

**LESSON PLAN****DEPART NAME : GEOGRAPHY ( MORNING)****NAME OF FACULTY : ALOKA MUKHOPADHYAY****PAPER NAME & CODE : PHYSICAL GEOGRAPHY & GEOG-MD-CC0I-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	GEOTECTONICS		3		
Unit III	GEOMORPHOLOGY	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-SEC01-2 TH**

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

DEPART NAME : GEOGRAPHY ( MORNING) NAME OF

FACULTY : ALOKA MUKHOPADHYAY

PAPER NAME & CODE : METHODS IN GEOGRAPHY & GEOG-H-SEC01-2 TH

Planned				After Implementation	
Unit/Group/ Module/Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
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	
Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
CARTOGRAPHY	Fundamentals of Cartography by R.P. MISHRA Maps & Diagrams by Monkhouse	14	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
SURVEYING	Practical Geography: A Systematic Approach by Sarkar, A	12		
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 : GEOMATICS & SPATIAL ANALYSIS LAB & GEOG-IDC02-P**

Planned			After Implementation	
Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
CONSTRUCTION OF SIMPLE CONICAL PROJECTION WITH ONE STD. PARALLEL	Fundamentals of Cartography by R.P. MISHRA	5	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
TRAVERSE SURVEY USING PRISMATIC COMPASS	Maps & Diagrams by Monkhouse	10	SATELLITE IMAGERY	
IDENTIFICATION OF LAND USE / LAND COVER FEATURES FROM STANDARD FCC & PREPARATION OF INVENTORIES	Practical Geography: A Systematic Approach by Sarkar, A	7		
CHAN & IMAGESGE DETECTION OF RIVERBANK OR COASTLINE SHIFT FROM MULTI-DATED MAPS	Fundamentals of Remote Sensing by Joseph, G, Jagannathan	8		









**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 / Comments
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 PRESENTATION PRESENTATION 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: <a href="http://infobrics">http://infobrics</a>  World Trade Organisation: <a href="https://www.wto.org">https://www.wto.org</a>	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 : HYDROLOGY & OCEANOGRAPHY & GEOG-H-CC09/-CC06-5-TH

Planned				After Implementation	
Unit/Group/ Module/Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
<b>Unit -I</b>	<b>Hydrology</b>	Physical Hydrology by Dingman,S.L	5	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
	i. System approach in hydrology		5		
	ii. Run Off	Hydrology by Raghunath ,H.M	5		
	iii.Drainage basin as a hydrological unit iv.Groundwater		5		
<b>Unit -II</b>	<b>Oceanography</b>	Invitation to Oceanography by Pinet, P.R	4		
	<b>v.Physical &amp; Chemical properties of ocean water</b>		4		
	<b>vi. Ocean temperature &amp; Salinity</b>		3		
	<b>vii. Water mass, T-S diagram</b>		6		
	<b>viii. Ocean circulation</b>		4		
	<b>ix. Sea level change x. Marine resources</b>		4		

LESSON PLAN

DEPART NAME : GEOGRAPHY ( MORNING)

NAME OF FACULTY : ALOKA MUKHOPADHYAY

PAPER NAME & CODE : CULTURAL & SETTLEMENT GEOGRAPHY LAB GEOG-H-CC10 /MD-CC07-5/6-P

Planned				After Implementation	
Unit /Group/ Module/ Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments
1.	Mapping state-wise distribution of major Indian Languages of any census year using pie graphs.	Advanced Practical Geography by P.Basu	5	CHALK & TALK PPT PRESENTATION WITH TEACHING AIDS	
2.	Cartograms representing roof materials used in rural houses of any state of India in the census years 1991,2001,and 2011	Maps and Diagrams by F. J. Monkhouse	5		
3.	Accessibility mapping using detour index from Survey of India 1:50k topographical maps		10		
4.	Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region(c.5x5)	Website: Census of India: <a href="https://censusindia.gov.in">https://censusindia.gov.in</a>	10		

LESSON PLAN

DEPART NAME : GEOGRAPHY ( MORNING)

NAME OF FACULTY : ALOKA MUKHOPADHYAY

PAPER NAME & CODE : HYDROLOGY & OCEANOGRAPHY & GEOG-H-CC09/-CC06-5-TH

Planned				After Implementation		
Unit/Group/ Module/Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks/ Comments	
<b>Unit -I</b>	<b>Hydrology</b>	Physical Hydrology by Dingman,S.L	5	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS		
	i. System approach in hydrology		5			
	ii. Run Off	Hydrology by Raghunath ,H.M	5			
	iii.Drainage basin as a hydrological unit iv.Groundwater		5			
<b>Unit -II</b>	<b>Oceanography</b>	Invitation to Oceanography by Pinet, P.R	4			
	<b>v.Physical &amp; Chemical properties of ocean water</b>		4			
	<b>vi. Ocean temperature &amp; Salinity</b>	Oceanography By Garrison,T, Ellis,R	3			
	<b>vii. Water mass, T-S diagram</b>		6			
	<b>viii. Ocean circulation</b>		4			
	<b>ix. Sea level change</b>		4			
	<b>x. Marine resources</b>					

