talk	
	1.b) Economic Geography: approach		2	Chalk and talk	
	2a) Acquaintance with various concepts in Economic geography	Economic Geography by Dr. Y.I Singh	1	Chalk and talk	
		Economic Geography by K. Siddhartha			
	2b. Concept of Goods and services	Economic Geography by H.M Saxena	2	Chalk and talk	
2c. Concept of production and Exchange and consumption	2		Chalk and talk		

Subject Name/Code: Economic Geography (GEOG-H-CC04/MD-CC03-3/5 Th)

# LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Economic Activities	2d) Concept of economic man	Advanced Economic Geography by Dr. Alka Gautam	1	Chalk and talk	
	3.a) Classification of economic activities: Primary	Economic Geography: A study of resources by P. Roy  Economic Geography by Dr. Y.I Singh	2	Chalk and talk	
	3.b) Classification of economic activities: Secondary and tertiary	Advanced Economic Geography by Dr. Alka Gautam	2		

Subject Name/Code: Economic Geography (GEOG-H-CC04/MD-CC03-3/5 Th)

## LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3.c) Economic activities: quaternary and quinary	Economic Geography by Dr. Y.I Singh Advanced Economic Geography by Dr. Alka Gautam	2	Chalk and talk	
	4. Location of economic activities: Agriculture (after Von Thunen)	1.Regional Planning in India by M. Chand and V.K. Puri. 2 Regional Planning: Concepts, Techniques, Policies and Case Studies by R.P. Misra.	3	Chalk and talk	

## LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	4. Location of economic activities: Industry (after Weber)	3. Economic and Social Geography by Knowles and J.Wareing	3	Chalk and talk	
	5.a) Primary activities: Agriculture	Economic Geography: A study of resources by P. Roy	2	Chalk and talk	
	5.b) Primary activities: Forestry	Economic Geography by Dr. Y.I Singh Advanced Economic Geography by Dr. Alka Gautam	2	Chalk and talk	
	5.c) Primary activities: Fishing		1	Chalk and talk	

Subject Name/Code: Economic Geography (GEOG-H-CC04/MD-CC03-3/5 Th)

## LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	5.d) Primary activities: Mining		1		
	6a. Concept of Secondary activities	Economic Geography: A study of resources by P.Roy	1	Chalk and talk	
	6b. Classification of manufacturing industries	Advanced Economic Geography by Dr.. Alka Gautam	1	Chalk and talk	
	6c. Concept and types of special economic zones	International trade by Francis Cherunilam	1	Chalk and talk	
	6d. Concept of		1	Chalk and talk	

Subject Name/Code: Economic Geography (GEOG-H-CC04/MD-CC03-3/5 Th)

## LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	technology parks				
	7.a. Concept and classification of Tertiary activities	Transport Geography by H.M Saxena Advanced Economic Geography by Dr. Alka Gautam	1	Chalk and talk	
	7b. Transport	Geography of Transport Development in India by B.C Vaidya	2	Chalk and talk	
	7c. Trade and services	International trade by Francis Cherunilam	2	Chalk and talk	
	8a. Concept of Economic Globalisation	<a href="https://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2000_1.pdf">https://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2000_1.pdf</a>	1	Chalk and talk	
	8b.		2	Chalk and	

Subject Name/Code: Economic Geography (GEOG-H-CC04/MD-CC03-3/5 Th)

# LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Contemporary issues of economic globalization			talk	
	9a. International trade	International trade by Francis Cherunilam	2	Chalk and talk	
	9b. WTO: Evolution, structure and functions	Advanced Economic Geography by Dr. Alka Gautam	2	Chalk and talk	
	10. Emergence of economic blocs (Post WW-II)	<a href="http://www.econstor.eu">http://www.econstor.eu</a>	2	Chalk and talk	

Subject Name/Code: Economic Geography (GEOG-H-CC04/MD-CC03-3/5 Th)



## LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography (GEOG-H-CC04/MD-cc-03-3/5 Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	10.Emergence of BRICS: evolution and significance	<a href="https://www.drishtias.com">https://www.drishtias.com</a> <a href="http://cuts-international.org">http://cuts-international.org</a>	2	Chalk and talk	
		Total	45		

This theory paper is fully taught by Dr. Saswati Nayak, Associate Professor, Dept of Geography, VIC

# LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography Lab & GEOG-H-CC04/P

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1a. Work participation rate: Definition, concept and significance	Maps and Diagrams: Their Compilation and Construction by Monkhouse and Wilkinson	2	Chalk and Talk	
	1b. Construction of gender-wise bar diagram showing WPR		3	Chalk and Talk	
	1c. Interpretation		1	Chalk and Talk	
	2.a). Calculation of proportional divided circles		2		
	2.b) Construction of proportional divided circles		1		
	2.c). Collection of state-wise data on occupational structure in India and its calculation		2		
	2.d) Interpretation and analysis of the diagram represented		1		
	2.e) Checking and completion of final sheet for Practical Lab book		2		
	3a. Crop calender: Definition, concept and uses	Practical Geography: A Systematic Approach by A. Sarkar	2	Chalk and Talk	
	3b. Construction of Ergograph		3	Chalk and Talk	

Subject Name/Code: Economic Geography Lab & GEOG-H-CC04/P

## LESSON PLAN

Department Name: Dr. Saswati Nayak

Name of Faculty: Geography

Paper Name & Code: Economic Geography Lab & GEOG-H-CC04/P

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3c. Interpretation		1	Chalk and Talk	
	4.a) Collection of data on industrial production of India and introduction of Time series analysis.	1. Statistical techniques by N.G Das.	2		
	4.b) Types of Time series analysis using moving average		2		
	4.c) Calculation and representation of graph on time series analysis on the selected data		2		
	4.d) Analysis of data and interpretation and checking and prepare for the final sheet		2		
			Total	30	

This practical paper is fully taught by Dr. Saswati Nayak, Associate Professor, Dept of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Field Data Collection and Compilation	1a. Designing of primary survey based on diverse research problems	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	1b. Relevance of pilot survey	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	2. Sampling types and strategy based on diverse research problems	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	3	Chalk and Talk	
	3a. Preparation of questionnaire	1. Research Methodology: Methods & Techniques by C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick	2	Chalk and Talk	
	3b. Preparation of interview	1. Research Methodology: Methods & Techniques by	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

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Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	schedule	C.R Kothari 2. Geospatial Techniques and Research in Geography by Das & Mallick			
		Total	11		

