I SEMESTER
Core Course-I: Fundamentals of Geomorphology

SEMESTER-I			
COURSE CORE - CC -I			
FUNDAMENTALS OF GEOMORPHOLOGY			
TEACHING HOURS : 60 (6hours, 5credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand scope and content of Geomorphology; and explains the Rocks and types of rocks.		
CO2	To Explains the continental drift theory, classify Endogenic and Exogenic forces. Discuss the fold, fault and volcano types.		
CO3	To illustrate the factors affecting weathering and its types		
CO4	To compare and classify Glacier and its types and types of landforms		
CO5	To explain the work of wind waves		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Geomorphology – Meaning – Scope and Content (Structure of the earth) – Rocks-Rocks types (Igneous Rock, Metamorphic Rock, and Sedimentary Rock)	12	CO1
II	Wegner's continental drift theory – Sea floor spreading – Plate tectonics- Earth movements (Endogenic and Exogenic) - Fold and its types – Fault and its types - Earthquake and its types - Types of Volcanoes.	12	CO2
III	Weathering: Factors affecting Weathering- Types of Weathering Mass Wasting and its types- Agents of Gradation – Normal Cycle of Erosion – Davis cycle (structure, stage, process) Work of Rivers- Erosion – Transportation- Deposition –Erosional Landforms -Depositional Landforms.	12	CO3
IV	Work of Glaciers– Types of Glaciers – Glacial Landforms- Erosional Landforms Underground Water – Water Table – Aquifer- Spring and its types – Karst Landforms – Erosional Landforms and Depositional Landforms	12	CO4
V	Work of Wind- Erosional Landforms and Depositional Landforms. Work of waves- Erosional landforms- Depositional landforms of Sea waves and Types of coasts.	12	CO5

VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Recall** the meaning, Scope and Content **of Geomorphology. Summarise** the interior structure of the earth, differentiate the types of rocks their formation, and the Rock cycle, **understand** the formation of major landforms and Knows the distribution of Land and Sea, Are able to identify the formation and type of rocks		
II	**Relates** Wegner's continental drift theory, Sea floor spreading, Plate tectonics and Earth movements (endogenetic and exogenetic) to the formation of mountain, plateau, plains and lakes with its types		
III	**Differentiates** the weathering process and mass wasting and their types, **understands** Normal Cycle of Erosion of Davis (structure, stage, process). **identifies** Work of Rivers.		
IV	**Understands** and **appreciates** the formation of various landforms by Glacier, underground water, Aquifer and karst topography.		
V	**Understands** and **appreciates** the formation of various landforms formed by wind and waves		
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	Sial, Sima, Mantle , Outer Core , Inner Core		
II	Major Plates: African, Antarctic, Eurasian, North American & South American, Minor Plates		
III	Normal Cycle Of Erosion, Initial Stage, Youthful Stage , Mature Stage , Old Stage		
IV	'U' Shaped Valleys, 'V' Shaped Valleys		
V	Sand dunes, Coastal Landforms		
TEXT BOOK:			
1	Savindra Singh (2012) :Physical Geography		
2	Siddhartha.K&Mukherjee.R (2008): The Earth's Dynamic Surface		
3	Majid Hussain (2004): Fundamentals of Physical Geography		
4	Richard .H.Bryant (2006): Physical geography made Simple		
5	Dayal P.A. (2001):Text book of Geomorphology		
WEB SOURCE:			
1	En.wikipedia.org/wiki/Geomorphology		
2	En.wikipedia.org/wiki/volcano		
3	http://www.geographynotes.com/articles/applied-geomorphology-meaning-two-main-lines-specific-applications-and-techniques/779		
4	En.wikipedia.org/wiki/Geomorphology		

I – SMESTER

Core Course-II P : Maps scale and Land Scape Aanalysis

Core Course :-II P			
Maps Scaleand landscape Analysis			
Teaching Hours : 60 (2 hours)			
Course Objectives:			
To Understand the Meaning and Construction Of Scales, Enlargement and Reduction Of Maps, Measurement of Distance and Area. To Familiarize the Students with Aspects Map, Identify and Draw the Land Forms, Density Analyzed in Drainage Basin.			
UNIT	**DETAILS**	**NO.OF HOURS**	**COURSE OBJECTIVES**
I	SCALES: Meaning, Conversion of Scales – Construction of Simple Linear Scales, Comparative Scales, Diagonal Scales.	12	CO1
II	MAPS – Definition – Types and significance of map – Enlargement and Reduction of Maps: Square and Similar Triangular Methods.	12	CO2
III	MEASUREMENT OF DISTANCE: Thread, Divider and Rotometer methods – Measurement of Area Square and Strip methods – Function of Planimeter.	12	CO3
IV	Representation of Relief: Contours – Interpolation – Method of representation: Pictorial: Hachures and Hill Shading – Mathematical Method: Spot Heights, Bench Marks, Trigonometric Stations and Contours – Drawing Contour Diagrams: Uniform Slope, Concave Slope, Convex Slope, Undulating Slope, Hill, Knoll, Ridge,	12	CO4

	Saddle, V – Shaped Valley, Gorge, U – Shaped Valley, Cliff, Over Hanging Cliff, Cirque, Hanging Valley, Escarpment, Spur, Waterfall, Meander, Incised Meander, Flood Plain, Plateau, Dissected Plateau, Volcanic Cone, Sand Dunes, Ria Coast and Fiord Coast..		
V	Stream Analysis: Morpometric Analysis – Bifurcation ratio – Stream order, Length, Area Measurement and Density of Drainage Basin.	12	CO5
VI	National Atlas And Thematic Mapping Organization (NATMO) – Landscape analysis by GIS and Survey of India (SOI), GNSS, NRSA and GNSS.		

Expected Course Outcomes:	
1	Learn the basic scales and mapping knowledge.
2	Understand the map enlargement and reduction and measurement.
3	Identified the Map Route Length and River Length.
4	Analyze the real – world physical features from the topographical sheets.
5	Identify Stream order and understand Density of Drainage Basin.
6	Understand the Landscape analysis

Specific Outcomes:	
1	Plain Scales
2	Process of Compiling Maps
3	Instruments For Area Measurement
4	Representations of Heights and Various Relief Features
5	Tributaries, Streams Orders, Measurements
6	GIS, SOI, GNNS

Text Book(s):	
1	Jayachandran, (1964): Practical Geography (Tamil Edition) Tamil Nadu Text Book Society, Chennai.
2	Zulfequar Ahmad Khan, M. D. (1998) Text book of Practical Geography, Concept Publishing Company, New Delhi.

Reference Book(s):	
1.	R. P. Misra and Ramesh Fundamentals of cartography.
2.	D. R. Khullar: Essentials of practical Geography.

3.	Gopal Singh (1996) Map Work Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi.
4.	Singh R. L Elements of practical Geography
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	

SEMESTER-I

First Allied -I /Generic Elective – I Earth and Its System

FIRST ALLIED /GENERICELECTIVE-I			
EARTH AND ITS SYSTEMS			
TEACHING HOURS : 60 (4Hours, 4Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the basic concept of Universe and its origin and the theories of Evolution : Nebula, Kant and Big Bang Theory		
CO2	To understand Earth and Universe- Solar systems , Milky way Galaxy and Black hole theory and Meteorites		
CO3	To explain the Earth Internal Structure the Core, Mantle, Crust and also the Earth's Magnetism		
CO4	To illustrate about the Earth's Size, Rotation and Revolution, causes for Seasons, Eclipses and Solstice		
CO5	To explain the latitude and longitude, Cardinal points, Greenwich Meridian and Indian Standard Time. To given an understanding on the Time calculation		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	The Universe and its Origin- Theories of Evolution: Nebula, Kant, and Big Bang Theory	12	CO1
II	Earth and Universe - Solar system- Galaxy (Milky way) – Cosmobody - Black hole – Meteorites	12	CO2
III	Earth's internal structure – Earth's crust, mantle, and core – Discontinuity- Isostasy – Earth's magnetism	12	CO3
IV	Earth and its Size -Earth Rotation and Revolution – Inclination Causes – (Seasons Day and Night) – Summer and Winter Solstice – Eclipses	12	CO4
V	Latitudes and Longitudes– Cardinal Points - Greenwich Meridian – Indian Standard time-	12	CO5

	Time Calculation		
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	Understands the origin of various theories in geography over the period identifying geographical proven theories on origin of the sun and assess the recent trend in geography and bringout the historical perspective of geography ,discuss the merits and demerits of quantitative revolution		
II	Understands the changes over the universe periodically , distinguish the earth rotation and revolution and its causes explain how day and night cause, evaluates the logic behind the time calculation discuss the location of Greenwich and calculate the Indian standard time**Critically evaluate - causes of day and night,**		
III	Recalls and Understands the size and position of planets, summarise with importance of direction in Geographical location		
IV	evaluate the size and position of planets, summarise with importance of direction in Geographical location**(Interactive session with questions)**		
V	Identifies the earth rotation and revolution and its causes explain how day and night cause,evaluate the logic behind the time calculation discuss the location of Greenwich and calculate the Indian standard time.Distinguish the concept of climate and weather,discuss the earth size and its shape in various period, assess explain the importance of latitudes and longitudes. Define the importance of direction and explain the cardinal points		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
I	Understanding of various and Related various Theories		
II	Universe and Planets and Their Satellites, Rotation		
III	Internal Forces of the Earth		
IV	Earth's Rotation, Revolution and Related Phenomena		
V	Distance Measurement, Time Evolution		
TEXT BOOK:			
1	Savindra Singh (2012) : Physical Geography		
2	Hussain Majid (2007): Evolution of Geographical concepts		
3	K.Siddhartha and S.Mukherjee (2006) The Dynamics of Earth Surface		
4	Gochenleong(2001): Certificate Physical and Human Geography		
WEB SOURCE:			
1	https://www.universetoday.com/		
2	https://www.universetoday.com		
3	https://geography.name/regionalism/		
4	https://www.rawatbooks.com/geography/		