**LESSON PLAN****DEPART NAME : GEOGRAPHY ( MORNING)****NAME OF FACULTY : ALOKA MUKHOPADHYAY****PAPER NAME & CODE : HYDROLOGY & OCEANOGRAPHY LAB GEOG-H-CC09/MD-CC06-5-P**

Planned				After Implementation	
Unit/Group / Module/Article	Topics	Reference Books	No. of Lecture Planned	Content Delivery Technique	Remarks / Comments
1.	Construction and interpretation of rating curves	Advanced Practical Geography by P.Basu  Maps and Diagrams by F. J. Monkhouse	3	CHALK & TALK PPT PRESENTATION PRESENTATION WITH TEACHING AIDS	
2.	Construction and interpretation of hydrographs and unit hydrographs. Derivation of phi index and W index.		11		
3.	Construction and interpretation of Ombrothermic graph and hyetograph		10		
4.	Construction of Thiessen polygon from precipitation data		6		

**SEMESTER 1 (MAJOR & MINOR)**  
**CCF SYLLABUS**

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Physical Geography (GEOG-H-CC01/MD-01-1/3-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit: I Cartography	1. Concept of scale	1. Practical Geography: A Systematic Approach by A. Sarkar 2. Elements of Practical Geography by R.L. Singh 3. Maps and Diagrams by F.J. Monkhouse	1	Chalk and talk	
	1. Types of scale		1	Chalk and talk	
	1. Calculation and Drawing		1	Chalk and talk and teaching how to draw	
	1. Concept and significance of map projection		1	Chalk and talk	
	1. Classification and uses of map Projection		1	Chalk and talk	
Unit: VI Biogeography	9. Plant adaptation and distribution in relation to water availability: hydrophytes	1. Ecology and Environment by P.D. Sharma 2. Fundamentals of ecology by E.P Odum	2	Chalk and talk	
	9. Plant adaptation and distribution in		1	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Physical Geography (GEOG-H-CC01/MD-01-1/3-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	relation to water availability: Xerophytes				
Unit: VI Biogeography	9.Plant adaptation and distribution in relation to water availability: Mesophytes	1.Ecology and Environment by P.D. Sharma	1	Chalk and talk	
	9.Plant adaptation and distribution in relation to water availability: helophytes	2.Fundamentals of ecology by E.P Odum	1	Chalk and talk	
		Total	10		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 GEOMORPHOLOGY	Definition of Weathering. Difference between Weathering & Erosion	1. A Textbook of Geomorphology by P. Dayal. 2. Fundamentals of Physical Geography by Majid Husain. 3. Introduction to Geomorphology by Kale, Gupta	1	Chalk & Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 GEOMORPHOLOGY	Classification of Weathering	1. A Textbook of Geomorphology by P. Dayal. 2. Fundamentals of Physical Geography by Majid Husain. 3. Introduction to Geomorphology by Kale, Gupta	2	Chalk & Talk	
	Agents of Erosion	1. A Textbook of Geomorphology by P. Dayal. 2. Fundamentals of Physical Geography by Majid Husain. 3. Introduction to Geomorphology by Kale, Gupta	2	Chalk & Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 GEOMORPHOLOGY					
	Fluvial processes- Erosion, Transportation.	1. A Textbook of Geomorphology by P. Dayal. 2. Fundamentals of Physical Geography by Majid Husain. 3. Introduction to Geomorphology by Kale, Gupta	1	Chalk & Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
3 GEOMORPHOLOGY	Cycle erosion of	1. A Textbook of Geomorphology by P. Dayal. 2. Fundamentals of Physical Geography by Majid Husain. 3. Introduction to Geomorphology by Kale, Gupta	1	Chalk & Talk	
	Fluvial Landforms – Erosional Landforms	1. A Textbook of Geomorphology by P. Dayal. 2. Fundamentals of Physical Geography by Majid Husain. 3. Introduction to Geomorphology by Kale, Gupta	1	Chalk & Talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4 CLIMATOLOGY	Fluvial Landforms – Depositional Landforms	1. A Textbook of Geomorphology by P. Dayal. 2. Fundamentals of Physical Geography by Majid Husain. 3. Introduction to Geomorphology by Kale, Gupta	2	Chalk & Talk	
	Nature & composition of atmosphere	1. Atmosphere, Weather & Climate by Barry & Chorley. 2. General Climatology by Critchfield 3. Climatology by D. S.Lal.	2	Chalk & talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4 CLIMATOLOGY	Layering of the atmosphere	1. Atmosphere, Weather & Climate by Barry & Chorley. 2. General Climatology by Critchfield 3. Climatology by D. S. Lal	2	Chalk & talk	
	Circulation in the atmosphere	1. Atmosphere, Weather & Climate by Barry & Chorley. 2. General Climatology by Critchfield 3. Climatology by D. S. Lal	1	Chalk & talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4 CLIMATOLOGY	Planetary wind	1. Atmosphere, Weather & Climate by Barry & Chorley. 2. General Climatology by Critchfield 3. Climatology by D. S. Lal	2	Chalk & talk	
	Jet Streams	1. Atmosphere, Weather & Climate by Barry & Chorley. 2. General Climatology by Critchfield 3. Climatology by D. S. Lal	1	Chalk & talk	