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Dr. Saswati Nayak**

**Paper Name & Code: Methods in Geography (GEOG-H\_SEC-01/MD-SEC-1/2/3-Th)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Field Data Collection and Compilation	4. Data Compilation into master table		2	Chalk and talk	
	4. Data matrix in master table		2	Chalk and talk	
	5. Computer assisted field data entry- concept		2	Chalk and talk	
	5. Tabulation of data into frequency distribution tables		2	Chalk and talk	
	6. Statistical analysis of data: measures of central tendency: Mean		2	Chalk and talk	
	6. Statistical analysis of data: measures of central tendency: Median and mode		2	Chalk and talk	
	6. Statistical analysis of data: dispersion		1	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Methods in Geography (GEOG-H\_SEC-01/MD-SEC-1/2/3-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Methods in Physical Geography	7.Use of minor survey Instruments: distometer	<a href="https://www.slideshare.net">https://www.slideshare.net</a>	2	Distometer and demonstration	
		Total	15		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Methods in Physical Geography	7a. Application of minor survey instruments in Physical Geography study Brunton Compass, distometer	<a href="https://www.jove.com/v/10086/brunton-compass-strike-and-dip-measurement-of-rock-layers">https://www.jove.com/v/10086/brunton-compass-strike-and-dip-measurement-of-rock-layers</a>	1	Chalk and Talk	
	7b. Use of minor survey instruments: Smartphone levelling	<a href="https://d-nb.info/1145331696/34">https://d-nb.info/1145331696/34</a>	3	Field survey and computation	
	8. Textural analysis of grains using sieves	1.Practical Geography: A Systematic Approach by Ashis Sakar	4	Field survey and computation	
	9a. Mapping areal extraction of flooded areas from satellite images models	1.Practical Geography: A Systematic Approach by Ashis Sakar 2. Advanced Practical Geography by Pijushkanti Saha and Partha Basu	3	Hands - on - Training & Practice	
	9b. Mapping areal extraction		2	Hands - on - Training &	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: GEOG-H-SEC-01/MD-SEC01-1/2/3-TH-METHODS IN GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	of flooded areas from digital elevation models			Practice	
	10a. Mapping areal and linear extents of riverbank and coastline shift from Survey of India 1:50kmaps and/ or satellite images		5	Hands - on - Training & Practice	
		Total	18		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 TOPIC NO 11	Dominant and distinctive functions- Basic concept	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about theory		1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about calculation		1	Chalk and Talk	
	Dominant and distinctive functions- Discussion about diagram and applicability		1	Chalk and Talk	

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: PUBALI GHOSH**

**Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 TOPIC 12	Ternary diagram – Basic concept	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
	Ternary diagram showing occupational 3 TOPIC 12 patterns – fundamental concept		1	Chalk and Talk	
	Ternary diagram showing occupational patterns- calculation		1	Chalk and Talk	
	Ternary diagram showing occupational patterns- Diagram and applicability		1	Chalk and Talk	
3	Accessibility Map- Basic	Statistical Methods in Geographical Studies by A.	1	Chalk and Talk	

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: PUBALI GHOSH**

**Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3  TOPIC 13	concept	Mahmood			
	Accessibility Map- types	Practical Geography by A. Sarkar	1	Chalk and Talk	
	Accessibility Map- preparation	Elements of Practical Geography by R.L.Singh	2	Chalk and Talk	
	Accessibility Map- applicability	Statistical Methods in Geographical Studies by A. Mahmood  Practical Geography by A. Sarkar  Elements of Practical Geography by R.L.Singh	1	Chalk and Talk	
3  TOPIC 14	Basic concept of Flowchart	Statistical Methods in Geographical Studies by A. Mahmood	1	Chalk and Talk	
	Preparation of Flowchart using	Practical Geography by A. Sarkar	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-SEC 01-TH-METHODS IN GEOGRAPHY

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	transportation data- calculation	Elements of Practical Geography by R.L.Singh			
	Preparation of Flowchart using transportation data- applicability		2	Chalk and Talk	
		TOTAL	18		

This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

**SEMESTER 5 (HONOURS &  
GENERAL)  
CBCS SYLLABUS**

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT1 TOPIC 1	Discussion about Meaning of Research in Geography	Research Methodology- Methods and Techniques by C.R.Kothari	2	Chalk and Talk	
	Discussion about Types of Research in Geography	Research Methods in Geography by Basil Gomez and John Paul Jones	2	Chalk and Talk	
	Discussion about Significance of Research in Geography	Research Methodology in Geography by H.N.Misra and Vijai P. Singh Research Methodology by Uwem Essia Research Methodology	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		in Geography by K.L. Narasimha Murthy			
UNIT 1	Discussion about need of Literature Review	Research Methodology- Methods and Techniques by C.R.Kothari	1	Chalk and Talk	
TOPIC 2	Discussion about methods of Literature Review	Research Methods in Geography by Basil Gomez and John Paul Jones	1	Chalk and Talk	
	Discussion about definition and	Research Methodology in Geography by	1	Chalk and Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 1 TOPIC 2	characteristic features of Research Design	H.N.Misra and Vijai P. Singh  Research Methodology by Uwem Essia			
	Discussion about various methods of Research Design	Research Methodology in Geography by K.L. Narasimha Murthy	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 1 TOPIC 3	Defining Research problem	Research Methodology- Methods and Techniques by C.R.Kothari  Research Methods in Geography by Basil Gomez and John Paul Jones	1	Chalk and Talk	
	Discussion about Research problem	Research Methodology in Geography by H.N.Misra and Vijai P. Singh  Research Methodology by Uwem Essia	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 1 TOPIC 3		Research Methodology in Geography by K.L. Narasimha Murthy			
	Defining Research Objectives	Research Methodology- Methods and Techniques by C.R.Kothari	1	Chalk and Talk	
UNIT 1 TOPIC 3	Discussion about Research Objectives	Research Methods in Geography by Basil Gomez and John Paul Jones	1	Chalk and Talk	
		Research Methodology in Geography by			

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		H.N.Misra and Vijai P. Singh			
UNIT 1 TOPIC 3	Defining Research hypothesis	Research Methodology by Uwem Essia	1	Chalk and Talk	
	Discussion about Research hypothesis	Research Methodology in Geography by K.L. Narasimha Murthy	1	Chalk and Talk	
UNIT 1 TOPIC 4	Discussion about Research materials- types,	Research Methodology- Methods and Techniques by C.R.Kothari Research Methods in	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	characteristic features, significance	Geography by Basil Gomez and John Paul Jones  Research Methodology in Geography by H.N.Misra and Vijai P. Singh  Research Methodology by Uwem Essia  Research Methodology in Geography by K.L. Narasimha Murthy			
UNIT 1	Discussion about	SAME AS ABOVE	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 4	Research methods- types, characteristic features, significance, applicability				
UNIT 1 TOPIC 5	Discussion about various techniques of writing scientific reports	Research Methodology- Methods and Techniques by C.R.Kothari  Research Methods in Geography by Basil Gomez and John Paul Jones	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Research Methodology in Geography by H.N.Misra and Vijai P. Singh  Research Methodology by Uwem Essia  Research Methodology in Geography by K.L. Narasimha Murthy			
UNIT 1  TOPIC 5	Discussion about various techniques of preparing notes	SAME AS ABOVE	1	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 1 TOPIC 5	Discussion about References	Research Methodology- Methods and Techniques by C.R.Kothari	1	Chalk and Talk	
	Discussion about Bibliography	Research Methods in Geography by Basil Gomez and John Paul Jones	1	Chalk and Talk	
	Discussion about the techniques of writing Abstract	Research Methodology in Geography by H.N.Misra and Vijai P. Singh	1	Chalk and Talk	
	Discussion about the usage and	Research Methodology by Uwem Essia Research Methodology	1	Chalk and Talk	



## LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: PUBALI GHOSH**

**Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK**

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	importance of Keywords	in Geography by K.L. Narasimha Murthy			
UNIT1 TOPIC 6	Concept of Plagiarism	Research Methodology- Methods and Techniques by C.R.Kothari	1	Chalk and Talk	
	Classification of Plagiarism		1	Chalk and Talk	
	Various methods and importance of Prevention of Plagiarism	Research Methods in Geography by Basil Gomez and John Paul Jones  Research Methodology in Geography by H.N.Misra and Vijai P. Singh	2	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A- CC-5-11-TH-RESEARCH METHODOLOGY AND FIELDWORK

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Research Methodology by Uwem Essia  Research Methodology in Geography by K.L. Narasimha Murthy			
		TOTAL	30		