SEMESTER-I

First Allied -I /Generic Elective - I (or) Basics of Geography

SEMESTER-I			
First Allied- I / GENERIC ELECTIVE - I			
BASICS OF GEOGRAPHY			
TEACHING HOURS : 60 (4Hours, 4Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To enrich the basic knowledge of the Earth, and its composition, enhance the knowledge of the structure of the atmosphere.		
CO2	To explore the different the zones of Ocean with varying water depths, acquire knowledge on the deposits of Ocean		
CO3	To illustrate the Natural regions of the world		
CO4	To elaborate the Evolution of humans and races		
CO5	To understand the distribution and patterns of Population		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Earth – Origin, Interior, Age, size, shape of the Earth- Rocks and its Types - Atmosphere: Origin and nature, Composition and Structure of the atmosphere.	12	CO1
II	Continental Shelf, Continental Slope, Continental Rise and Trenches - Bottom relief of Ocean – Distribution of Salinity – Ocean Currents – Ocean Deposits- Tides	12	CO2
III	Regions- Natural regions of the world- Equatorial, Tropical and temperate grasslands, tropical and temperate deserts, Tundra regions	12	CO3
IV	Evolution of humans – Determinism and Possibilism – Major races of the world- Major religions of the world – Major Languages of the world – Major Tribes of India with Special Reference to Tamilnadu	12	CO4

V	Population Distribution - Density and growth –Population Problems – Migration and its types	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	Analyse the changes over the universe periodically , distinguish the earth rotation and revolution and its causes explain how day and night cause, **Recall** Climatic elements **explain** the composition and Structure of the Atmosphere **define** Insolation **examine** the Heat Balance **compares** Horizontal and Vertical Distribution of Temperature.		
II	**explains** distribution of Land and Sea **describes the structure and composition of** the Ocean floor the oceanic crust, Group Activity **makes a model o**f Ocean Bottom relief.		
III	**Develop** the in depth knowledge of natural resource and its importance. **classify** the resources and human intervention and development **Applying acquired knowledge** marking the region in the map		
IV	**Recall** the Natureand Scope of Human geography, compare with the other branch of Geography , **Understand** the significance of Human geography, **analyse** the Man and environment relationship**, examine** the population data		
V	**Understanding the** basic concepts and significance of population geography, scope of the study, its history and development in Geography. It **is important to explore student's knowledge in** world population distribution		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
I	Origin of the Earth, Rocks, Structure of Atmosphere		
II	Interior Structure of Oceans		
III	Major Natural Regions, Climatic Conditions, Vegetations, Mode of Life Etc..		
IV	Races- Caucasoid, Mongoloid, Negroid, Major Languages		
V	World Distribution of Populations, Migration		
TEXT BOOK:			
1	Thornbury, W. D. (I960): Principles of Geomorphology, John Wiley and Sons, New York.		
2	Savindra Singh (2002): Physical Geography, PrayagPustakBhawan, Allahabad.		
3	D. S. Lal: Climatology. ShardaPustakBhawan		
4	D. S. Lal: Climatology. ShardaPustakBhawan ,11 , University road Allahabad-211002 Edition 2003.		
WEB SOURCE:			
1	https://letstalkscience.ca/educational-resources/stem-in-context/processes-shape-landforms		

2	https://www.universetoday.com/
3	https://www.yourarticlelibrary.com/population/theories-of-population-malthus-theory-marxs-theory-and-theory-of-demographic-transition/31397

I SEMESTER

First Allied II (P)/ Generic Elective - II Climatic Data Analysis

I – SEMESTER	
First Allied II (P)/ Generic Elective - II	
CLIMATIC DATA ANALYSIS	
Teaching Hours : 20 (2 Hours)	
Course Objectives:	
To Draw the proper climatic diagram for the available climatic data. To Read the weather map and forecast the weather.	
Unit – 1	Climatic Diagrams – types of climatic diagrams, weather maps: definition and types
Unit – 2	Climatic data source – Representation of climatic data – Isopleths Maps (Isotherm, Isobar, Isohyets).
Unit – 3	Climatic Diagram: – Climograph, Hythergraph, Ergo graph and Climatographs – Construction and uses.
Unit – 4	Wind Roses: Simple wind rose, Star Diagrams, Compound wind rose, Octagonal wind rose – Rainfall Dispersion diagrams – Construction and uses.
Unit – 5	Indian daily weather reports: Signs and Symbols – Interpretation – Synoptic weather charts.
Unit – 6	Interpretation of Indian Weather Reports Summer – Winter – NE Monsoon – SW Monsoon
Expected Course Outcomes:	
1	At the end students shall be able to:
2	Describe the climatic data using diagrams
3	Draw suitable diagram store present climatic data
4	Learn about the types of wind roses
5	Interpret Indian weather reports
6	Students understand to interpret the seasonal weather report
Specific Outcomes	
1	Parameter of Climate, Representation of Climatic Data

2	Source of Climatic Data, Climatic Diagram
3	Construction of Climatic Diagram
4	Diagram related to wind flow, Rainfall
5	Conventional Signs and Symbols
Text Book(s):	
1	. R. Khullar (2002), Essentials of Practical Geography, New academic Publication Co., Jalandhar.
2	L. R. Singh (2006), Elements of Practical Geography, Sharda Pustak Bhawan, Allahabad
Reference Book(s):	
1.	Singh, R. L. and Singh, R. P. B. (2009) Elements of Practical Geography, Kalyani Publishers, New Delhi.
2.	Zulfequar Ahmad Khan, M. D., (1998)Text book of Practical Geography, Concept Publishing Company, NewDelhi
3.	Gopal Singh, (1996):Map Work Practical Geography, Vikas Publishing House, New Delhi
4.	Monk house, F. J. and H. R. Wilkinson, (1980): Maps and Diagrams, B. I Publications, New Delhi.

First Allied II (P)/ Generic Elective - II (or)Statistical Application for Geography

SEMESTER –I			
First Allied II (P)/ Generic Elective - II			
STATISTICAL APPLICATIONS FOR GEOGRAPHY			
TEACHING HOURS : 60 (2 Hours)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire the basic knowledge of data collection		
CO2	To understand the need of basic statistical methods		
CO3	To get the knowledge diagrammatic representation of statistical methods		
CO4	To explore the basic knowledge of Time series and moving average		
CO5	To acquire the knowledge of statistical analysis		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Collection of data and formation of statistical tables- Importance of cross-tabulation	12	CO1
II	Measures of Central Tendency: Mean- Median- Mode- Measures of Dispersion: Range- Mean Deviation-Standard Deviation-Rank Correlation- Coefficient of Variation.	12	CO2
III	Diagrammatic Representation of Data- Bar, Histogram – Frequency Polygon and Curve - Ogives- Lorenz Curve- Gini Coefficient	12	CO3
IV	Time Series – Graphical Method – Semi Average – Moving Average.	12	CO4
V	Hypothesis Testing – 'T' Test – 'F' Test – Chi-Square Test.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Understands** the Purposes of data collection and its sources. Sampling is very essential to choose according to the types of data types and the purpose of the study.		

II	Enriched Knowledge on basic statistical techniques such as Measures of Central Tendency, and Measures of Dispersion.
III	Understands the various Diagrammatic Representation of Data
IV	Clarity on the time series and other graphical methods.
V	**Understands** of facts of hypothesis testing and need of hypotheses in research analysis. Explore the types of hypothesis and its significance and confidence level. **Examine** the relationship between Parametric and Non-parametric procedures through Chi-square test, 'T' test, 'F' test, Analysis of Variance (ANOVA).
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Data Collections, Tables
II	Mean, Medium, Mode and Correlation
III	Vertical Bar, Horizontal Bar Diagrams, Curves
IV	Time Series Data and Related Table and Diagrams
V	Testing of Samples
TEXT BOOK:	
1	SahaPijushkanti (2010): Advanced Practical Geography, Books and Allied pvt Ltd.
2	Bagulia A.M (2006): Practical Geography, Anmol Publishers.
3	Zulfequar Ahmed Khan M.D (1997): Text book of Practical Geography, Concept Publishing Company , New Delhi.
WEB SOURCE:	
1	http://www.albert.io/blog/data-collection-methods-statistics/
2	http://sciencing.com/difference-between-cluster-factor-analysis-8175078.html

SEMESTER - I

SBE-I/ PCSEC: Mapping Techniques

SEMESTER-I			
SBE-I / PCSEC			
MAPPING TECHNIQUES			
TEACHING HOURS : 60 (2Hours, 2 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the components of Maps and Scale Measurements		
CO2	To illustrate and examine the Representation of the direction on Maps		
CO3	To elaborate on the need for conventional signs and symbols in Maps		
CO4	To enhance techniques applied in the Representation of relief on maps.		
CO5	To introduce the mapping techniques applied to interpret contours		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Map components – Maps- Types of Maps- Scales – Representative fraction and Statement of the scale- Types of scales – Plain scales – Pace scale – Time scale – comparative scale- Diagonal scale.	12	CO1
II	Representation of direction on maps : Directions-True north, Grid, Magnetic north – Magnetic declination – Bearings – True bearing and magnetic bearing - Latitude and Longitude – International dateline – International Time Calculation - Map setting in the field – Map reading.	12	CO2
III	Conventional signs and symbols- Measurement of distance (Thread- Divider- Opisometer) and Measurement of area (Graphical and strip method)- Enlargement and Reduction of maps -Combination of Maps.	12	CO3
IV	Representation of relief on maps: Spot heights, bench mark, triangulation station -layer shading- Hachuring, hill shading and Contours- Interpolation of contours.	12	CO4
V	Contour section drawing-Types of slopes (Uniform, Concave and Convex)-(Hill-Plateau-Ridge-Escarpment-V-shaped Valley-Waterfalls and Sand dunes) - Profiles (Serial- Superimposed -Projected–	12	CO5