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/1/3-TH- PHYSICAL GEOGRAPHY

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4 CLIMATOLOGY	Index cycle	1. Atmosphere, Weather & Climate by Barry & Chorley. 2. General Climatology by Critchfield 3. Climatology by D. S. Lal	1	Chalk & talk	
		TOTAL	19		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

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

Unit / Group / Module / Article	Planned			After Implementation	
	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit V: Soil Geography	7a. Soil formation processes	1. The Nature and Properties of Soils by Brady and Weil	2	Chalk and Talk	
	7b. Soil formation factors	1. The Nature and Properties of Soils by Brady and Weil	2	Chalk and Talk	
	8a. Evolution of an ideal soil profile	2. Text Book of Soil Science by Biswas and Mukherjee	2	Chalk and Talk	
	8b. Evolution of soil profile: Laterite, Podsal and Chernozem	2. Text Book of Soil Science by Biswas and Mukherjee	2	Chalk and Talk	
		Total	08		

# 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 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 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	07		

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

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Dr. Raj Kumar Bhattacharya

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	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Physical Geography (GEOG-H-CC-01/MD-01-1/3-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Practical: Topic-2	2. Delineation of drainage basin on a topographical map of India of 1: 50K	1. Practical Geography: A Systematic Approach by A. Sarkar 2. Elements of Practical Geography by R.L. Singh 3. Maps and Diagrams by F.J. Monkhouse	4	Toposheet of any plateau region of India with R. F 1:50,000	
	2. Drawing and identification of stream orders (Strahler)		3	Toposheet with R.F 1:50,000	
	2. Bifurcation ratio of that drainage basin.		3	Chalk and talk	
	3. Identification of drainage and channel patterns from Survey of India 1:50K		6	Toposheet with R.F 1:50,000	
		Total	16		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC01/MD-CC01-1/3-P- PHYSICAL GEOGRAPHY LAB

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
4	Discussion on the pattern of Wind Direction	1. Elements of Practical Geography by R.L.Singh 2. Practical Geography by A. Sarkar	1	Chalk & Talk	
	Discussion about Wind Rose	1. Elements of Practical Geography by R.L.Singh 2. Practical Geography by A. Sarkar	1	Chalk & Talk	
	Calculation of Wind Rose	1. Elements of Practical Geography by R.L.Singh 2. Practical Geography by A. Sarkar	1	Chalk & Talk	
	Interpretation of Wind Rose	1. Elements of Practical Geography by R.L.Singh 2. Practical Geography by A. Sarkar	1	Chalk & Talk	
		TOTAL	4		

This practical paper is shared between Smt. Pubali Ghosh, Associate Professor, Dr. Saswati Nayak, Associate Professor and Dr. Rajkumar Bhattacharya, Assistant Professor, Geography Department, 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: 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)

Planned				After Implementation	
Unit / Group / Module / Article	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 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 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

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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 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		1	Chalk and talk	
	8b. Contemporary issues of economic globalization	<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>	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_uwater_for_welfare/education/Teachers_Manual/Teacher_manual_master_EIA.pdf">https://www.iitr.ac.in/wfw/web_uwater_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--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**

<b>Planned</b>					
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	

# 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	1.Statistical Methods by N.G.Das  2. An Insight into Statistics by Jaydeb Sarkhel and Santosh Kumar Dutta; Book Syndicate Private Limited  3. Statistical Methods in Geographical Studies by A. Mahmood	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: Hydrology and Oceanography - GEOH-CC09 Th**

		Planned		After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
<b>Unit I: Hydrology</b>	<b>1a. Concept of System approach in hydrology</b>	<b>1. Fundamentals of Hydrology by Savindra Singh</b>	2	<b>1. Chalk and talk</b>  <b>2. Powerpoint presentations</b>	
	<b>b. Global hydrological cycle: Definition &amp; concept</b>		1		
	<b>c. Physical role of hydrological cycle &amp; its importance</b>		1		
	<b>d. Biological role of hydrological cycle &amp; its importance</b>		1		
	<b>2a. Runoff: Definition &amp; concept</b>	<b>2. Hydrology: Principles, Analysis, Design by H.M Raghunath</b>	1		
	<b>b. Controlling factors for runoff generation</b>		1		
	<b>c. Infiltration: Significance and role</b>		1		
		<b>A Textbook of Hydrology by P.J.R Reddy</b>	1		

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Prakriti Das**

**Paper Name & Code: Hydrology and Oceanography - GEOH-CC09 Th**

	<b>c. Evapotranspiration: Significance and role</b>		1		
	<b>d. Run off cycle: concept and implications</b>		2		
	<b>3a. Concept of Drainage basin</b>		1		
	<b>b. Drainage basin as a hydrological unit</b>		1		
	<b>c. Water harvesting: its concept</b>		1		
	<b>d. Principles of water harvesting</b>		1		
	<b>e. Watershed management: Need and effects</b>		1		
	<b>4a. Groundwater: definition &amp; concept</b>	<b>Groundwater Hydrology by Todd and Larry</b>	1	1. Chalk and talk  2. Powerpoint presentations	
	<b>b. Occurrence and storage of groundwater</b>		1		