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: II	7. Field work in Geographical Studies: Role and significance	Research Methodology: Methods and Techniques by C.R. Kothari; New Age International Publishers.	2	Chalk and Talk	
	7. Selection of study area and objectives	Research Methodology in Geography by K.L.N. Murthy; Concept Publishing Co.	2	Chalk and Talk	
	7. Pre-field academic preparations	Geography Research methods and Field work by Tuhin Ray, Biswajit Mandal et al; Kalyan Publisher	1		
	7. Ethics of fieldwork		1		
	8. Field techniques and tools: observation (participants and non-participant)	Research Methodology: Methods and Techniques by C.R. Kothari; New Age International Publishers.  Research Methodology in Geography by K.L.N. Murthy; Concept Publishing Co.	2	Chalk and Talk	
	8. Field techniques and tools: questionnaires (open, closed, structured and	Geography Research methods and Field work by Tuhin Ray,	2	Chalk and Talk	

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	non-structured)	Biswajit Mandal et all; Kalyan Publisher			
	8. Field techniques and tools: Interview		1	Chalk and Talk	
Unit-II	9. Field techniques and tools: landscape survey using transects method	Transect and Quadrants Methods in Landscape Surveying by Dinabandhu Patra, link: <a href="http://www.kharagpurcollege.ac.in">http://www.kharagpurcollege.ac.in</a>	2	Chalk and Talk	
	9. Field techniques and tools: landscape survey using quadrants method	Landscape Survey Methodology <a href="http://uppernidderdate.org.uk">http://uppernidderdate.org.uk</a>	2	Chalk and Talk	
	9. Field techniques and tools: constructing a sketch, photo, and video recording	Quadrat and Transect activities <a href="http://www.cosee.net&gt;quadr">http://www.cosee.net&gt;quadr</a>	1	Chalk and Talk	

## LESSON PLAN

**Department Name: Geography**

**Name of the Faculty: Dr. Saswati Nayak**

**Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-TH)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	10. Positioning and collection of samples	Sample collection: Procedure, Methods and Types  <a href="https://www.studysmarter.co.uk">https://www.studysmarter.co.uk</a>  Collection and Preparation of Samples and Field Analysis by Dr. G.K. Khadse. <a href="https://www.mpcb.gov.in">https://www.mpcb.gov.in</a>	2	Chalk and Talk	
Unit: II	10. preparation of inventory from field data	1. Statistical methods by N. G. Das; Pub: McGraw Hill Education.	2	Chalk and Talk	
	11. Post field tabulation	1. Statistical methods by N. G. Das; Pub: McGraw Hill Education.	1	Chalk and Talk	
	11. Processing and analysis of quantitative data	2. Statistical Methods in Geographical Studies by Aslam Mahmood; Rajesh Publication	2		
	11. Processing and analysis of qualitative data	3. Statistical Geography; Methods and Applications by Zamir Alvi.	2		

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	12. Fieldwork: Logistics	Fieldwork Tips: Logistics <a href="https://gkhajduk.github.io/2016-10-10-fieldwork-tips-logistics">https://gkhajduk.github.io/2016-10-10-fieldwork-tips-logistics</a>	3	Chalk and Talk	
	12. Handling of emergencies.	Fieldwork Logistics Power Point Presentation <a href="https://www.slideserve.com">https://www.slideserve.com</a>	2	Chalk and Talk	
		Total	30		

This theory paper is shared by Pubali Ghosh, Associate Professor, and Dr. Saswati Nayak, Associate Professor, Department of Geography, VIC

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Research Methodology and Fieldwork Lab	Pre-Field study	Literature review to select a study area	1	Chalk and talk	
		Identification of Mouza or Municipal ward (tentative)	1	Chalk and talk	
		Collection of secondary data like climatic data, demographic data, occupational structure etc from concerned District Census hand book or Census.	3	Lecture using laptop	
		Collection of Topographical Map from NATMO	2	NATMO visit	
		Preparation of questionnaire for household survey.	3	Lecture using laptop	
		Planning for physiographic survey as well as socio-economic survey among the groups of students.	1	Discussion with students	
	Field Study	Collection of primary data through household survey on socio-economic criterion.	11 days field excursion	Field	

Subject Name/Code: GEO-A-CC-5-11-P

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Field Study (Primary data)	Survey done by Dumpy level and Prismatic Compass for longitudinal profile and contouring	11 days field excursion	Field	
		Measuring slope by Clinometer	11 days field excursion		
		Collection of spot heights as well as its latitudinal and longitudinal location by GPS	11 days field excursion		
		Primary data collection from Panchayet Pradhan or elderly people of concerned village or ward by interview method	11 days field excursion		
		Collection of primary data from hotels, Guest houses and Schools by both questionnaire method and interview method.	11 days field excursion		
Unit-II	Field Study (Secondary Data)	Collection of land use map from BLRO office/ Tahsil etc.		Field	
		Collection of secondary data from Panchayet, Municipality, Land		Field	

Subject Name/Code: GEO-A-CC-5-11-P



## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Post Field work	Reform and Revenue offices.			
		Discussion about the methodology of the field study.	2		
		Preparation of location map and route map (from institution to the destination) and checking the sheets	4		
		Preparation of relief map, slope map, drainage map from toposheet of concerned area and checking the sheets	6		
		Tabulation of primary data collected from different sources and checking the sheets.	7		
		Analysis of primary data by using various statistical methods and checking the sheets	10		
		Plotting longitudinal profile and contour map for field report and checking the sheets	2		
		Analysis of physiography by morphometric analysis from Toposheet of the concerned are as well as instrument survey on field.	1		
				Talk using laptop, board work as well as checking practical sheets	

Subject Name/Code: GEO-A-CC-5-11-P

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Research Methodology and Fieldwork (GEO-A-CC-05-11-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		How to interpret statistically analysed data and diagrams and maps.	2		
		Major findings	1		
		Total	46 classes and 11 days field excursion		

Subject Name/Code: GEO-A-CC-5-11-P

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-CC-5-11-P- RESEARCH METHODOLOGY AND FIELDWORK LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
1	Preparation of Field Report based on Field Survey-basic concept			Based on Field Visit	To be shared by Pubali Ghosh and Dr. Saswati Nayak
2	Selection of one rural mouza/ an urban Municipal Ward based on a special feature or a specific problem			Based on Field Visit	
3	Detailed pre-field study			Based on Field Visit	
4	Collection of secondary data from various sources before visiting the study area			Based on Field Visit	
5	Collection of primary data on relief by visiting the study area			Based on Field Visit	
6	Collection of primary data			Based on Field	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-CC-5-11-P- RESEARCH METHODOLOGY AND FIELDWORK LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	on soil and collection of soil samples from different land cover, land use regions for determining pH and NPK values with the help of a soil kit			Visit	
7	Socio-economic survey of the study area at the household level to collect Socio-economic data			Based on Field Visit	
8	Plot to plot land use survey for preparation of a land use map of the study area			Based on Field Visit	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-CC-5-11-P- RESEARCH METHODOLOGY AND FIELDWORK LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
9	Visit to different organizations and departments of the study area for collection of secondary data			Based on Field Visit	
10	Dumpy level and Prismatic Compass survey of a specific stretch of the field area to study the landform			Based on Field Visit	
11	Preparation of the Field Report on the basis of the above mentioned data and information			Based on Field Visit	

This practical paper is shared by Pubali Ghosh, Associate Professor, and Dr. Saswati Nayak, Associate Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit:1 Remote Sensing	1a. Principles of Remote Sensing (RS)	1. Remote Sensing & GIS by Bhatta 2. Fundamentals of Remote Sensing by Canada Centre for Remote Sensing (e-book)	3	Chalk & Talk	
	1b. Types of RS satellites and sensors	1. Remote Sensing & GIS by Bhatta 2. Fundamentals of Remote Sensing by Canada Centre for Remote Sensing (e-book)	2	Chalk & Talk	
	2a. Sensor resolutions	1. Remote Sensing & GIS by Bhatta 2. Fundamentals of Remote Sensing by Canada Centre for Remote Sensing (e-book)	1	Chalk & Talk	
	2b. Applications of sensor resolutions with reference to IRS missions	<a href="https://www.eoportal.org/satellite-missions/irs">https://www.eoportal.org/satellite-missions/irs</a>	1	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	2c. Applications of sensor resolutions with reference to Landsat missions	<a href="https://www.usgs.gov/landsat-missions/landsat-8">https://www.usgs.gov/landsat-missions/landsat-8</a>	1	Chalk & Talk	Online video links provided to students for easy understanding of the concept