	Composite).		
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Recalls**. Map components – Maps- Types of MaScale–and Statement of the scale- Types – how it is important to explore their knowledge Representative fraction and Statement of the scale- Types of scales – Plain scales – Pace scale – Time scale		
II	**Understanding** of facts Representation of direction on maps – Explain the Directions-True north, Grid, Magnetic north – Magnetic declination and Identify the- Latitude and Longitude – International dateline – **Explian**the International Time Calculation - Map setting in the field – Map reading		
III	**Define** the Conventional signs and symbols- calculate the Measurement of distance (Thread- Divider Opisometer) and Measurement of area (Graphical and strip method)-Enlargement and Reduction of maps -Combination of Map		
IV	**T**he Representation of relief on maps, Spot heights, , bench mark, triangulation ,station - layer shading- and calculate the Interpolation of contours.		
V	**Understands** the Contour section drawing-Types of slopes (Uniform, Concave and Convex)-(Hill Plateau-Ridge- Escarpment V-shaped Valley-Waterfalls and Sand dunes)- draw a Profiles (serial-superimposed-projected – composite).		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
I	Types of maps, importance of map Scales		
II	Directions and their importance		
III	Map Symbols		
IV	Representation of Relief Features		
V	Importance of Contours, Relief Features		
TEXT BOOK:			
1	Saha, Pijushkanti (2010): Advanced Practical Geography. Books and Allied pvt Ltd.		
2	Bagulia A.M (2006): Practical Geography, Anmol Pyblishers.		
3	Khan , M.D .Zulfequar Ahmed (1997) : Text book of Practical Geography. Concept Publishing Company , New Delhi.		
WEB SOURCE:			
1	http://www.worldatlas.com/aatlas/imageg.		
2	http://en.wikipedia.org/wiki/mapscale.		
3	http://en.wikipedia.org/wiki/internationaldateline		
4	http://en.wikipedia.org/wiki/mapscale.		

Value Education

(2 hours, 2 credits)

II SEMESTER
Core Course - II (P): Maps Scale and Landscape Analysis

II – SMESTER	
Core Course - II (P)	
Maps scaleand Landscape Analysis	
Teaching Hours : 60 (4 Hours, 4 Credits)	
Course Objectives:	
To Understand the Meaning and Construction Of Scales, Enlargement and Reduction Of Maps, Measurement of Distance and Area. To Familiarize the Students with Aspects Map, Identify and Draw the Land Forms, Density Analyzed in Drainage Basin.	
Unit – 1	SCALES: Meaning, Conversion of Scales – Construction of Simple Linear Scales, Comparative Scales, Diagonal Scales.
Unit – 2	MAPS – Definition – Types and significance of map – Enlargement and Reduction of Maps: Square and Similar Triangular Methods.
Unit – 3	MEASUREMENT OF DISTANCE: Thread, Divider and Rotometer methods – Measurement of Area Square and Strip methods – Function of Planimeter.
Unit – 4	Representation of Relief: Contours – Interpolation – Method of representation: Pictorial: Hachures and Hill Shading – Mathematical Method: Spot Heights, Bench Marks, Trigonometric Stations and Contours – Drawing Contour Diagrams: Uniform Slope, Concave Slope, Convex Slope, Undulating Slope, Hill, Knoll, Ridge, Saddle, V – Shaped Valley, Gorge, U – Shaped Valley, Cliff, Over Hanging Cliff, Cirque,

	Hanging Valley, Escarpment, Spur, Waterfall, Meander, Incised Meander, Flood Plain, Plateau, Dissected Plateau, Volcanic Cone, Sand Dunes, Ria Coast and Fiord Coast..
Unit – 5	Stream Analysis: Morpometric Analysis – Bifurcation ratio – Stream order, Length, Area Measurement and Density of Drainage Basin.
Unit – 6	National Atlas And Thematic Mapping Organization (NATMO) – Landscape analysis by GIS and Survey of India (SOI), GNSS, NRSA and GNSS.

Expected Course Outcomes:	
1	Learn the basic scales and mapping knowledge.
2	Understand the map enlargement and reduction and measurement.
3	Identified the Map Route Length and River Length.
4	Analyze the real – world physical features from the topographical sheets.
5	Identify Stream order and understand Density of Drainage Basin.
6	Understand the GIS, SOI , GNSS

Specific Outcomes:	
1	Plain Scales
2	Process of Compiling Maps
3	Instruments For Area Measurement
4	Representations of Heights and Various Relief Features
5	Tributaries, Streams Orders, Measurements
6	GIS, SOI, GNNS

Text Book(s):	
1	Jayachandran, (1964): Practical Geography (Tamil Edition) Tamil Nadu Text Book Society, Chennai.
2	Zulfequar Ahmad Khan, M. D. (1998) Text book of Practical Geography, Concept Publishing Company, New Delhi.

Reference Book(s):	
1.	R. P. Misra and Ramesh Fundamentals of cartography.
2.	D. R. Khullar: Essentials of practical Geography.
3.	Gopal Singh (1996) Map Work Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi.
4.	Singh R. L Elements of practical Geography

II SEMESTER
Core Course III : Climatology

SEMESTER-II			
CORE COURSE – CC III			
CLIMATOLOGY			
TEACHING HOURS : 60 (5 Hours, 5 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the basic concepts and scope of climate and differentiate the weather and climate and assess the composition of atmosphere.		
CO2	To classify the Atmospheric Pressure and Winds		
CO3	To illustrate the types of air masses and fronts		
CO4	To elaborate the Atmospheric Moisture and climatic regions		
CO5	To understand the basic concepts of Cyclone and its mechanism		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Scope and Content – Weather and Climate – Climatic Elements- Atmospheric Composition and Structure– Insolation and Temperature: Factors and Distribution, Heat Budget, Temperature Inversion.	12	CO1
II	Atmospheric Pressure and Winds: Planetary Winds, Forces affecting Winds, General Circulation of Air, Jet Streams.	12	CO2
III	Air Masses- Classification of Air Masses- Fronts- Classification of Fronts.	12	CO3
IV	Atmospheric Moisture: Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions.	12	CO4
V	Cyclones: Tropical Cyclones, Temperate Cyclones, Monsoon - Origin and Mechanism, El Nino – LA Nina.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Recall** Climatic elements **explain** the composition and Structure of the Atmosphere **define** Insolation **examine** the Heat Balance **compares** Horizontal and Vertical Distribution of		

	Temperature.
II	**Defines** Atmospheric Pressure, C**ompares** Horizontal and Vertical Distribution of Pressure **draw** the major Pressure Belts D**ifferentiates** Planetary Winds, Periodic and Local Winds, Group Activity Make a Model on Major pressure Belts and Planetary winds.
III	**illustrate** the formation of Jet Streams **summarise**the formation of Air Masses and Fronts.C
IV	**Defines and differentiate** Humidity (absolute humidity, Relative humidity) **explains** Fog and its Types **identifies** Clouds (High, Medium and Low) **narrates** Forms of precipitation and Types of Rainfall (Convectional, Orographic and Cyclonic) **discuss** and **debate** on Issues in Global Climate Changes**.**
V	**draw map for** Circulation of Ocean Currents and the distribution **Discuss and debate** on ElNino – LaNina
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Climate elements, Temperature, Rainfall, Wind and Humidity
II	Pressure, Forces affecting Winds
III	Air Pressure, fronts
IV	Types of rainfall, Forms of rainfall
V	Cyclones, origin of cyclones impacts
VI	Assessment Unit
TEXT BOOK:	
1	Lal D.S (2006): Climatology, Chaitanya Publishing House, New Delhi.
2	Roger. G. Barry & Richard J. Choley, (2002): Atmosphere, Weather and Climate, Seventh Edition, Methunen& co Ltd, New York.
3	Gochenleong (2001): Certificate Physical and Human Geography, Oxford university press, New Delhi.
4	Siddhartha. K , (2000): Atmosphere, Weather and Climate, Kisalaya publications Pvt Ltd Delhi.
WEB SOURCE:	
1	en-wikipedia.org/win/physical-geography
2	www.physical geography.net/about.html
3	www.4shared.net/physical+geography.
4	books.google.com>science>earth sciences>geography

II SEMESTER
First Allied-II (P)/ Generic Elective - II Climatic Data Analysis

II – SMESTER	
First Allied – II (P)/ Generic Elective - CLIMATIC DATA ANALYSIS	
Teaching Hours : 40 (3Hours, 3 Credits)	
Course Objectives:	
To Draw the proper climatic diagram for the available climatic data. To Read the weather map and forecast the weather.	
Unit – 1	Climatic Diagrams – types of climatic diagrams, weather maps: definition and types.
Unit – 2	Climatic data source – Representation of climatic data – Isopleths Maps (Isotherm, Isobar, Isohyets).
Unit – 3	Climatic Diagram: – Climograph, Hythergraph, Ergo graph and Climatographs – Construction and uses.
Unit – 4	Wind Roses: Simple wind rose, Star Diagrams, Compound wind rose, Octagonal wind rose – Rainfall Dispersion diagrams – Construction and uses.
Unit – 5	Indian daily weather reports: Signs and Symbols – Interpretation – Synoptic weather charts.
Unit – 6	Interpretation of Indian Weather Reports Summer – Winter – NE Monsoon – SW Monsoon
Expected Course Outcomes:	
1	At the end students shall be able to explain about climatic diagrams:
2	Describe the climatic data using diagrams
3	Draw suitable diagram store present climatic data
4	Learn about the types of wind roses
5	Interpret Indian weather reports
6	Students understand to interpret the seasonal weather report
UNIT	**SPECIFIC OUTCOMES**
1	Parameter of Climate, Representation of Climatic Data
2	Source of Climatic Data, Climatic Diagram
3	Construction of Climatic Diagram
4	Diagram related to wind flow, Rainfall

5	Conventional Signs and Symbols
6	Weather Reports
Text Book(s):	
1	D. R KULLAR Practical Geography (2002) New Academic publishing Jalandhar.
2	Khan, Z. A., (1998): TextBook of Practical Geography, Concept Publishing Company, New Delhi.
Reference Book(s):	
1.	Singh, R. L. and Singh, R. P. B. (2009) Elements of Practical Geography, Kalyani Publishers, New Delhi.
2.	Zulfequar AhmadKhan, M. D., (1998)Text book of Practical Geography, Concept Publishing Company, NewDelhi
3.	Gopal Singh, (1996):Map Work Practical Geography, Vikas Publishing House, New Delhi
4.	Monk house, F. J. and H. R. Wilkinson, (1980): Maps and Diagrams, B. I Publications, New Delhi.