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Prakriti Das**

**Paper Name & Code: Hydrology and Oceanography - GEOH-CC09 Th**

	<b>c. Concepts of groundwater recharge, discharge, and movement</b>		1		
	<b>d. Factors controlling groundwater recharge</b>		1		
	<b>e. Factors controlling groundwater discharge</b>		1		
	<b>f. Factors controlling groundwater movement</b>		1		
<b>Unit 2: Oceanography</b>	<b>5a. Properties of ocean water</b>	<b>1. Oceanography by D.S Lal</b>	1	<b>1. Chalk and talk</b>  <b>2. Powerpoint presentations</b>	
	<b>b. Physical properties of ocean water</b>		1		
	<b>c. Chemical properties of ocean water</b>	<b>2. Oceanography by Savindra Singh</b>	1		
	<b>6a. Ocean temperature: Distribution and determinants</b>		2		

## LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Prakriti Das**

**Paper Name & Code: Hydrology and Oceanography - GEOH-CC09 Th**

	<b>6b. Ocean salinity: Distribution and determinants</b>		2		
	<b>7a. Water mass: Concept and significance</b>	<b>3. Invitation to Oceanography by P.R Pinet</b>	2		
	<b>b. T-S diagram: Concept and significance</b>		1		
	<b>8a. Ocean circulation: cause and effects</b>		2		
	<b>b. Wave: types and effect</b>	<b>Oceanography by K. Siddhartha</b>	2		
	<b>c. Tide: types and effect</b>		2		
	<b>9a. Concept and types of Sea Level change</b>		2		
	<b>b. Causes of Sea Level change</b>		1		
	<b>c. Implications of Sea Level change</b>		1		
	<b>10a. Marine resources: concept and classification</b>		1		
	<b>b. Sustainable utilisation of marine resources</b>		1		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Hydrology and Oceanography - GEOH-CC09 Th

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	c. Causes of marine pollution		1		
	d. Issues related to marine pollution		1		
		Total lecture	45		

This theory paper is fully taught by Smt. Prakriti Das, Assistant Professor, Geography Department, VIC

# LESSON PLAN

**Department Name: GEOGRAPHY**

**Name of Faculty: Prakriti Das**

**Paper Name & Code: Hydrology and Oceanography Lab - GEOH-CC09 P**

Planned				After Implementation	
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1a. Rating curve: concept	1. Advanced Practical Geography — a Laboratory Manual by P. Basu	1	1. Chalk and Talk  2. Collecting of data from websites	
	b. Construction of rating curves		1		
	c. Interpretation of rating curves		1		
	2a. Concept of Hydrograph and Unit Hydrograph		2		
	b. Construction of Hydrograph		1		
	c. Interpretation of Hydrograph		1		
	d. Construction of Unit Hydrograph		3		
	e. Interpretation of Unit Hydrograph		2		
	f. Phi Index: concept and derivation		1		
	g. W index: concept and derivation		1		

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: Prakriti Das

Paper Name & Code: Hydrology and Oceanography Lab - GEOH-CC09 P

	<b>3a. Concept of Ombrothermic graph</b>	<b>1. Practical Geography: A systematic Approach by A. Sarkar</b>	<b>1</b>	<b>3. Hands-on practice with assignments</b>	
	<b>b. Construction of Ombrothermic graph</b>		<b>2</b>		
	<b>c. Interpretation of Ombrothermic graph</b>		<b>2</b>		
	<b>d. Concept of hyetograph</b>		<b>1</b>		
	<b>e. Construction of hyetograph</b>		<b>2</b>		
	<b>f. Interpretation of hyetograph</b>		<b>2</b>		
	<b>4a. Thiessen polygon: concept</b>	<b>2. Hydrology: Principles, Analysis, Design by H.M Raghunath</b>	<b>2</b>		
	<b>b. Usefulness of precipitation data</b>		<b>2</b>		
	<b>c. Construction of Thiessen polygon from precipitation data</b>		<b>2</b>		
		<b>Total lectures</b>	<b>30</b>		

This practical paper is fully taught by Smt. Prakriti Das, Assistant Professor, Geography Department, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-TH-CUTURAL & SETTLEMENT GEOG

Planned					
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 & Talk	
TOPIC 1	Scope of Cultural Geography	Same as above	1	Chalk & Talk	
TOPIC 1	Content of Cultural Geography	Same as above	1	Chalk & Talk	
TOPIC 2	Discussion about Components of Culture	Same as above	1	Chalk & Talk	
TOPIC 2	Discussion about Structure of Culture	Same as above	2	Chalk & Talk	
TOPIC 3	Discussion about Cultural hearths and realms	Same as above	1	Chalk & Talk	
TOPIC 3	Discussion about distribution and characteristics of Cultural hearths and realms	Same as above	2	Chalk & Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG THEORY

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-TH-CUTURAL & SETTLEMENT GEOG

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 4	Definition of Cultural diffusion		1	Chalk & Talk	
TOPIC 4	Discussion on types of Cultural diffusion	The Dictionary of Human Geography by Johnston, Models in Geography by M. Hussain, Cultural Geography: A Critical Introduction by D. Mitchell	1	Chalk & Talk	
	Discussion on Innovation diffusion	Same as above	2	Chalk & Talk	
TOPIC 4	Discussion on Hagerstrand's model	Same as above	2	Chalk & Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG THEORY