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3a. Image referencing schemes	<a href="https://theqgeo.com/">https://theqgeo.com/</a> (website)	2	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	3b. Acquisition procedure of free geospatial data from NRSC / Bhuvan	<a href="https://bhuvan.nrsc.gov.in">https://bhuvan.nrsc.gov.in</a> (website for free satellite data download)	1	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	3c. Acquisition procedure of free geospatial data from USGS	1. <a href="https://www.usgs.gov">https://www.usgs.gov</a> (website) <a href="https://gisgeography.com">https://gisgeography.com</a> (website)	1	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	4a. Preparation of standard & other types of False Colour Composites from IRS LISS-3 data.	<a href="https://theqgeo.com/">https://theqgeo.com/</a> (website)	1	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	4b. Preparation of standard &	<a href="https://theqgeo.com/">https://theqgeo.com/</a> (website)	1	Chalk & Talk	Online video links provided to

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	other types of False Colour Composites from Landsat TM / OLI data.				students for easy understanding of the concept
	5a. Principles of image interpretation	Remote Sensing and Image Interpretation by Lillesand	2	Chalk & Talk	
	5b. Preparation of inventories of landuse land cover(LULC) features from satellite images	1. Remote Sensing and Image Interpretation by Lillesand 2. Practical Geography by Ashis Sarkar	1	Chalk & Talk	
	6a. Acquisition and utilisation of free Digital Elevation Model data: CartoDEM	CartoDEM: a national digital elevation model from Cartosat - 1 stereo data by ISRO (www.nrsc.gov.in)	1	Chalk & Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	6b. Acquisition and utilisation of free Digital Elevation Model data: SRTM	Digital Elevation Model Generation using SRTM by Anirudh Ramaraju & Giridhar V S Mittapalli (research article)	1	Chalk & Talk	
	6c. Acquisition and utilisation of free Digital Elevation Model data: ALOS	Precise Global DEM Generation by ALOS Prism by Tadono, Ishida, Oda, Naito, Minakawa & Iwamoto (research article)	1	Chalk & Talk	
		Total	20		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)

		Planned		After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit:II Geographical Information Systems	7a. GIS data structure types: Spatial and non-spatial	1. Remote Sensing & GIS by Basudeb Bhatta 2. Introduction of Geographic Information Systems by Kang-Tsung Chang	2	Chalk & Talk	
	7b. GIS data structure types: Raster and Vector	1. Remote Sensing & GIS by Basudeb Bhatta 2. Introduction of Geographic Information Systems by Kang-Tsung Chang	3	Chalk & Talk	
	8a.Principles of preparing attribute tables	1. Remote Sensing & GIS by Basudeb Bhatta 2. Introduction of Geographic Information Systems by Kang-Tsung Chang	2	Chalk & Talk	
	8b. Data manipulation		2	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	8c. Overlay analysis		2	Chalk & Talk	Online video links provided to

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
					students for easy understanding of the concept
	9a.Principles of buffer preparation	Introduction of Geographic Information Systems by Kang-Tsung Chang	2	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	9b. Significance of buffer preparation		2	Chalk & Talk	Online video links provided to students for easy understanding of the concept
	10a.Principles of overlay preparation		2	Chalk & Talk	Online video links provided to students for easy understanding

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Dr. Raj Kumar Bhattacharya**

**Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)**

Planned			After Implementation		
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
					of the concept
	10b. Significance of overlay preparation	Introduction of Geographic Information Systems by Kang-Tsung Chang	3	Chalk & Talk	Online video links provided to students for easy understanding of the concept
Unit III: Global Navigation Satellite System (GNSS)	11a. Principles of GNSS positioning	<a href="https://www8.garmin.com/manuals/webhelp/eTrex_10_20x_30x/EN-US/eTrex_10_20_20x_30_30x_OM_EN-US.pdf">https://www8.garmin.com/manuals/webhelp/eTrex_10_20x_30x/EN-US/eTrex_10_20_20x_30_30x_OM_EN-US.pdf</a>	2		
	11b. GNSS waypoint collection		3		Online video links provided to students for easy understanding of the concept
	12a. Principles of transferring		2		Online video links provided to

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Remote Sensing, GIS & GNSS (GEO-A-CC-5-12-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	of GNSS waypoints to GIS				students for easy understanding of the concept
	12b. Area and length calculations from GNSS data		3		Online video links provided to students for easy understanding of the concept
		Total	30		

This theory paper is shared by Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Remote Sensing, GIS & GNSS Lab (GEO-A-CC-5-12-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
1. Image processing	Image georeferencing and Layer stack	<a href="https://docs.qgis.org/3.10/pdf/fi/QGIS-3.10-UserGuide-fi.pdf">https://docs.qgis.org/3.10/pdf/fi/QGIS-3.10-UserGuide-fi.pdf</a>	3	Hands - on - Training & Practice	
	Image Enhancement		2	Hands - on - Training & Practice	
	Preparation of reflectance libraries of LULC features across different image bands of IRS L3		5	Hands - on - Training & Practice	
	Preparation of reflectance libraries of LULC features across different image bands of IRS L3		5	Hands - on - Training & Practice	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Remote Sensing, GIS & GNSS Lab (GEO-A-CC-5-12-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
2. Image classification	Supervised Image classification	<a href="https://docs.qgis.org/3.10/pdf/fi/QGIS-3.10-UserGuide-fi.pdf">https://docs.qgis.org/3.10/pdf/fi/QGIS-3.10-UserGuide-fi.pdf</a>	6	Hands - on - Training & Practice	
	Class editing		4	Hands - on - Training & Practice	
	Post classification analysis		5	Hands - on - Training & Practice	
		Total	30		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Remote Sensing, GIS & GNSS Lab (GEO-A-CC-5-12-P)

		Planned		After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3. Remote Sensing	Image georeferencing	<a href="https://docs.qgis.org/3.10/pdf/fi/QGIS-3.10-UserGuide-fi.pdf">https://docs.qgis.org/3.10/pdf/fi/QGIS-3.10-UserGuide-fi.pdf</a>	2	Hands - on - Training & Practice	
	Digitisation of features and administrative boundaries.		2	Hands - on - Training & Practice	
	Data attachment		1	Hands - on - Training & Practice	
	Preparation of annotated thematic maps		2	Hands - on - Training & Practice	
	Vector overlay		2	Hands - on - Training & Practice	
4. GNSS	Waypoint collection from GNSS receivers,		6	Hands - on - Training & Practice	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Remote Sensing, GIS & GNSS Lab (GEO-A-CC-5-12-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Exporting the waypoints to GIS database and plotting	<a href="https://www8.garmin.com/manuals/webhelp/eTrex_10_20x_30x/EN-US/eTrex_10_20_20x_30_30x_OM_EN-US.pdf">https://www8.garmin.com/manuals/webhelp/eTrex_10_20x_30x/EN-US/eTrex_10_20_20x_30_30x_OM_EN-US.pdf</a>	2	Hands - on - Training & Practice	
		Total	17		