II SEMESTER

First Allied-II (P) /Generic Elective - II (or) Statistical Application for Geography

SEMESTER –I			
FIRST ALLIED – II (P) / GENERIC ELECTIVE-II			
STATISTICAL APPLICATIONS FOR GEOGRAPHY			
TEACHING HOURS : 60 (3 Hours, 3 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire the basic knowledge of data collection		
CO2	To understand the need of basic statistical methods		
CO3	To get the knowledge diagrammatic representation of statistical methods		
CO4	To explore the basic knowledge of Time series and moving average		
CO5	To acquire the knowledge of statistical analysis		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Collection of data and formation of statistical tables- Importance of cross-tabulation	12	CO1
II	Measures of Central Tendency: Mean- Median- Mode- Measures of Dispersion: Range- Mean Deviation-Standard Deviation- Rank Correlation- Coefficient of Variation.	12	CO2
III	Diagrammatic Representation of Data- Bar, Histogram – Frequency Polygon and Curve - Ogives- Lorenz Curve- Gini Coefficient	12	CO3
IV	Time Series – Graphical Method – Semi Average – Moving Average.	12	CO4
V	Hypothesis Testing – 'T' Test – 'F' Test – Chi-Square Test.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Understands** the Purposes of data collection and its sources. Sampling is very		

	essential to choose according to the types of data types and the purpose of the study.
II	Enriched Knowledge on basic statistical techniques such as Measures of Central Tendency, and Measures of Dispersion.
III	Understands the various Diagrammatic Representation of Data
IV	Clarity on the time series and other graphical methods.
V	**Understands** of facts of hypothesis testing and need of hypotheses in research analysis. Explore the types of hypothesis and its significance and confidence level. **Examine** the relationship between Parametric and Non-parametric procedures through Chi-square test, 'T' test, 'F' test, Analysis of Variance (ANOVA).
VI	Assessment Unit
TEXT BOOK:	
1	SahaPijushkanti (2010): Advanced Practical Geography, Books and Allied pvt Ltd.
2	Bagulia A.M (2006): Practical Geography, Anmol Publishers.
3	Zulfequar Ahmed Khan M.D (1997): Text book of Practical Geography, Concept Publishing Company , New Delhi.
WEB SOURCE:	
1	http://www.albert.io/blog/data-collection-methods-statistics/
2	http://sciencing.com/difference-between-cluster-factor-analysis-8175078.html

II SEMESTER
First Allied - III/ Generic Elective - III Fundamentals of Cartography

II – SEMESTER	
First Allied - III / Generic Elective - III	
Fundamentals of Cartography	
Teaching Hours : 60 (4Hours, 4 Credits)	
Course Objectives:	
To Study the Scope and Developments of Cartography, Map Projection and Recent Trends. To Understand the Map Scales, Map Design, Layout and Digital Cartography.	
Unit – 1	Cartography: Definition, scope and content – Map – Definition, types and uses – Development of Cartography.
Unit – 2	Map Scales and Projections: Determination of Map Scales – Enlargement and Reduction – Direction and Bearings – Co – ordinate system – Projections – Classification and uses – UTM importance – International Terrestrial Reference System (ITRF).
Unit – 3	Map data: Collection and classification – Base Map – Compilation – Generalization – Lambert Conformal Conic Projection (LCC) – Datum, Geo – Referencing System.
Unit – 4	Map Design and Layout – Symbolization – Lettering, Standardization of Names – Styles – Mechanics of Map Construction: Drawing materials, Equipments and instruments.
Unit – 5	Thematic and Complex Mapping – Map Reproduction – Recent trends in Cartography. Computer application in Cartography – Computer Mapping – Remote Sensing, GIS and GPS.
Unit – 6	Survey of India (SOI), National Atlas and Thematic Map Organization (NATMO) – Web mapping.
Expected Course Outcomes:	
1	Read and prepare the maps.
2	Comprehend location and spatial aspects of the earth surface.
3	Use and importance of maps for regional development and decision – making.
4	Understand the lettering styles, methods and uses.
5	Recent trends of the cartography Map Software's knowledge from

	the Recent period.
UNIT	**SPECIFIC OUTCOMES**
1	Meaning of Cartography, types of maps, Development of Cartography
2	Map Scales, Determination of maps scale, Projections
3	Base map, Compilation, generalization
4	Map Design and Layout, Point, Line and Area Symbols
5	Thematic Maps, Computer Graphs, Map Reproduction, Computer Mapping
Text Book(s):	
1	Misra, R. P. and Ramesh, A., (2002). Fundamentals of Cartography, Concept Publication Company, New Delhi.
2	Erwin Raiz, (1948). General Cartography, McGraw Hill Company., New York.
Reference Book(s):	
1.	Robinson, A. H., (1984). Elements of Cartography, John Wiley, London.
2.	Sethu Rakkayi, S., (2014). Puvippadaviyal oru arimugam, Sree Meenakshi Offsets, Madurai. Web Series
3.	Lawrence, G. R. P., (1979). Cartographic Methods, Methuen, London.
4.	Monk house, F. J. and Wilkinson, H. R., (1989), Maps and Diagrams, B. I. Publications, New Delhi.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://dst. gov. in/national – atlas – and – thematic – mapping – organisation
2	https://en. wikipedia. org/wiki/Survey_of_India
3	https://en. wikipedia. org/wiki/Universal_Transverse_Mercator_coordinate_system

II SEMESTER

First Allied - III/ Generic Elective – III (or) Representation of Relief Features

SEMESTER-II			
FIRST ALLIED - III/ GENERIC ELECTIVE - III			
REPRESENTATION OF RELIEF FEATURES			
TEACHING HOURS : 60 (4Hours, 4 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To enhance the students in gaining knowledge of concepts and components using Drainage basin and network Morphometry		
CO2	To get an idea of Calculation of runoff		
CO3	To enhances the Calculation of hydraulic geometry equations.		
CO4	To display the new technology used to analyze Measurement of channel cross-section		
CO5	To enrich the knowledge about the Calculation of velocity		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Drainage basin and network morphometry - Longitudinal profile - Hack's stream gradient index.	12	CO1
II	Calculation of runoff - sediment load - sediment yield	12	CO2
III	Calculation of hydraulic geometry equations.	12	CO3
IV	Measurement of channel cross-section in the field - study of erosional and depositional features in the field Creating sketch maps.	12	CO4
V	Calculation of velocity - discharge using Manning equation - Estimation of unit stream power - shear.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		

I	Morphometric analysis And Gradient analysis. **Explain the** Smith, Robinson, Wentworth method. **Assume** Hypsometric curves .**Simplify** the Terrain classification and Altimetric, Frequency curve.
II	Hydrology, Water level fluctuation using ground water data ,**Explain** Mapping Rainfall, distribution
III	The Contour drawing and **explain** the Serial Profiles, Superimposed, Projected and composite profile . **Compile** the Block Diagram
IV	**Solve** Theissen Polygon Method, Isohyets method, **Analyse** water balance graph
V	Understanding the Estimation of unit stream power
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Drainage basins, Stream Orders
II	Runoff, Sediments
III	Hydraulic geometry equations
IV	Identification of channel, Erosional and Depositional Features
V	Calculation of Velocity
TEXT BOOK:	
1	Charlton, R. (2008): Fundamentals of Fluvial Geomorphology, Routledge, Oxon.
2	Kondolf, G. M. and Piegay, H. (2003): Tools in Fluvial Geomorphology, Wiley, Chichester.
3	Robert, A. (2003): River Processes - An Introduction to Fluvial Dynamics, Arnold, London
4	Schumm, S. A. (1977): Fluvial Systems, Wiley, New York
WEB SOURCE:	
1	agilemodeling.com/artifacts/physicalDataModel.htm
2	https://en.wikipedia.org/wiki/Morphometrics
3	https://www.wou.edu/las/physci/taylor/g322/drainage_anal.pdf

II SEMESTER

Environmental Science

(2 Hours, 2 Credits)

II SEMESTER

NMSDC- I

(2 Hours, 2 Credits)