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-TH-CUTURAL & SETTLEMENT GEOG

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 5	Discussion about major world religions and languages	c, Cultural Geography: A Critical Introduction by D. Mitchell,  Human Mosaic by Jordan	2	Chalk & Talk	
TOPIC 5	Discussion about diffusion of major world religions	Same as above	2	Chalk & Talk	
TOPIC 5	Discussion about diffusion of major world languages	Same as above	2	Chalk & Talk	
TOPIC 6	Discussion about Cultural segregation	Cultural Geography by S.D.Maurya, A Textbook of Social and Cultural Geography by J. Sen,	2	Chalk & Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG THEORY

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-TH-CUTURAL & SETTLEMENT GEOG

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		An Introduction to Social and Cultural Geography by Saikia and Medhi			
TOPIC 6	Discussion about Cultural diversity	Same as above	1	Chalk & Talk	
TOPIC 6	Discussion about Cultural integration	Same as above	1	Chalk & Talk	
<u>UNIT 2</u> TOPIC 7	Discussion about Rural settlements	The study of Human Geography by Carter, Introduction to Settlement Geography by S. Ghosh, The Dictionary of Human Geography by Johnston,	1	Chalk & Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG THEORY

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-TH-CUTURAL & SETTLEMENT GEOG

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 7	Discussion about evolution of Rural settlements	Same as above	2	Chalk & Talk	
TOPIC 7	Discussion about morphology of Rural settlements	Same as above	2	Chalk & Talk	
TOPIC 8	Discussion about rural house types with reference to India	Same as above	3	Chalk & Talk	
TOPIC 8	Discussion about social segregation in rural areas	Same as above	2	Chalk & Talk	
TOPIC 9	Discussion about Evolution of Urban settlements	The study of Human Geography by Carter, Introduction to Settlement Geography by S. Ghosh,	1	Chalk & Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG THEORY

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-TH-CUTURAL & SETTLEMENT GEOG

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
		The Dictionary of Human Geography by Johnston,  Settlement Geography by S.D. Maurya			
TOPIC 9	Discussion about the concept of Metropolis, Megalopolis	Same as above	1	Chalk & Talk	
Topic 9	Discussion about the concept of Conurbation and agglomeration	Same as above	1	Chalk & Talk	
TOPIC 10	Discussion about Urban morphology	Same as above	1	Chalk & Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG THEORY

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-TH-CUTURAL & SETTLEMENT GEOG

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Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 10	Discussion about model of Burgess	Same as above	2	Chalk & Talk	
TOPIC 10	Discussion about model of Hoyt	Same as above	2	Chalk & Talk	
TOPIC 10	Discussion about model of Harris & Ullman	Same as above	2	Chalk & Talk	
		TOTAL	45		

This theory paper is fully taught by Smt. Pubali Ghosh, Associate Professor, Geography Department, VIC

Subject Name/Code: CULTURAL & SETTLEMENT GEOG THEORY

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-P-CULTURAL AND SETTLEMENT GEOGRAPHY  
LAB

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
TOPIC 1	Basic discussion about major Indian language	Advanced Practical Geography by P.Basu, Maps and Diagrams by Monkhouse, Practical Geography by A. Sarkar,	1	Chalk & Talk	
	Discussion about pie graph		1	Chalk & Talk	
	Discussion about technique of mapping state-wise distribution of major Indian languages		2	Chalk & Talk	
	Interpretation		1	Chalk & Talk	
TOPIC 2	Discussion about roof materials used in rural houses of any state of India	Advanced Practical Geography by P.Basu, Maps and Diagrams by Monkhouse, Practical Geography by A. Sarkar, Census of India- 1991,2002,2011	1	Chalk Talk	
	Discussion about Cartograms representing roof materials used in rural houses of any state of India in		3	Chalk Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG PRAC.

This practical paper is fully taught by Smt. Pubali Ghosh, Associate Professor, Geography Department, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-P-CULTURAL AND SETTLEMENT GEOGRAPHY  
LAB

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	the Census years 1991,2001,2011				
TOPIC 2	Interpretation		1	Chalk & Talk	
TOPIC 3	Basic discussion about Accessibility mapping	Advanced Practical Geography by P.Basu, Maps and Diagrams by Monkhouse, Practical Geography by A. Sarkar,	1	Chalk & Talk	
	Basic discussion about Detour Index		1	Chalk & Talk	
	Technique of Accessibility mapping using Detour Index from Survey of India 1:50k		6	Chalk & Talk	

Subject Name/Code: CULTURAL & SETTLEMENT GEOG PRAC.

This practical paper is fully taught by Smt. Pubali Ghosh, Associate Professor, Geography Department, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-P-CULTURAL AND SETTLEMENT GEOGRAPHY  
LAB

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	topographical maps				
	Interpretation		2	Chalk & Talk	
TOPIC 4	Basic discussion about Nearest Neighbour Analysis	Advanced Practical Geography by P.Basu, Maps and Diagrams by Monkhouse, Practical Geography by A. Sarkar,	2		
	Technique of Nearest Neighbour Analysis from Survey of India 1:50k topographical maps		6		

Subject Name/Code: CULTURAL & SETTLEMENT GEOG PRAC.