This practical paper is shared by Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-A-5-02-TH- CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 1	Origin of the Science of Climate Change	Climate change and biodiversity by Singh and Hassan  Climatic variability by S. Sen Roy and R. B. Singh	2	Chalk and Talk	
	Scope of the Science of Climate Change		2	Chalk and Talk	
	Trends of the Science of Climate Change		1	Chalk and Talk	
TOPIC 2	Concept of Geological time scale	Climate change and biodiversity by Singh and Hassan  Climatic variability by	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-A-5-02-TH- CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		S. Sen Roy and R. B. Singh			
TOPIC 2	Concept of Climate Change	Climate change and biodiversity by Singh and Hassan	2	Chalk and Talk	
	Climate Change with reference to the geological time scale	Climatic variability by S. Sen Roy and R. B. Singh	3	Chalk and Talk	
TOPIC 7	Analytical discussion about the concept of Vulnerability	Climate change and biodiversity by Singh and Hassan	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-A-5-02-TH- CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 7	Analytical discussion about the Climate change and Vulnerability	Climatic variability by S. Sen Roy and R. B. Singh	1		
	Analytical discussion about the Climate change and Vulnerability:		1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-A-5-02-TH- CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 7	Physical				
	Analytical discussion about the Climate change and Vulnerability: Economic	Climate change and biodiversity by Singh and Hassan  Climatic variability by S. Sen Roy and R. B. Singh	1	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-A-5-02-TH- CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Analytical discussion about the Climate change and Vulnerability: Social		1	Chalk and Talk	
		TOTAL	16		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: CLIMATE CHANGE: VULNERABILITY AND ADAPTATIONS  
(GEO-A-DSE-A-5-02-TH)

Unit / Group / Module / Article	Topics	Planned		After Implementation	
		Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	9a. Global initiatives to climate change migration: Kyoto Protocol	<a href="https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism">https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism</a>	1	Chalk and Talk	
	9b. Carbon Trading and Clean development mechanism	<a href="https://unfccc.int/process/bodies/funds-and-financial-entities/green-climate-fund">https://unfccc.int/process/bodies/funds-and-financial-entities/green-climate-fund</a>	2	Chalk and Talk	
	9c. COP and Climate fund		2	Chalk and Talk	
	11a. National action plan on climate change	<a href="https://www.ipcc.ch/">https://www.ipcc.ch/</a>	2	Chalk and Talk	
	11b. Significance and challenges of National action plan on climate change		3	Chalk and Talk	
	12a. Role of		2	Chalk and	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: CLIMATE CHANGE: VULNERABILITY AND ADAPTATIONS  
(GEO-A-DSE-A-5-02-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	urban local bodies and Panchayats on climate change mitigation	<a href="http://www.environmentwb.gov.in/pdf/WBSAPCC_2017_20.pdf">http://www.environmentwb.gov.in/pdf/WBSAPCC_2017_20.pdf</a>		Talk	
	12b.Educational institutions on climate change mitigation		1	Chalk and Talk	
	12c. Awareness and action programmes	<a href="https://www.theclimategroup.org/sites/default/files/2020-10/west_bengal_future_fund_report.pdf">https://www.theclimategroup.org/sites/default/files/2020-10/west_bengal_future_fund_report.pdf</a>	2		
		Total	15		



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS  
(GEO-A-DSE-A-5-02-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	4a. Concept of Greenhouse gases	1.Climatolgy by D.S Lal 2. Climatology by S. Singh	1	Chalk and Talk	
	Major greenhouse gases		2	Chalk and Talk	
	Impact of greenhouse gases		1	Chalk and Talk	
	4b. Concept of Global Warming		1	Chalk and Talk	
	Causes of Global warming		1	Chalk and Talk	
	Effects and solutions for Global warming		2	Chalk and Talk	
	5a. Concept of Electromagnetic Spectrum		1	Chalk and Talk	
	Significance of	1. Geospatial Techniques and Research in	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS  
(GEO-A-DSE-A-5-02-TH)

Unit / Group / Module / Article	Topics	Planned		After Implementation	
		Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Electromagnetic Spectrum	Geography by Das and Mallick			
	5b. Concept of atmospheric window		1	Chalk and Talk	
	Significance of atmospheric window		1	Chalk and Talk	
	5c. Definition of heat balance of earth	1. Climatolgy by D.S Lal 2. Climatology by S. Singh	1	Chalk and Talk	
	Description of heat balance of earth		2	Chalk and Talk	
	6a. Concept of Global Climatic Assessment	<a href="https://www.ipcc.ch/">https://www.ipcc.ch/</a>	1	Chalk and Talk	
	IPCC reports		4	Chalk and Talk	
	8a. Impact of climate change on agriculture	Climate Variability, Extreme Events and Agricultural Productivity in	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: CLIMATE CHANGE :VULNERABILITY AND ADAPTATIONS  
(GEO-A-DSE-A-5-02-TH)

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	8b. Impact of climate change on water	Mountain Regions	1	Chalk and Talk	
	8c. Impact of climate change: flora and fauna	Climate change and biodiversity: Proceedings of IGU Rohtak Conference by Singh et al. (2014)	1	Chalk and Talk	
	8d. Impact of climate change: human health and morbidity	World Bank Climate Change Knowledge Portal: <a href="http://sdwebx.worldbank.org/climateportal/index.cfm">sdwebx.worldbank.org/climateportal/index.cfm</a>	2	Chalk and Talk	
		Total	15		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Climate Change: Vulnerability and Adaptations (GEO-A-DSE-A-5-02-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Climate change vulnerability assessment and adaptive strategies with particular reference to South Asia	10. Climate change vulnerability assessment	<a href="https://www.slideshare.net/slideshow/7climate-change-vulnerabilitypptx">https://www.slideshare.net/slideshow/7climate-change-vulnerabilitypptx</a>	1	Lecture using Laptop	
	10. Adaptive strategies for climate change vulnerability	<a href="https://unfccc.int.docs.igo">https://unfccc.int.docs.igo</a>	2	Lecture using Laptop	
	10. Adaptive strategies taken in reference to South Asia	Intergovernmental Panel on Climate Change: <a href="http://www.ipcc.ch">www.ipcc.ch</a> Ministry of Environment, Forest, and Climate: <a href="http://envfor.nic.in">envfor.nic.in</a>	2	Lecture using Laptop	
		Total	05		

This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: Geography

Name of Faculty: Saswati Nayak

Paper Name & Code: Climate Change: Vulnerability and Adaptation (GEO-A-DSE-A-5-02-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
I. Analysis of trends of temperatures (maximum and minimum of about three decades) of any India Meteorological Department (IMD) station	1. Collection of data on maximum and minimum temperature on Kolkata for three decades from India Meteorological website. Calculation of year wise maximum and minimum temperature from month wise data provided by IMD.	Website: India Meteorological Department: <a href="http://www.imd.gov.in">www.imd.gov.in</a>	2	Lecture using Laptop	
	2. Introduced three year moving average and four-year moving average to show the trends of temperature.	1. Maps and diagrams: their compilation and construction by F.J. Monkhouse and H.R. Wilkinson. 2. Statistical Methods by N.G. Das	2	Chalk and talk	
	3. Plotting on graph to show the trends of temperature: Maximum,	1. Maps and diagrams: their compilation and	2	Chalk and talk	

# LESSON PLAN

**Department Name: Geography**

**Name of Faculty: Saswati Nayak**

**Paper Name & Code: Climate Change: Vulnerability and Adaptation (GEO-A-DSE-A-5-02-P)**

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
II. Comparative analysis of seasonal variability of rainfall on basis of monthly data of any two IMD stations.	minimum, and average.	construction by F.J. Monkhouse and H.R. Wilkinson.			
	4. Interpretation and analysis of the diagram represented		1	Chalk and talk	
	5. Checking and completion of final sheet for Practical Lab book	2. Statistical Methods by N.G. Das	3	Chalk and talk	
	1. Collection of monthly data of two representative IMD stations like Kolkata and Jaipur on rainfall for 10 years	1. Website: India Meteorological Department: <a href="http://www.imd.gov.in">www.imd.gov.in</a>	1	Lecture using Laptop	
	2. Introduced coefficient of variation to the variability.	1. Statistical techniques by N.G Das. 2. Maps and diagrams: their compilation and construction by F.J. Monkhouse and H.R. Wilkinson.	5	Chalk and talk	
	3. Preparation of seasonal data (pre-monsoon, monsoon and post-monsoon) on rainfall.		3	Chalk and talk	
	4. Calculation of rainfall variability on two IMD		2	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Saswati Nayak