III SEMESTER
Core Course -IV : Economic Geography

SEMESTER-III			
CORE COURSE – CC -IV			
ECONOMIC GEOGRAPHY			
TEACHING HOURS : 60 (4 Hours, 4 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To recall the Scope and content of Economic Geography and observe the Resource classification		
CO2	To examine the factors of agriculture and to describe the distribution of Crops		
CO3	To differentiate and classify the Mineral Resources and distribution of Power Resources		
CO4	To Compare and distinguish the Industries and Industrial Regions		
CO5	To infer and integrate the transport and major importing and exporting trade		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Economic Geography- Definition- Scope and content- the significance of Economic Geography– Classification of resources – Renewable and Non-Renewable Resources - Exhaustible and Inexhaustible resources, Conservation of resources-Major Economic activity	12	CO1
II	Agriculture – Factors affecting Agriculture – Agriculture Region - Food crops and Non - food crops – Distribution and Production of Rice, Wheat, Sugarcane, Pulses - Horticultural crops - Fiber crops (Cotton and Jute)- Beverage crops(coffee, tea, cocoa) spices.	12	CO2
III	Mineral Resources- Types of Minerals – Metallic Minerals, Non-Metallic Minerals- Fuel Distribution of minerals Iron ore, copper, Manganese, aluminum, Mica, Gypsum, Limestone Coal, Petroleum, Natural gas Power resources – Hydel power, Thermal, Atomic power, Geothermal energy.	12	CO3
IV	Industries – Localization factors for Industries –Agro-based – (Textile Industry, Cotton, Jute) - Mineral Based-(Iron and Steel, Engineering Industries)-Shipbuilding, Automobile-Chemicals Industries – Fertilizer Industry,	12	CO4

	Industrial region.		
V	Transport and Trade: Transport – Types of Roadways (National Highways, State, District, Express Highway)- Railways (Broad Gauge, Narrow gauge, Meter Gauge)- Waterways and Major Sea Routes. -Trade - National and international – Trade blocs - Major importing and exporting countries.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Recall** the concepts of Economic Geography with its **definite** scope and content outline the significance of Economic Geography , Infer the importance of resources and its **Classification** in India and at global level. **Extend the explanation** of renewable and non- renewable resources. **Contrast** the Conventional and Non-conventional- Exhaustible and Inexhaustible resources		
II	Understands theAgricultural activities and Factors affecting Agriculture. **Define** the role of Agriculture in Developmental scenario. **Classify** the crops in to Food crops and non food crops. **Summarize** the Distribution and Production of Rice, Wheat, Sugarcane, Pulses Horticultural crops - Fibre crops (Cotton and Jute)- Beverage crops(coffee, tea, cocoa) spices.		
III	**Recall** the Mineral Resources and **classify** the Types of Minerals Categorize the Metallic Minerals, Non Metallic Minerals.- **list out** the Distribution of minerals Iron ore, copper, Manganese, aluminum, Mica, Gypsum, Limestone Coal, Petroleum , Natural gas Power resources. Hydel power, Thermal, Atomic power, Geothermal energy at national level		
IV	Industries,Localization. **Outline** the factors for Industries Agro based – (Textile Industry, Cotton, Jute) **– List out** the Mineral Based industries(Iron and Steel and Engineering Industries). **Compare** the Shipbuilding, Automobile- Chemicals Industries – Fertilizer Industry.		
V	**Recall** and relate the Transport and Trade: Transport . **Compare andIllustrate** the Types of Roadways (National Highways, State, District, Express Highway) and Railways (Broad Gauge, Narrow gauge, Meter Gauge). List out the Waterways and Major Sea Routes**. Elaborate** the Trade National and international. **Distinguish** the Trade blocs and Major importing and exporting countries of the world.		
VI	Assessment Unit		
UNIT	SPECIFIC OUTCOMES		
I	Resources, Renewable , Non-Renewable Resources		
II	Agricultural Regions – Food Crops, Non Food Crops		
III	Mineral Resources		
IV	Various types of Industries		
V	Mode of Transport in the World		
VI	Assessment Unit		
TEXT BOOK:			
1	Sharma, Siya Ram (2008) :Economic Geography ,Murari Lal Publications.		

2	Hussain, Ahmad (2006) : Economic Geography, Vishvabharthi Publications.
3	Singh.I (2006) :Economic Geography, Alfa publications.
WEB SOURCE:	
1	www.wikipedia.org/wiki/ Economic Geography
2	joeg.oxford journals.org/

Core Course -V (P) : Representation of Socio-Economic and Climatic Data

SEMESTER –III			
CORE COURSE -V (P)			
REPRESENTATION OF SOCIO ECONOMIC AND CLIMATIC DATA			
TEACHING HOURS : 60 (2 Hours)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the representation of Climatic Data		
CO2	To illustrate the Symbols used to interpret the Weather maps		
CO3	To differentiate the Socio-economic data using the different methods of Mapping techniques.		
CO4	To elaborate on the different methods and techniques of map representation		
CO5	To summarize diagrammatic representation of mapping techniques using computer		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Representation of climatic data- Climatic graph –Taylor's Climograph – Hyther graph – Ergo graph –simple wind rose diagrams.	12	CO1
II	Weather symbols – Synoptic weather chart - Interpretation of Indian weather report - Weather In sat - Cyclonic track.	12	CO2
III	Representation of socio-economic data- Distribution maps – Dot map – Mono- Circle- Square- Sphere- block pile - Simple pyramid – Flow diagram.	12	CO3
IV	Maps - Isopleth – Choropleth – Choro-schematic – Choro-chromatic - Index of concentration – Rainfall dispersion diagram – co-efficient of variation- Lorenz curve-Gini coefficient.	12	CO4
V	Diagrammatic representation using computer: Bar diagram (Vertical –Horizontal- Compound and Multiple) – Graphs(simple and poly graph) -Pie –Pictorial-Star diagram.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Define** the climatic data and its representation in geography. **List out** its importance climatic data in Geography, and to **explore their knowledge** to plot graphical **representation** from climatic and socio economic data for all		

	types of climatic graphs, ergo and hyther graph
II	**Understand the** Weather elements. **Outline** the Temperature. Distinguish the Pressure belts . **Illustrate** the significance of Wind. **Categories** the Humidity and **classify** the types of Rainfall.
III	**Understanding** of facts and basic concepts of socio economic data to represent the proper distribution maps. **Develop** the skills to develop apt map for the given data.
IV	**Understands** the Concept of socio- economic data to choose apt map to depict. Index of concentration and dispersion diagram has different criteria., hence need to show unique way of drawing maps for each and every particular data. Lorenz curve and Gini coefficient has a close connection with comparing variable with grand total data.
V	**Explore** the Statistical Methods with connection of geographical study to **evaluate** the mean and median centre for locational **analysis and appreciate** the featured criteria elaborately
VI	Assessment Unit
UNIT	SPECIFIC OUTCOMES
I	Wind Rose Diagram
II	Weather Symbols, Weather Chart
III	Socio-Economic Data and Related Maps
IV	Isopleth map- Chororpleth maps, Learning maps
V	Computer maps
VI	Assessment Unit
TEXT BOOK:	
1	SahaPijushkanti (2010): Advanced Practical Geography, Books and Allied pvt Ltd.
2	Bagulia A.M (2006):Practical Geography, Anmol Publishers.
3	Zulfequar Ahmed Khan M.D (1997): Text book of Practical Geography, Concept Publishing Company , New Delhi.
WEB SOURCE:	
1	http://youtu.be/2hxUKRo1qQU
2	https://youtu.be/gmTXQFxwuLE

III SEMESTER

ME- I / C-VI : Agricultural Geography

III – SMESTER	
ME-I / C-VI	
AGRICULTURAL GEOGRAPHY	
Teaching Hours : 60 (4 Hours, 4 Credits)	
Course Objectives:	
To explain the features of Agriculture To understand prospects of the Agriculture Geography	
Unit – 1	Nature scope and significance of agriculture Geography – Origin of agriculture regions. Agro – climate regions of India.
Unit – 2	Land use classification of India – soil types and distribution of India – irrigation and types, well irrigation, river irrigation.
Unit – 3	Land in agriculture geography: Von Thunen model of agricultural location – agriculture systems of the India and world. Whittleseys agriculture classification.
Unit – 4	Crop distribution in India paddy, wheat, Groundnut, coconut, Banana, sugarcane, cotton, jute, textile, tea and coffee.
Unit – 5	Green revolution in India modernization Indian agricultural problems and prospects.
Unit – 6	Second green revolution.
Expected Course Outcomes:	
1	Nature of agriculture origin.
2	Land use, soil types and irrigation India.
3	Model in Agricultural Geography

4	Crop distribution in India.
5	Green revolution of understand the cropping patterns and livestock combination that varies in space and time.
6	Second revolution.
UNIT	**SPECIFIC OUTCOMES**
I	Origin of Agricultural, Agricultural Regions, Agro Climatic Regions
II	Types of Land use , Types of Soil, Types of irrigation
III	Some important theory related to agriculture, Classification
IV	Distribution of important crops in India
V	Green Revolution, Modernization, PROBLEMS
VI	Second Revolution
Text Book(s):	
1	Jabir Singh K Dhillion S, S (1984) – Agriculture geography, Tata McGraw Hill, New Delhi
2	Hussein. M (1979) Systematic Agriculture geography Rawat publication Jaipur, New Delhi
Reference Book(s):	
1.	Majid Husain, (2012) Rawat publication Jaipur, New Delhi, Bangalore, Hyderabad, Guwahati. Agriculture Geography.
2.	Pooja Kashyap (2010) Oxford book irrigated agriculture Pooja Kashya
3.	Chandralok prakashan, First published (2014), systematic Agriculture Geography.
4.	Mohammad N (1981) Perspective Agriculture Geography, Vol I, Concepts publishing.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://roman. Com
2	http://en. m. wikipedia. org