This practical paper is fully taught by Smt. Pubali Ghosh, Associate Professor, Geography Department, VIC

# LESSON PLAN

Department Name: GEOGRAPHY

Name of Faculty: PUBALI GHOSH

Paper Name & Code: GEOG-H-CC10/MD-CC07-5/6-P-CULTURAL AND SETTLEMENT GEOGRAPHY  
LAB

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Interpretation		2		
		TOTAL	30		
		Total			

Subject Name/Code: CULTURAL & SETTLEMENT GEOG PRAC.

This practical paper is fully taught by Smt. Pubali Ghosh, Associate Professor, Geography Department, VIC

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Hazard Management (GEO-H- CC11-5-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Unit I: Concepts	1a. Approaches to hazard study: Risk perception		2	Chalk and talk	
	1b. Approaches to hazard study: vulnerability assessment		2	Chalk and talk	
	1c. Hazard paradigms		2	Chalk and talk	
	1d. Hazard continuum		1		
	2a. Responses to hazards: Preparedness, trauma, and aftermath		4	Chalk and talk	
	2b. Resilience, capacity building		3	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Hazard Management (GEO-H- CC11-5-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	3a. Basic concept of Hazards mapping: Data and geospatial techniques	Environmental Hazards: Assessing Risk and Reducing Disaster by K. Smith  Disaster Management by Savindra Singh	1	Chalk and talk	
	3b. Earthquake Hazards mapping	Environmental Hazards: Assessing Risk and Reducing Disaster by K. Smith	1	Practical work with secondary database	
	3c. Landslide Hazards mapping		1	Practical work with secondary database	
		Total	17		
Unit II: Hazard-specific Study with	1. Earthquake: Factors, vulnerability,		4	Chalk and talk & Practical work with secondary	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Hazard Management (GEO-H- CC11-5-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Focus on West Bengal and India	consequences, and management	USGS Earthquake Hazards Programme: <a href="http://www.earthquake.usgs.gov">www.earthquake.usgs.gov</a>		database	
	2. Landslide: Factors, vulnerability, consequences, and management	AGU landslide Blog: <a href="http://blogs.agu.org/landslide_blog">blogs.agu.org/landslide_blog</a>	4	Chalk and talk & Practical work with secondary database	
	3. Land subsidence: Factors, vulnerability, consequences, and management		4	Chalk and talk & Practical work with secondary database	
	4. Tropical cyclone: Factors,	India Meteorological Department Cyclone Page: <a href="http://www.rsmcnewdelhi.imd.gov.in/index.php?lang=en">www.rsmcnewdelhi.imd.gov.in/index.php?lang=en</a>	4	Chalk and talk & Practical work with secondary	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Hazard Management (GEO-H- CC11-5-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	vulnerability, consequences, and management			database	
	5. Riverbank and coastal erosion: Factors, vulnerability, consequences, and management		4	Chalk and talk & Practical work with secondary database	
	6. Fire: Factors, vulnerability, consequences, and management		4	Chalk and talk & Practical work with secondary database	
	7. Biohazard:		4	Chalk and talk &	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Hazard Management (GEO-H- CC11-5-TH)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Classification, vulnerability, consequences, and management			Practical work with secondary database	
		Total	28		

This theory paper is fully taught by Dr. Raj Kumar Bhattacharya, Assistant Professor, Geography Department, VIC

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Raj Kumar Bhattacharya

Paper Name & Code: Hazard Management Lab (GEO-H-CC11-5-Tu)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
Group-A	Landslide susceptibility mapping	AGU landslide Blog: <a href="https://blogs.agu.org/landslide-blog">blogs.agu.org/landslide blog</a>	10	Practical work with secondary database	
Group-B	River bank erosion	River bank erosion news: <a href="https://www.newsclick.in/river-bank-erosion-break-havoc-bengal-maldaha-murshidabad">https://www.newsclick.in/river-bank-erosion-break-havoc-bengal-maldaha-murshidabad</a>	10	Practical work with secondary database	
Group-C	Flood susceptibility mapping	Dartmouth Flood Observatory: <a href="https://floodobservatory.colorado.edu">floodobservatory.colorado.edu</a>	10	Practical work with secondary database	
		Total	30		

This practical paper is fully taught by Dr. Raj Kumar Bhattacharya, Assistant Professor, Geography Department, VIC

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1.a) Concept of rounding and Scientific Notation	Statistics by M.R. Spiegel and L.J Stephens, Pub: McGraw-Hill International Editions.	1	Chalk and talk	
	1.b) Logarithm and anti-logarithm		2	Chalk and talk	
	1.c) Natural and Log Scale		1	Chalk and talk	
	2.a) Preparation of Geological map: parallel	1. Geological Survey of India: <a href="http://www.gsi.gov.in">www.gsi.gov.in</a> 2. Practical Geography: A Systematic Approach by A. Sarkar, Pub: Orient	1	Chalk and talk	
	2.b) Preparation and interpretation of Uniclinal Structure		1	Chalk and talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	2.c) Preparation and interpretation of Folded Structure	Longman  3. Advanced Practical Geography- a Laboratory Manual by P. Basu; Pub: Books and Allied	1	Chalk and talk	
	2.d) Preparation of Different structure with Unconformities.		2	Chalk and Talk	
	3.a) Preparation of land use maps	1. Maps and Diagrams: Their Compilation and Construction by Monkhouse, F.J and Wilkinson, H.R; Pub: Alphaneumera.	2		
	3.b) Preparation of land cover maps		2		

## LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	4.a) Preparation of Socio-economic maps: based on Language, Educational attainment, Women empowerment etc	<ol style="list-style-type: none"><li>2. Maps and Diagrams: Their Compilation and Construction by Monkhouse, F.J and Wilkinson, H.R; Pub: Alphaneumera</li><li>3. Elements of Practical Geography by R.L Singh; Kalyani Publishers.</li></ol>	3	Chalk and Talk	

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	4.b) Preparation of Socio-economic maps: based on Work participation rate, Occupational Structure etc.	4. Practical Geography: A Systematic Approach by A. Sarkar, Pub: Orient Longman	2		
	5. a) Principal National Agencies producing Thematic Maps in India: NATMO 5. b) Principal	1. ISRO Bhuvan 2D Platform: <a href="https://bhuvan.nrsc.gov.in">https://bhuvan.nrsc.gov.in</a>	2	Chalk and Talk	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

4

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

# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	National Agencies producing Thematic Maps in India: GSI, NBSSLUP.	2. National Atlas and Thematic Mapping Organisation: <a href="https://portal.natmo.gov.in">https://portal.natmo.gov.in</a> 3. <a href="https://www.surveyofindia.gov.in">https://www.surveyofindia.gov.in</a> 4. Geological Survey of India: <a href="http://www.gsi.gov.in">www.gsi.gov.in</a>	2	Chalk and talk	
	5. c) Principal National Agencies producing Thematic Maps in India: NHO, NRSC	5. National Remote Sensing Centre: <a href="https://www.nrsc.gov.in">https://www.nrsc.gov.in</a>	2	Chalk and talk	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	6.a) Basic concept of surveying and survey equipment - Prismatic Compass: Concept of Open Traverse and Closed Traverse, Bearing and application of Polar Coordinate System	1. Surveying and Levelling, Part-I, by T.P. Kanetkar and S.V. Kulkarni; Pune Vidyarthi Griha Prakashan. 2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press. 3. Elements of Cartography by A.H. Robinson and J.L. Morrison	1	Chalk and talk	
	6.b) Basic concept of surveying and survey equipment- Prismatic Compass: how to measure		2	Chalk and talk	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

6

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Closed Traverse and concept of different types of Bearing.				
	6.c) Basic concept of surveying and survey equipment- Prismatic Compass: Introduction to different parts of Prismatic Compass and Method of Error Adjustment, included angles.		2	Chalk and talk	
	7.a) Basic concept of surveying and	1. Surveying and Levelling, Part-I by T.P. Kanetkar and S.V.	1	Chalk and talk	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	survey equipment- Introduction to the instrument -Dumpy Level: Concept of Datum and Geoid	Kulkarni; Pune Vidyarthi Griha Prakashan. 2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press. 3. Elements of Cartography by A.H. Robinson and J.L. Morrison; Pub: Wiley.			
	7.b) Basic concept of surveying and survey equipment- Dumpy Level: Method of taking reading from Dumpy and its calculation	4. Practical Geography: A Systematic Approach by A. Sarkar; Pub; Orient Blackswan.	2	Chalk and talk	
	7.c) Basic concept of surveying and		2	Chalk and talk	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	survey equipment- Dumpy Level: Error Adjustment and Different types of errors.				
	8. Basic concept of surveying and survey equipment- Theodolite: Introduction to the instrument Theodolite and its parts and function.		1	Chalk and talk	
	8.b) Basic concept of surveying and	1. Surveying and Levelling, Part-I by T.P. Kanetkar and S.V.	2	Chalk and talk and laptop	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

9

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	survey equipment- Theodolite: Methods of triangulation, Calculation of Base accessible.	Kulkarni; Pune Vidyarthi Griha Prakashan.  2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press.			
	8.c) Basic concept of surveying and survey equipment- Theodolite: concept and calculation of base inaccessible	3. Elements of Cartography by A.H. Robinson and J.L. Morrison; Pub: Wiley.	2	Chalk and talk and laptop	
	9.a) Basic concept of surveying and survey equipment-	1. Surveying and Levelling, Part-I by T.P. Kanetkar and S.V. Kulkarni; Pune Vidyarthi Griha	1	Chalk and talk and laptop	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Abney Level: introduction to the instruments and its parts as well as functions.	Prakashan. 2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press.			
	9.b) Calculation of measuring slope and angles and plotting.	3. Elements of Cartography by A.H. Robinson and J.L. Morrison, Pub: Wiley.	1	Chalk and talk and laptop	
	10.a) Basic concept of surveying and survey equipment- Total Station and Echosounder: Introduction to the		2	Chalk and talk and laptop	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	instrument Total Station and its parts as well as functions	1. Surveying and Levelling, Part-I by T.P. Kanetkar and S.V. Kulkarni; Pune Vidyarthi Griha Prakashan. 2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press. 3. Elements of Cartography by A.H. Robinson and J.L. Morrison; Pub : WILEY			
	10.b) Basic concept of surveying and survey equipment- Total Station: calculation for plotting it.		2	Chalk and talk and laptop	
	10.c) Basic concept of surveying and survey equipment- Echosounder: its function and		1	Chalk and talk and laptop	