Paper Name & Code: Climate Change: Vulnerability and Adaptation (GEO-A-DSE-A-5-02-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	stations on pre-monsoon, monsoon and post-monsoon period.				
	5. Comparison of rainfall variability of two different climatic stations on basis of pre-monsoon, monsoon and post-monsoon period and interpretation and analysis of the data.		1	Chalk and talk	
	6. Checking and completion of final sheet for Practical Lab book		3	Chalk and talk	
III. Annual rainfall variability of about three decades for any two representative climatic	1. Collection of rainfall data of two representative IMD stations like Kolkata and Jaipur on rainfall for three	Website: India Meteorological Department: <a href="http://www.imd.gov.in">www.imd.gov.in</a>	2	Lecture using Laptop	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Saswati Nayak

Paper Name & Code: Climate Change: Vulnerability and Adaptation (GEO-A-DSE-A-5-02-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
regions of India	decades.				
	2.Preparation of yearly rainfall data from monthly data provided by IMD on two IMD stations in India.	1.Maps and diagrams: their compilation and construction by F.J. Monkhouse and H.R. Wilkinson.  2.Statistical techniques by N.G Das.	3	Chalk and talk	
	3. Calculation of rainfall variability on two IMD stations.		3	Chalk and talk	
	4. Interpretation and analysis of the data.		2	Chalk and talk	
	5. Checking and completion of final sheet for Practical Lab book.		5	Chalk and talk	
	Total		40		



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO- A- DSE- A- 5- 02- P-CLIMATE CHANGE LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 4	Preparation of an inventory of extreme climatic events and mitigation measures- Discussion about Inventory	Maps and Diagrams by Monkhouse and Wilkinson Climate profile of India by Attri and Tyagi	2	Chalk and Talk	
	Preparation of an inventory of extreme climatic events and mitigation measures- Discussion	Website of IMD	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO- A- DSE- A- 5- 02- P-CLIMATE CHANGE LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 4	about selection of a suitable climatic region				
	Preparation of an inventory of extreme climatic events and mitigation measures- Discussion about that particular climatic region	Maps and Diagrams by Monkhouse and Wilkinson  Climate profile of India by Attri and Tyagi  Website of IMD	2	Chalk and Talk	
	Preparation of an inventory		3	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO- A- DSE- A- 5- 02- P-CLIMATE CHANGE LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 4	of extreme climatic events and mitigation measures- Discussion about that particular climatic event of that particular region				
	Collection of suitable secondary data	Maps and Diagrams by Monkhouse and Wilkinson Climate profile of India by Attri and Tyagi Website of I	4	Chalk and Talk	
	Preparation of Inventory as prescribed in		7	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO- A- DSE- A- 5- 02- P-CLIMATE CHANGE LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	the syllabus				
	TOTAL		20		

This practical paper is shared by Pubali Ghosh, Associate Professor, and Dr. Saswati Nayak, Associate Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-TH-CULTURAL AND SETTLEMENT GEOGRAPHY

				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 1 TOPIC 1	Definition of Cultural Geography	Cultural Geography by S. D. Maurya  A Textbook of Social and Cultural Geography by J. Sen  An Introduction to Social and Cultural Geography by Saikia and Medhi	1	Chalk and Talk	
	Scope of Cultural Geography		2	Chalk and Talk	
	Content of Cultural Geography		2	Chalk and Talk	
UNIT 1 TOPIC 2	Detailed discussion about origin of Cultural Geography		1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-TH-CULTURAL AND SETTLEMENT GEOGRAPHY

				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 1 TOPIC 2	Detailed discussion about growth of Cultural Geography	Cultural Geography by S. D. Maurya A Textbook of Social and Cultural Geography by J. Sen	1	Chalk and Talk	
	Detailed discussion about development of Cultural Geography	An Introduction to Social and Cultural Geography by Saikia and Medhi	3	Chalk and Talk	
UNIT 2 TOPIC 10	Definition of Urban Settlement-general	Introduction to Settlement Geography by S. Ghosh	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-TH-CULTURAL AND SETTLEMENT GEOGRAPHY

				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 2 TOPIC 10	discussion	The Dictionary of Human Geography by Johnston			
	Definition of Urban Settlement according to Census of India	Geography of Settlements by Hudson Geography of Settlements by R. Y. Singh	1	Chalk and Talk	
	Categories of Urban Settlement according to Census of India	Settlement Geography by S.D. Maurya	1	Chalk and Talk	
UNIT 2	Concept of	Introduction to	1	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-TH-CULTURAL AND SETTLEMENT GEOGRAPHY

				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 2 TOPIC 11	Urban Morphology	Settlement Geography by S. Ghosh  The Dictionary of Human Geography by Johnston  Geography of Settlements by Hudson  Geography of Settlements by R. Y. Singh  Settlement Geography by S.D. Maurya			



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-TH-CULTURAL AND SETTLEMENT GEOGRAPHY

				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
UNIT 2 TOPIC 11	Model of Burgess		2	Chalk and Talk	
	Model of Hoyt		2	Chalk and Talk	
	Model of Harris and Ullman		2	Chalk and Talk	
	Model of Burgess	Same as above	2	Chalk and Talk	
UNIT 2 TOPIC 12	Concept of City-region	Introduction to Settlement Geography by S. Ghosh	1	Chalk and Talk	
	Concept of Conurbation	The Dictionary of	1	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-TH-CULTURAL AND SETTLEMENT GEOGRAPHY

Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	After Implementation	
				Content Delivery Technique	Remarks / Comments
UNIT 2 TOPIC12	Functional classification of cities by Harris	Human Geography by Johnston Geography of Settlements by Hudson	1	Chalk and Talk	
	Functional classification of cities by Nelson	Geography of Settlements by R. Y. Singh	1	Chalk and Talk	
	Functional classification of cities by McKenzie	Settlement Geography by S.D. Maurya	1	Chalk and Talk	
		TOTAL	25		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: CULTURAL AND SETTLEMENT GEOGRAPHY (GEO-A-DSE-B-5-05-TH)

		Planned		After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: 1	3a. Cultural hearth: Def, concept, classification	1. Social and Cultural Geography by Jyotirmoy Sen	1	Chalk & Talk	
	3b. Cultural realm: concept and classification	1. Social and Cultural Geography by Jyotirmoy Sen	1	Chalk & Talk	
	3c. Cultural diffusion: Def, types and process	1. Social and Cultural Geography by Jyotirmoy Sen	1	Chalk & Talk	
	3d. Diffusion of major world religions	1. Social Geography by A. Ahmed 2. Population Geography by S.D Maurya	2	Chalk & Talk	
	3e. Diffusion of major world languages	1. Social Geography by A. Ahmed 2. Population Geography by S.D Maurya	2	Chalk & Talk	
	4a. Cultural segregation: Def & concept	1. Social and Cultural Geography by Jyotirmoy Sen	1	Chalk & Talk	
	4b. Cultural	1. Social and Cultural	1	Chalk & Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: CULTURAL AND SETTLEMENT GEOGRAPHY (GEO-A-DSE-B-5-05-TH)