III SEMESTER

ME- I / C-VI : (or) Natural Resources of The World

III– SMESTER	
ME-I / C-VI	
Natural Resources of The World	
Teaching Hours : 60 (4 Hours, 4 Credits)	
Course Objectives:	
1. Know About Distribution of Natural Resources 2. Identifies the Importance and Utilization of Resources for the Development Activities	
Unit – 1	Resources: Concept, Scope and Content - Classification of Resources, Conservation and management of resources- Soil Resources: Classification and distribution, Fertility, Soil Erosion, and conservation, Forest Resources: Types and Distribution, Economic Important of forest.
Unit – 2	Agricultural Resources : Types , Production and Distribution of Rice, Wheat, Tea, Coffee, Cotton and Sugarcane - White Revolution and Blue Revolution
Unit – 3	Minerla Resources: World Distribution of Minerals, Classification of Mineral Resources, Distribution and Production of Iron Ore, Manganese, Bauxite, Gold and Silver, Power Resources; Distribution of Coal, Petroleum, Thermal and Nuclear Power Resources
Unit – 4	Industrial Resources: Distribution and Production of Iron & Steel, Ship Building, Automobile, Chemical, Aircraft, Cotton Textile,Paper and Jute Industry Distribution of Major of the World
Unit – 5	Transport System : Road, Rail , Air and Water Ways , Trade: International Trade and Trade organization of WTO, GATT,ITO
Expected Course Outcomes:	
1	Soil Erosion and Conservation
2	Types of Agriculture

3	Distribution of Mineral Resources in the World
4	World Industrial Resources Distribution and Production
5	Transport System Analysis
UNIT	**SPECIFIC OUTCOME**
I	Classification of resources
II	Agricultural Resources
III	Mineral Resources
IV	Industrial Resources
V	Mode of Transport, Transport System
Reference Book(s):	
1.	Economic and Commercial Geography - K.K.Kharma & V.K.Gupta
2.	Alexander : Economic Geography
3.	Zimm Man : Word Resources and Industries
4.	Goh Chang Leong : Human and Economic Geography

III SMESTER

Second Allied - I / Generic Elective - IV Statistics For Geography

III– SMESTER	
Second Allie - I / Generic Elective - IV	
Statistics For Geography – I	
Teaching Hours : 60 (4 Hours, 4 Credits)	
Course Objectives:	
This course is to introduce the basic concepts of statistics to the students of Geography. This allied course will help the students to understand the purpose, meaning and use of statistics in geographical studies.	
Unit – 1	Introduction: Statistical Methods for Geography – Scientific Method and Mathematical Notation – Descriptive Statistics – Measures of central tendency: Mean, Median and Mode – Measures of Dispersion: Range, Variance, Standard Deviation, z – score, Skewness, Kurtosis and Histograms.
Unit – 2	Probability: probability Concepts – Discrete Probability Distributions: Uniform, Binominal and Poisson Distributions – Continuous Probability Distribution – Probability Models – Central Limit Theorem and Confidence Intervals.
Unit – 3	Hypothesis Testing and sampling: Sources of Data – Sampling – Hypothesis Testing: z – test and t – test – Analysis of Variance (ANOVA)
Unit – 4	Correlation and Regression: Covariance – Person's Correlation Coefficient – Spearman's Rank Correlation Coefficient – Correlation and Geographic Problems – Regression Analysis.
Unit – 5	Spatial Patterns: Data Reduction: Factor Analysis and Cluster Analysis.
Unit – 6	Current Contour: Trend Analysis – Forecasting – Geostatistics
Expected Course Outcomes:	
1	Students will frame problems using multiple mathematical and statistical representations of relevant fields of Geography
2	It familiarizes the properties of parametric, Semi – parametric and non parametric testing procedures

3	Interpreting and communicating the results from statistical analysis
4	The learner can apply probability and the mathematical models of statistics in Geographical research
5	The learner will be able to carry out appropriate hypothesis tests.
6	Students can perform statistical forecasting with Geospatial data.
UNIT	**SPECIFIC OUTCOMES**
1	Mean, Median, Mode, various, Standard Deviation , Histograms
2	Probability Concepts
3	Hypotheses testing, Z-Test, T- Test
4	Correlation, regression
5	Data Reduction, Factor analysis, cluster Analysis
Text Book(s):	
1	Ajai, S. G. and Sanjaya, S. G. (2009) Statistical Methods for Practice and Research, Sage Publications, New Delhi.
2	Cole, J. P. & King, C. A. M. (1968) Quantitative Techniques in Geography. John Wiley & sons Inc. New York.
Reference Book(s):	
1.	Elhance, D. N. (1972) Fundamentals of Statistics, Kitab Mahal, Allahabad
2.	Rogerson, P. A., (2001) Statistical Methods for Geography, Sage Publications, New Delhi
3.	Sarkar, A. (2013): Quantitative geography: techniques and presentations. Orient Black.
4.	Pillai &Bagawathi R. S. N, (2017), Statistics Theory and Practice, S Chand and Company Limited, New Delhi.

III SMESTER

Second Allied - I / Generic Elective - IV (or) Transport Geography

SEMESTER – III			
SECOND ALLIED - I / ELECTIVE GENERIC -IV			
TRANSPORT GEOGRAPHY			
TEACHING HOURS : 60 (4 Hours, 4 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire basic knowledge and Scope of Transport Geography		
CO2	To elaborate the Types of Transport		
CO3	To discuss the importance of Network Characteristics of transport		
CO4	To elaborate on Theories related to freight rate structure		
CO5	To illustrate the Transport system in India		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Nature and Scope of Transport Geography - Importance of Transport - Development of Transport Geography – Associated factors - Transport Development - Physical, Economic, Technology.	12	CO1
II	Types of Transport – Railways, Roads, Airways and Waterways, Pipelines.	12	CO2
III	Network Characteristics – Topology - Graph Theory - Binary Matrix - Measures Of Connectivity and Accessibility.	12	CO3
IV	Theories related to freight rate structure - Bases of Spatial interaction – Complementarily - Intervening Opportunity and Transferability.	12	CO4
V	The transport system in India - Role of Transport in Regional development In India - Problems and prospects of Role of Transport in Regional development In India - Urban and Rural Transportation Planning and Management.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Understands** the Nature and Scope of Transport Geography – Historical development of Transport – Importance of Transport . **Examine** the approaches to the study of Transport		
II	Enhances the knowledge on the types of transport		
III	Enriches the knowledge on the application of network analysis		

IV	Understanding the Theories related to freight rate structure
V	**Applying acquired knowledge** of Transport Systems in India – Road – Railway – Inland Water ways – **understand** the source Harbors and Ports – Air Transport – **Explore** the Importance and Major Transport Routes – **Analyse** the Role of Transport in Regional Development
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Importance of transport, Development of Transport
II	Types of transport
III	Measure of Connectivity and accessibility
IV	Theories related to freight rate and structure
V	Transport System In India – Rural , Urban
VI	Assessment Unit
TEXT BOOK:	
1	Transport and Developing Countries - Hillings, H., Routledge, 1996 Geography of Transportation, Naresh Kumar, Concept Publication, 1991.
2	White H.P. and Senior 1983 'Transport Geography', Longman, London.
3	Transport for the Space Economy: A Geographical Study -Hay, A, Macmillan, 1973
4	Transportation Geography: Comments and Readings - Eliot Hurst, M.E.,1971
WEB SOURCE:	
1	https://transportgeography.org/?page_id=40,
2	https://www.e-education.psu.edu/geog597i_02/node/814

III SEMESTER

Second Allied - II (P) Discipline Specific Elective - I

Map Interpretation

SEMESTER –III			
Second Allied - II (P) Discipline Specific Elective - I			
MAP INTERPRETATION			
TEACHING HOURS : 60 (2 Hours)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire the basic knowledge of Indian Topographical Maps		
CO2	To understand the need of basic Knowledge Topographical Signs and Symbols		
CO3	To get the knowledge diagrammatic representation of Marginal Information		
CO4	To explore the basic knowledge of Interpretation of Physical Features		
CO5	To acquire the knowledge of Interpretation of Cultural Features		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	An Introduction to Indian Topographical Maps	12	CO1
II	Indian Topographical Maps : Conventional Signs and Symbols	12	CO2
III	Indian Topographical Maps : Marginal Information of Indian Toposheet	12	CO3
IV	Interpretation of Physical Features From Indian Topographical Maps	12	CO4
V	Interpretation of Cultural Features From Indian Topographical Maps	12	CO5
UNIT	**LEARNING OUTCOMES**		
I	After Completing the course the students should be able to Knowledge and understand the Indian Topographical Sheet		
II	Enriched Knowledge on basic Topographical Tools		
III	Understands the Marginal Information of Indian Toposheet		
IV	Clarity on the Interpretation of Indian Topographical Physical Features		
V	**Understands** of the Interpretation of Indian Topographical Cultural Features		
UNIT	**SPECIFIC OUTCOMES**		
I	Indian Toposheets		
II	Conventional Signs and Symbols in Toposheets		
III	Marginal Information of Toposheets		
IV	Physical Features in Toposheets		

V	Cultural Features in Toposheets
TEXT BOOK:	
1	Gopal Singh, (1996): Map Work Practical Geography, Vikas Publishing House, New Delhi
2	Jayachandran, (1964) : Practical Geography, (Tamil Edition) Tamil Nadu Text Book Society

III SEMESTER

Second Allied - II (P) Discipline Specific Elective - (or)