Subject Name/Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-Th

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# LESSON PLAN

Department Name: Geography

Name of Faculty: Dr. Saswati Nayak

Paper Name & Code: Thematic Mapping and Surveying: GEOG-H-CC12-5-TH

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<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>
	utilities.				
		<b>Total</b>	<b>45</b>		

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Thematic Mapping and Surveying Lab (GEOG-H-CC-12-5-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	1.a) Traverse Survey using Prismatic Compass: Preparation of Field book and learn to take readings from instrument.	1. Surveying and Levelling, Part-I by T.P. Kanetkar and S.V. Kulkarni; Pune Vidyarthi Griha Prakashan.	2	Chalk and talk and Field survey with respective Prismatic Compass	
	1.b) Closed Traverse survey by Prismatic Compass: Clock wise	2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press.	2	Chalk and talk and Field survey with Prismatic Compass	
	1.c) Closed Traverse survey by Prismatic Compass: Anti-clockwise	3. Elements of Cartography by A.H. Robinson and J.L. Morrison; Pub: Wiley.	2	Chalk and talk and Field survey with Prismatic Compass	
	1.d) Plotting of	4. Practical	2	Chalk and talk and	

Subject Name: Thematic Mapping and Surveying Lab GEOG-H-CC12-5-P

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

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Thematic Mapping and Surveying Lab (GEOG-H-CC-12-5-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	Traverse on Field book and error adjustment.	Geography: A Systematic Approach by A. Sarkar; Pub; Orient Blackswan.		Field survey with respective instrument	
	2.a) Profile survey using Dumpy Level: how to level it and introduction of Back Sight, Inter Sight and Fore Sight	1. Surveying and Levelling, Part-I by T.P. Kanetkar and S.V. Kulkarni; Pune Vidyarthi Griha Prakashan.  2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press.	2	Chalk and talk and Field survey with respective instrument: Dumpy Level	
	2.b) Profile Survey without Change Point	3. Elements of Cartography by A.H. Robinson and J.L. Morrison; Pub: Wiley.	2	Chalk and talk and Field survey with respective instrument: Dumpy Level	
	2.c) Profile Survey with Change Point		4	Chalk and talk and Field survey with respective	

Subject Name: Thematic Mapping and Surveying Lab GEOG-H-CC12-5-P

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

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Thematic Mapping and Surveying Lab (GEOG-H-CC-12-5-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	and Drawing.	4. Practical Geography: A Systematic Approach by A. Sarkar; Pub; Orient Blackswan.		instrument; Dumpy Level	
	3.a) Profile Survey using Abney Level: Introduction to the Instrument	1. Surveying and Levelling, Part-I by T.P. Kanetkar and S.V. Kulkarni; Pune Vidyarthi Griha Prakashan.	2	Chalk and talk and Field survey with respective instrument: Abney level	
	3.b) Profile Survey using Abney Level: how to take reading and plotting	2. Elements of Cartography by A.H. Robinson and J.L. Morrison; Pub: Wiley.	2	Chalk and talk and Field survey with respective instrument: Abney Level	
	4.a) Height determination of any	1. Surveying and Levelling, Part-I by T.P.	2	Chalk and talk and Field survey with	

Subject Name: Thematic Mapping and Surveying Lab GEOG-H-CC12-5-P

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

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Thematic Mapping and Surveying Lab (GEOG-H-CC-12-5-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	object by accessible method: Introduction of the instrument and levelling, Vernier reading etc.	Kanetkar and S.V. Kulkarni; Pune Vidyarthi Griha Prakashan.		respective instrument: Theodolite	
	4.b) Height determination of any object by inaccessible method: how to take reading and complete the field Book.	2. Plane and Geodetic Surveying by Aylmer, pub: CRC Press. 3. Elements of Cartography by A.H. Robinson and J.L. Morrison; Pub: Wiley.	3	Chalk and talk and Field survey with respective instrument: Theodolite	
	4.c) Height determination of any object by accessible method: inaccessible objects in respect to same vertical plane	4. Practical Geography: A Systematic Approach by A. Sarkar; Pub; Orient Blackswan.	2	Chalk and talk and Field survey with respective instrument: Theodolite	

Subject Name: Thematic Mapping and Surveying Lab GEOG-H-CC12-5-P

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

## LESSON PLAN

Department Name: Geography

Name of the Faculty: Dr. Saswati Nayak

Paper Name and Code: Thematic Mapping and Surveying Lab (GEOG-H-CC-12-5-P)

Planned					
Unit / Group / Module / Article	Topics	Reference Books	No of Lecture Planned	Content Delivery Technique	Remarks / Comments
	method.				
	4.d) Calculation and drawing of different methods.		3	Chalk and talk and Field survey with respective instrument: Theodolite	
		<b>Total</b>	<b>30</b>		