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	diversity: def, concept and types	Geography by Jyotirmoy Sen			
	4c. Technology and development: concept and relation	Technology Development in India: An Evaluation by Randhawa and Sidhu (paper)	1	Chalk & Talk	
	5a. Races: Def & concept	1. Social and Cultural Geography by Jyotirmoy Sen	1	Chalk & Talk	
	5b. Racial groups of the world	1. Social and Cultural Geography by Jyotirmoy Sen	1	Chalk & Talk	
	6. Cultural regions of India: Def & classification	2. Population Geography by S.D Maurya	2	Chalk & Talk	
		Total	14		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Cultural and Settlement Geography (GEO-A-DSE-B-5-05-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit II: Settlement Geography	7.Rural settlement: Definition, nature	1. Introduction to Settlement Geography by S. Ghosh.	1	Talk and Chalk	
	7.Rural settlement: characteristics	2. Models in Geography by M. Hussain; Rawat Publication.	2	Talk and Chalk	
	8. Rural settlement: site	3. Introduction to Rural Settlement Geography by R.B. Mandal; Concept Publishing Company	2	Talk and Chalk	
	8.Rural Settlement: situation	4. Geography of Settlement by R.Y Singh; Rawat Publication	1	Talk and Chalk	
	8.Rural settlement: morphology		2	Talk and Chalk	
		Total	08		

This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, and Prakriti Das, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-P- CULTURAL AND SETTLEMENT GEOGRAPHY LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 1	Discussion about Language distribution of India	The Dictionary of Human Geography by Johnston  A Comprehensive Geography by Khullar  Census Of India	1	Chalk and Talk	
	Discussion about basic features regarding language distribution of India		2	Chalk and Talk	
	Data Collection		2	Chalk and Talk	
	Calculation		2	Chalk and Talk	
	Mapping		2	Chalk and Talk	
	Interpretation		1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-P- CULTURAL AND SETTLEMENT GEOGRAPHY LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 2	C D Block wise housing distribution-Discussion	The Dictionary of Human Geography by Johnston  A Comprehensive Geography by Khullar	2	Chalk and Talk	
	C D Block wise housing distribution-Data collection		2	Chalk and Talk	
	C D Block wise housing distribution-Calculation	Census Of India	4	Chalk and Talk	
	Discussion about		4	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-P- CULTURAL AND SETTLEMENT GEOGRAPHY LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 2	Proportional Square				
	Mapping	The Dictionary of Human Geography by Johnston	4	Chalk and Talk	
	Interpretation	A Comprehensive Geography by Khullar Census Of India	4	Chalk and Talk	
TOPIC 4	Social area Analysis of a city- concept	The study of Urban Geography by Harold Carter	3	Chalk and Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-P- CULTURAL AND SETTLEMENT GEOGRAPHY LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 4	Social area Analysis of a city- framework	The study of Urban Geography by Harold Carter	3	Chalk and Talk	
	Social area Analysis of a city- Analysis		3	Chalk and Talk	
	Social area Analysis of a city- Discussion		3	Chalk and Talk	
	Social area Analysis - Applicability		3	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-A-DSE-B-5-05-P- CULTURAL AND SETTLEMENT GEOGRAPHY LAB

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Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Total	45		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: CULTURAL AND SETTLEMENT GEOGRAPHY (GEO-A-DSE-B-5-05-P)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: 1	3a. Basic concept of rural settlement types	1. Introduction to settlement geography by Sumita Ghosh	3	Chalk & Talk	Hands - on - Training & Practice
	3b. Identification of rural settlement types from Survey of India 1:50k topographical maps	2. Practical Geography: A Systematic Approach by Ashis Sarkar	12	Chalk & Talk	Hands - on - Training & Practice
		Total	15		

This theory paper is shared by Pubali Ghosh, Associate Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
1	Definition of Region	Regional Planning in India by Chand and Puri	1	Chalk and Talk	
	Types of Regional Planning	Regional Planning and Development by R.C. Chandana	1	Chalk and Talk	
	Need of Regional Planning	Contemporary Issues in Regional Planning by Glasson The Dictionary of Human Geography by Johnston Regional Planning by R.P. Misra	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
2	Choice of a region for planning	Regional Planning in India by Chand and Puri	2	Chalk and Talk	
	Characteristics of an ideal planning region	Regional Planning and Development by R.C. Chandana	2	Chalk and Talk	
	Delineation of Planning region	Contemporary Issues in Regional Planning by Glasson The Dictionary of Human Geography by Johnston	3	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Regional Planning by R.P. Misra			
3	Concept of agro-ecological zones	Regional Planning in India by Chand and Puri	1	Chalk and Talk	
	Regionalization of India for Planning - ( Agro-ecological zones)	Regional Planning and Development by R.C. Chandana  Contemporary Issues in Regional Planning by Glasson  The Dictionary of Human Geography by	4	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3		Johnston  Regional Planning by R.P. Misra			
4	Concept of Growth Pole	Regional Planning in India by Chand and Puri	2	Chalk and Talk	
	Discussion about Growth Pole model of Perroux	Regional Planning and Development by R.C. Chandana  Contemporary Issues in Regional Planning by Glasson  The Dictionary of	4	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4		Human Geography by Johnston Regional Planning by R.P. Misra			
5	Concept of Growth centre model	Regional Planning in India by Chand and Puri	1	Chalk and Talk	
	Concept of Growth centre model in Indian context	Regional Planning and Development by R.C. Chandana Contemporary Issues	1	Chalk and Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
5	Concept of village cluster	in Regional Planning by Glasson The Dictionary of Human Geography by Johnston Regional Planning by R.P. Misra	2	Chalk and Talk	
6	Discussion about Problem regions and Regional Planning	Regional Planning in India by Chand and Puri Regional Planning and Development by R.C. Chandana	1	Chalk and Talk	
	Discussion about		1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
6	Backward regions and Regional Plans	Contemporary Issues in Regional Planning by Glasson			
	Discussion about Special Area Development plans in India	The Dictionary of Human Geography by Johnston	1	Chalk and Talk	
	Discussion about DVC: Success and Failures	Regional Planning by R.P. Misra	2	Chalk and Talk	
7	Discussion about the concept of Development and	Regional Planning in India by Chand and Puri	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
7	Underdevelopment				
	Analytical discussion about the changing concept of Development and Underdevelopment	Regional Planning and Development by R.C. Chandana  Contemporary Issues in Regional Planning by Glasson  The Dictionary of Human Geography by Johnston  Regional Planning by R.P. Misra	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Efficiency- equity debate		2	Chalk and Talk	
8	Economic indicators of development	Regional Planning in India by Chand and Puri	1	Chalk and Talk	
	Social indicators of development	Regional Planning and Development by R.C. Chandana	1	Chalk and Talk	
	Environmental indicators of development	Contemporary Issues in Regional Planning by Glasson	1	Chalk and Talk	
	Concept of Human Development	The Dictionary of Human Geography by Johnston	2	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
8		Regional Planning by R.P. Misra			
9	Discussion about Regional development in India	Regional Planning in India by Chand and Puri	1	Chalk and Talk	
	Discussion about Regional inequality in India	Regional Planning and Development by R.C. Chandana	2	Chalk and Talk	
	Discussion about Regional disparity in India	Contemporary Issues in Regional Planning by Glasson	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
9	Discussion about Regional diversity in India	The Dictionary of Human Geography by Johnston Regional Planning by R.P. Misra	1	Chalk and Talk	
10	Discussion about Development and regional disparities in India since independence – general discussion	Regional Planning in India by Chand and Puri Regional Planning and Development by R.C. Chandana	1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
10	Discussion about Development and regional disparities in India since independence – Agricultural development	Contemporary Issues in Regional Planning by Glasson The Dictionary of Human Geography by Johnston Regional Planning by R.P. Misra	4	Chalk and Talk	
11	Discussion about Development and	Regional Planning in India by Chand and	4	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
11	regional disparities in India since independence – Industrial development	Puri Regional Planning and Development by R.C. Chandana Contemporary Issues in Regional Planning by Glasson The Dictionary of Human Geography by Johnston Regional Planning by R.P. Misra			