Cartographic Techniques

III – SMESTER	
Second Allied - II(P) Discipline Specific Elective	
Cartographic Techniques	
Allied – II* Practical	
Teaching Hours : 60 (2 Hours)	
Course Objectives:	
To Study of the Geographical Entity. To draw different thematic maps according to the available data	
Unit – 1	Maps: Essentials of a Map, Classification of Map, Uses of Map – Data – Types: Source of Data, Spatial, Non Spatial, Quantitative and Qualitative Methods.
Unit – 2	Distribution Map: Quantitative Methods: Dot Maps: Mono and Multiple, Isopleths and Choropleth
Unit – 3	Qualitative Method: Choroschematic Method – Chorochromatic Method
Unit – 4	Located Maps: Line Graph, Bar Graph, Circle, Pie Diagrams
Unit – 5	Located Maps: Sphere, Block Diagrams, Pictorial Maps – Flow maps.
Unit – 6	Cartography: Mapping Software's – GIS Applications.
Expected Course Outcomes:	
1	Understand the map and data
2	Understand and how to draw quantitative map.
3	Understand and how to draw qualitative map.
4	Understand and how to draw located two – dimensional diagram.
5	Understand and how to draw three – dimensional diagram.
6	To Understand the Knowledge of GIS Applications
UNIT	**SPECIFIC OUTCOMES**
1	Types of maps and sources of data
2	Distribution of Quantitative methods of maps
3	Distribution of Qualitative methods of maps
4	Located maps: Line, Bar, Circle and pie diagrams
5	Located maps : Pictorial, Block diagrams

6	Software : GIS
Text Book(s):	
1	. R. Khullar (2002), Essentials of Practical Geography, New academic Publication Co., Jalandhar.
2	. L. R. Singh (2006), Elements of Practical Geography, Sharda Pustak Bhawan, Allahabad.
Reference Book(s):	
1.	. R. P. Misra, R. B. Singh, Brijesh Misra and Anupam Pandey (2014), Fundamental of Cartography, Concept Publishing Co. Pvt. Ltd., New Delhi.

III SEMESTER

Non Major Elective - I : Regional Geography with special Reference to Tamil Nadu

III – SMESTER	
Non Major Elective - I	
Regional Geography with special Reference to Tamil Nadu	
Teaching Hours : 60 (2 Hours, 2 Credits)	
Course Objectives:	
1. To study the importance of physical features. 2. To understand the resources and the distribution.	
Unit – 1	Location – Administrative Divisions – Physiography – Drainage – climate – soil – natural vegetation.
Unit – 2	Irrigation: Types and its importance – Agriculture; Distribution and Production of Rice, Cotton, Sugarcane, Tea, Groundnut.
Unit – 3	Power Resources: Hydel, Thermal, Wind, Atomic, Tidal and its Distribution, Mineral resources: Bauxite, limestone, iron ore and coal.
Unit – 4	Industries: distribution and production: cotton textile, automobile, cement and leather industries, iron and steel industries
Unit – 5	Population distribution: growth, Density, literacy, sex ratio and rural and urban. Transport: Road, Railway, Airways and Water ways, Ports, Trade.
Unit – 6	Tamil Nadu million cities industries corridor. Urban corridor Renewable / Non – Renewable resources, WTO.
Expected Course Outcomes:	
1	Location of Tamil Nadu and its Physiography division.
2	Importance of water resources and agriculture
3	Power resources
4	Significance of industries like cotton, automobile, cement and leather.
5	Importance of population and trade & transport.
6	Industries corridor Renewable / Non – Renewable resources.
UNIT	**SPECIFIC OUTCOMES**

1	Location of Tamil Nadu
2	Agriculture and Irrigation
3	Major Power Resources of Tamil Nadu
4	Major Industries of Tamil Nadu
5	Human Resources , Transport
6	Renewable and Non – Renewable Resources
Text Book(s):	
1	V. Kumarsamy Geography of Tamil Nadu (Tamil)
2	Dr. N. Rajalakshmi (1999) Tamil Nadu Economic published by business publication INC. Mumbai.
Reference Book(s):	
1.	A. G Leonard Tamil Nadu Economy (2006) Macmillan India. ltd Chennai.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://cutn. ac. in
2	http://www. kasc. ac. In

III SEMESTER

Non Major Elective - I :(or) Geography of Tamil Nadu

III – SMESTER	
Non Major Elective - I	
Geography of Tamil Nadu	
Teaching Hours : 60 (2 Hours, 2 Credits)	
Course Objectives:	
1. To study the importance of physical features. 2. To understand the resources and the distribution.	
Unit – 1	Location – Administrative Divisions – Physiography – Drainage – climate – soil – natural vegetation.
Unit – 2	Irrigation: Types and its importance – Agriculture; Distribution and Production of Rice, Cotton, Sugarcane, Tea, Groundnut.
Unit – 3	Power Resources: Hydel, Thermal, Wind, Atomic, Tidal and its Distribution, Mineral resources: Bauxite, limestone, iron ore and coal.
Unit – 4	Industries: distribution and production: cotton textile, automobile, cement and leather industries, iron and steel industries
Unit – 5	Population distribution: growth, Density, literacy, sex ratio and rural and urban. Transport: Road, Railway, Airways and Water ways, Ports, Trade.
Unit – 6	Tamil Nadu million cities industries corridor. Urban corridor Renewable / Non – Renewable resources, WTO.
Expected Course Outcomes:	
1	Location of Tamil Nadu and its Physiography division.
2	Importance of water resources and agriculture
3	Power resources
4	Significance of industries like cotton, automobile, cement and leather.
5	Importance of population and trade & transport.
6	Industries corridor Renewable / Non – Renewable resources.
UNIT	SPECIFIC OUTCOMES
1	Administrative Division In Tamil Nadu
2	Types of Agriculture
3	Power Resources in Tamil Nadu

4	Industries Distribution in Tamil Nadu
5	Population Distribution In Tamil Nadu
Text Book(s):	
1	V. Kumarsamy Geography of Tamil Nadu (Tamil)
2	Dr. N. Rajalakshmi (1999) Tamil Nadu Economic published by business publication INC. Mumbai.
Reference Book(s):	
1.	A. G Leonard Tamil Nadu Economy (2006) Macmillan India. ltd Chennai.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://cutn. ac. in
2	http://www. kasc. ac. In

IV SEMESTER

Core Course V (P) - Representation of Socio-Economic and Climatic Data

SEMESTER –III			
CORE COURSE -V (P)			
REPRESENTATION OF SOCIO ECONOMIC AND CLIMATIC DATA			
TEACHING HOURS : 60 (4 Hours, 4 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the representation of Climatic Data		
CO2	To illustrate the Symbols used to interpret the Weather maps		
CO3	To differentiate the Socio-economic data using the different methods of Mapping techniques		
CO4	To elaborate on the different methods and techniques of map representation		
CO5	To summarize diagrammatic representation of mapping techniques using computer		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Representation of climatic data- Climatic graph –Taylor's Climograph – Hyther graph – Ergo graph –simple wind rose diagrams.	12	CO1
II	Weather symbols – Synoptic weather chart - Interpretation of Indian weather report - Weather In sat - Cyclonic track.	12	CO2
III	Representation of socio-economic data- Distribution maps – Dot map – Mono- Circle- Square- Sphere- block pile - Simple pyramid – Flow diagram.	12	CO3
IV	Maps - Isopleth – Choropleth – Choro-schematic – Choro-chromatic - Index of concentration – Rainfall dispersion diagram – co-efficient of variation- Lorenz curve-Gini coefficient.	12	CO4
V	Diagrammatic representation using computer: Bar diagram (Vertical –Horizontal- Compound and Multiple) – Graphs(simple and poly graph) -Pie –Pictorial-Star diagram.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Define** the climatic data and its representation in geography. **List out** its importance climatic data in Geography, and to **explore their knowledge** to plot graphical **representation** from climatic and socio economic data for all types of climatic graphs, ergo and hyther graph		
II	**Understand the** Weather elements. **Outline** the Temperature. Distinguish the Pressure belts . **Illustrate** the significance of Wind. **Categories** the Humidity		

	and **classify** the types of Rainfall.
III	**Understanding** of facts and basic concepts of socio economic data to represent the proper distribution maps. **Develop** the skills to develop apt map for the given data.
IV	**Understands** the Concept of socio economic data to choose apt map to depict. Index of concentration and dispersion diagram has different criteria., hence need to show unique way of drawing maps for each and every particular data. Lorenz curve and Gini coefficient has a close connection with comparing variable with grand total data.
V	**Explore** the Statistical Methods with connection of geographical study to **evaluate** the mean and median centre for locational **analysis and appreciate** the featured criteria elaborately
VI	Assessment Unit
UNIT	SPECIFIC OUTCOMES
I	Climatic Diagrams
II	Weather Symbols
III	Socio-Economic Data; Distribution Maps
IV	Various types of Maps
V	Computer Based Diagrams
VI	Assessment Unit
TEXT BOOK:	
1	SahaPijushkanti (2010): Advanced Practical Geography, Books and Allied pvt Ltd.
2	Bagulia A.M (2006):Practical Geography, Anmol Publishers.
3	Zulfequar Ahmed Khan M.D (1997): Text book of Practical Geography, Concept Publishing Company , New Delhi.
WEB SOURCE:	
1	http://youtu.be/2hxUKRo1qQU
2	https://youtu.be/gmTXQFxwuLE