# LESSON PLAN

Department Name: GEOGRAPHY

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Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
12	Concept of Human Resource Development with special reference to education and health	Regional Planning in India by Chand and Puri Regional Planning and Development by R.C. Chandana	2	Chalk and Talk	
	Discussion about Development and regional disparities in India since independence: Disparities in Human Resource	Contemporary Issues in Regional Planning by Glasson The Dictionary of Human Geography by	4	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01-TH- REGIONAL DEVELOPMENT

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
12	Development with special reference to education and health	Johnston Regional Planning by R.P. Misra			
		Total			

This theory paper is entirely taught by Pubali Ghosh, Associate Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

				After Implementation	
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 1	Discussion about delineation of regions	Contemporary issues in Regional Planning by Glasson	2	Chalk and Talk	
	Discussion about Weavers method	Maps and Diagrams by Monkhouse	2	Chalk and Talk	
	Calculation of delineation of regions by Weavers method	Statistical methods in geographical studies by A. Mahmood  Practical Geography	8	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

				After Implementation	
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 1	Interpretation of delineation of regions by Weavers method	by A. Sarkar	3	Chalk and Talk	
TOPIC 2	Concept of Sphere of Influence	Contemporary issues in Regional Planning by Glasson	2	Chalk and Talk	
	Concept of Gravity Model	Maps and Diagrams by Monkhouse	2	Chalk and Talk	
	Determination of Sphere of Influence by	Statistical methods in geographical studies by	4	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

				After Implementation	
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 2	Gravity Model- Calculation	A. Mahmood			
	Determination of Sphere of Influence by Gravity Model- Mapping	Practical Geography by A. Sarkar	4	Chalk and Talk	
	Determination of Sphere of Influence by Gravity Model-		3	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

				After Implementation	
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Interpretation				
TOPIC 3	Concept of Inequality	Contemporary issues in Regional Planning by Glasson	1	Chalk and Talk	
	Discussion about measurements of Inequality	Maps and Diagrams by Monkhouse	1	Chalk and Talk	
	Discussion about measurements of Inequality with special reference to	Statistical methods in geographical studies by A. Mahmood	1	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

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Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

			After Implementation		
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 3	Lorenz Curve	Practical Geography by A. Sarkar			
	Discussion about measurements of Inequality with special reference to Lorenz Curve- Calculation	Contemporary issues in Regional Planning by Glasson Maps and Diagrams by Monkhouse	4	Chalk and Talk	
	Interpretation of Lorenz Curve		1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

			After Implementation		
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 3	Discussion about measurements of Inequality with special reference to Location quotient	Statistical methods in geographical studies by A. Mahmood	1	Chalk and Talk	
	Calculation of Location quotient	Practical Geography by A. Sarkar	4	Chalk and Talk	
	Interpretation of Location quotient		2	Chalk and Talk	



# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

				After Implementation	
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 4	Concept of Z score	Contemporary issues in Regional Planning by Glasson	1	Chalk and Talk	
	Concept of Composite Index	Maps and Diagrams by Monkhouse	1	Chalk and Talk	
TOPIC 4	Calculation of Z Score and Composite Index	Statistical methods in geographical studies by A. Mahmood	5	Chalk and Talk	
	Mapping of Z Score and Composite Index	Practical Geography by A. Sarkar	6	Chalk and Talk	

## LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEO-G-DSE-A-5-01- P- REGIONAL DEVELOPMENT LAB

				After Implementation	
Unit / Group / Module / Article	Topics		No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Interpretation of Z Score and Composite Index		2	Chalk and Talk	

This practical paper is entirely taught by Pubali Ghosh, Associate Professor, Department of Geography, VIC

# LESSON PLAN

Department Name: Geography

Name of Faculty: Pubali Ghosh

Paper Name & Code: Forest and Wildlife Management (GEO-G-SEC-A-3/5-05-Th)

[Planned]					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
1	Importance of forest & wildlife management	Principles of Wildlife management by Bailey	1	Chalk & talk	
	Strategies of forest & wildlife management	Fundamentals of Wildlife Management by Gopal, G	2	Chalk & talk	
	Role of stakeholders	Same as above	1	Chalk & talk	
	Significance of stakeholders	Same as above	1	Chalk & talk	
	Tangible benefits of forest & wildlife management	Concepts in Wildlife management by Hosetti	1	Chalk & talk	
	Intangible benefits of forest & wildlife management	Same as above	1	Chalk & talk	
		Total	7		

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Forest and Wildlife Management (GEO-G-SEC-A-3/5-05-Th)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Legal framework of forest and wildlife protection in India	1.The Indian Forest Act 1927	1.The Use and Abuse of Nature by Madhav Gadgil and Ramachandra Guha; Oxford Publication.	1	Chalk and Talk	
	2. Forest Conservation Act 1980		1	Chalk and Talk	
	3. Wildlife Protection Act 1972	2.Foreat Management in India by S. Negi	1	Chalk and Talk	
	4.Biodiversity Act 2002	3. Forest Resource and its Management in India by P.K. Panda and C.R. Das	2	Chalk and Talk	
		Total	05		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Forest and Wildlife Management (GEO-G-SEC-A-3/5-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3a.Common property resources: concept	A Textbook of Forestry and Wildlife by S.S Negi	1	Chalk and Talk	
	3b. Forests as common property resources.		1	Chalk and Talk	
	3c.Forest rights: Tribals and forests.		1	Chalk and Talk	
	3d.Gender dimension of forest management.		1	Chalk and Talk	
	3e. Concept of poaching		1	Chalk and Talk	
	3f.Management of poaching		1	Chalk and Talk	
	3g.Concept of illegal logging		1	Chalk and Talk	
	3h.Management of illegal logging		1	Chalk and Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Forest and Wildlife Management (GEO-G-SEC-A-3/5-TH)

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Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Total	8		

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Dr. Raj Kumar Bhattacharya**

**Paper Name & Code: Forest and Wildlife Management (GEO-G-SEC-A-3/5-TH)**

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	4a.Principles of community participation: Concept	1. Geography of India, West Bengal & World by Kartick Ch. Mondal  2. Department of Forest, Govt. of West Bengal. <a href="http://www.westbengalkforest.gov.in">www.westbengalkforest.gov.in</a>  <a href="https://www.wfindia.org/about_wwf/critical_regions/sundarbans3/conservation_challenges_in_the_sundarbans/">https://www.wfindia.org/about_wwf/critical_regions/sundarbans3/conservation_challenges_in_the_sundarbans/</a>  <a href="https://thedarjeelingchronicle.com/human-animal-conflict-dooars/">https://thedarjeelingchronicle.com/human-animal-conflict-dooars/</a>	2	Chalk and Talk	
	4b. Joint forest management: Objective, functions and implication		2	Chalk and Talk	
	4c.Causes and management of human-wildlife conflicts with special reference to Jangal Mahal		2	Chalk and Talk	
	4d.Causes and management of human-wildlife conflicts with special reference to Sundarban		2	Chalk and Talk	
	4e. Causes and management of human-wildlife conflicts with special reference to Duars		2		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Forest and Wildlife Management (GEO-G-SEC-A-3/5-TH)

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		Total	10		

This theory paper is shared by Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor, Prakriti Das, Assistant Professor, and Dr. Raj Kumar Bhattacharya, Assistant Professor, Department of Geography, VIC