IV SEMESTER
Core Course - VII :Oceanography

SEMESTER-IV			
CORE COURSE – CC VII			
OCEANOGRAPHY			
TEACHING HOURS : 60 (5 Hours, 5 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the term Oceanography definition, description of Ocean and Seas, Extent, surface configuration of the Ocean floor. To acquire wide knowledge on Hypsometric curve, Continental Shelf, Continental Slope, Abyssal Plain and Deeps, Trenches		
CO2	To understand and illustrate on bottom relief of Pacific, Atlantic and Indian Ocean and Composition of sea water.		
CO3	To illustrate the distribution of Salinity and factors affecting temperature		
CO4	To describe the Circulation of Ocean Movements		
CO5	To explain the distribution of Ocean deposits and resources		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Oceanography: Definition, Oceans and seas - Extent and distribution – Surface configuration of the Ocean floor, Hypsometric curve – Continental shelf – Continental slope – Abyssal Plain – Deeps and Trenches.	12	CO1
II	Bottom Relief of the Pacific, Atlantic and Indian Oceans, Sea water – Composition of sea water.	12	CO2
III	Ocean Temperature and Salinity: Distribution and factors – Horizontal and vertical - Factors affecting temperature and salinity distribution.	12	CO3
IV	Ocean Water Movement – Waves – Tides: Types - Ocean Currents: Types - Currents of Pacific, Atlantic and Indian Oceans.	12	CO4
V	Ocean Deposits: Types - Coral Reefs: Formation and types - Ocean resources and need for conservation - National Institute of Ocean Technology (NIOT).	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Define** oceanography**, explains** distribution of Land and Sea **describes the structure**.		
II	**Understands composition of** the Ocean floor the oceanic crust, Group Activity **makes a model o**f Ocean Bottom relief		
III	**Describes** the composition of sea water **list out** the factors Governing sea Temperature , **illustrate the variation** in Temperature distribution (Horizontal and Vertical Distribution)		
IV	Distribution **distinguishes** the types of waves Waves – (Deep water waves –		

	Long waves – Seismic sea waves – Tide waves – Transitional waves) **differentiate** Tides – (High tide and Low tide – Neap Tide – Spring tide) , **draw map for** Circulation of Ocean Currents and the distribution **Discuss and debate** on ElNino – LaNina
V	Analyses the different Ocean Deposits and identifies the Types of Coral Reefs-Formation and types describes the need for Ocean resources and need for conservation
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Relief Features in Oceans
II	Continental shelf, Slope, Abyssal Plain, Deeps, Trenches, Ridges of major oceans
III	Ocean Temperature, Salinity
IV	Warm Current, Cold Currents in the Oceans
V	Ocean Deposits, Coral Reefs
VI	Assessment Unit
TEXT BOOK:	
1	Savindra Singh, (2008), Oceanography, PrayagPushtak Bhawan, Allahabad.
2	Siddartha. K., (2005). Oceanography – A brief Introduction, Kisalaya Publications Pvt. Ltd., New Delhi.
3	Gupta, A and Kapoor A. N., (2001), Principles of Physical Geography, S.Chand& Company Ltd., New Delhi.
4	Lal D.S., (1990) Oceanography, Chatianya Publishing House, Allahabad
WEB SOURCE:	
1	books.google.com>science>earth sciences>geography
2	https://www.nios.ac.in/media/documents/316courseE/ch11.pdf

IV SEMESTER

Second Allied - II (P) Discipline Specific Elective - I
Map Interpretation

SEMESTER –IV			
SECOND ALLIED - II (P) DISCIPLINE SPECIFIC ELECTIVE - I			
MAP INTERPRETATION			
TEACHING HOURS : 60 (3 Hours, 3 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire the basic knowledge of Indian Topographical Maps		
CO2	To understand the need of basic Knowledge Topographical Signs and Symbols		
CO3	To get the knowledge diagrammatic representation of Marginal Information		
CO4	To explore the basic knowledge of Interpretation of Physical Features		
CO5	To acquire the knowledge of Interpretation of Cultural Features		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	An Introduction to Indian Topographical Maps	12	CO1
II	Indian Topographical Maps : Conventional Signs and Symbols	12	CO2
III	Indian Topographical Maps : Marginal Information of Indian Toposheet	12	CO3
IV	Interpretation of Physical Features From Indian Topographical Maps	12	CO4
V	Interpretation of Cultural Features From Indian Topographical Maps	12	CO5
UNIT	**LEARNING OUTCOMES**		
I	After Completing the course the students should be able to Knowledge and understand the Indian Topographical Sheet		
II	Enriched Knowledge on basic Topographical Tools		
III	Understands the Marginal Information of Indian Toposheet		
IV	Clarity on the Interpretation of Indian Topographical Physical Features		
V	**Understands** of the Interpretation of Indian Topographical Cultural Features		

UNIT	SPECIFIC OUTCOMES
I	Indian Toposheets
II	Conventional Signs and Symbols in Toposheets
III	Marginal Information of Toposheets
IV	Physical Features in Toposheets
V	Cultural Features in Toposheets
TEXT BOOK:	
1	Gopal Singh, (1996): Map Work Practical Geography, Vikas Publishing House, New Delhi
2	Jayachandran, (1964) : Practical Geography, (Tamil Edition) Tamil Nadu Text Book Society
3	Nefi B.S., (1995): Text Book of Practical Geography, Kedar Nath Publications, Meerut

IV SEMESTER

Second Allied - II (P) Discipline Specific Elective - I (or)

Cartographic Techniques

IV – SMESTER	
SECOND ALLIED - II (P) DISCIPLINE SPECIFIC ELECTIVE - I	
Cartographic Techniques	
Teaching Hours : 60 (3 Hours, 3 Credits)	
Course Objectives:	
To Study of the Geographical Entity. To draw different thematic maps according to the available data	
Unit – 1	Maps: Essentials of a Map, Classification of Map, Uses of Map – Data – Types: Source of Data, Spatial, Non Spatial, Quantitative and Qualitative Methods.
Unit – 2	Distribution Map: Quantitative Methods: Dot Maps: Mono and Multiple, Isopleths and Choropleth
Unit – 3	Qualitative Method: Choroschematic Method – Chorochromatic Method
Unit – 4	Located Maps: Line Graph, Bar Graph, Circle, Pie Diagrams
Unit – 5	Located Maps: Sphere, Block Diagrams, Pictorial Maps – Flow maps.
Unit – 6	Cartography: Mapping Software's – GIS Applications.
Expected Course Outcomes:	
1	Understand the map and data
2	Understand and how to draw quantitative map.
3	Understand and how to draw qualitative map.
4	Understand and how to draw located two – dimensional diagram.
5	Understand and how to draw three – dimensional diagram.
UNIT	**SPECIFIC OUTCOMES**
1	Types of maps and sources of data
2	Distribution of Quantitative methods of maps
3	Distribution of Qualitative methods of maps
4	Located maps: Line, Bar, Circle and pie diagrams
5	Located maps : Pictorial, Block diagrams
Text Book(s):	

1	. R. Khullar (2002), Essentials of Practical Geography, New academic Publication Co., Jalandhar.
2	. L. R. Singh (2006), Elements of Practical Geography, Sharda Pustak Bhawan, Allahabad.
Reference Book(s):	
1.	. R. P. Misra, R. B. Singh, Brijesh Misra and Anupam Pandey (2014), Fundamental of Cartography, Concept Publishing Co. Pvt. Ltd., New Delhi.

IV SEMESTER
Second Allied - III / Discipline Specific Elective - II
Human Geography

SEMESTER-IV			
SECOND ALLIED - III/ DISCIPLINE SPECIFIC ELECTIVE - II			
HUMAN GEOGRAPHY			
TEACHING HOURS : 60 (4 Hours, 3 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the basic concepts of Human Geography and assess the relationship between Man and Environment.		
CO2	To elaborate the school of thoughts		
CO3	To discuss the distribution of Major Human Races in World		
CO4	To illustrate the World Major Religions		
CO5	To compare and distinguish the World Major Languages and Language groups		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Human Geography – Nature, Scope and Significance of Human Geography – Man and Environment Relationship.	12	CO1
II	Schools of Thoughts: Determinism, Neo Determinism ,Possibilism - French – German – British – UK – Humanism – Behaviorism.	12	CO2
III	Major Human Races in World – Classification of Major Races – Caucasoid - Mongoloid – Negroid – Racial Parameters and indices.	12	CO3
IV	World Major Religions: Religion distribution – Hinduism - Buddhism – Jainism - Christianity- Islam- Religions in India.	12	CO4
V	World Major Languages and Language groups – Tamil,	12	CO5

	Chinese, English – Hindi - Arabic – German- French and Portuguese.		
VI	Assessment Unit		CO6
UNIT	**LEARNING OUTCOMES**		
I	**Recall** the Nature and Scope of Human geography, compare with the other branch of Geography , **Understand** the significance of Human geography, **analyse**the Man and environment relationship**, explain** the theories of population, **examine** the populationdata		
II	Understands the basis of the study of Geography through the elaborate understanding of the School of thoughts		
III	**Explain** the distribution of Major human races in the world, compare World Distribution of Races, **analyse**Racial parameters and indices(Shape, Skull, Face, Nose, Stature,, **examine**White (Caucasian), **Classifying**Asian(Mongoloid), outline the Black(Negroid Group discussion Classification of Races		
IV	**Recall** the Major Religions, explain Hinduism, Buddhism, Jainism, Christianity, Islam, **examine** the Religious distribution around the world, **compare** Languages, Vernacular and Dialectics.		
V	estimate the distribution of Language groups (Chinese, Spanish, English, Hindi, Arabic German, French and Portuguese		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
1	Scope of human Geography		
2	Determinism and Possibilism		
3	Distribution of Religion in the World		
4	Major Language Distribution in the World		
5	Language Groups in the World		
TEXT BOOK:			
1	Majid Hussain (2011) Human geography, Rawat publications, New Delhi		
2	Lekh raj singh (2009): Fundamentals of human geography, Sharda pustakbhawan,publishers		
3	Majid Hussain (2009): Concise geography, Tata mc graw hills education private limited, New Delhi.		
WEB SOURCE:			
1	http://jizaberg.tumblr.com/post/24880131860/download-researching-human-geography-pdf-ebook		
2	http://walkgeographies.files.wordpress.com/2009/03/gregoryetal_dictionary_human_geography_2009.pdf		

IV SEMESTER
Second Allied - III / Discipline Specific Elective - II
(or)
Social Geography

IV – SMESTER	
SECOND ALLIED - III/ DISCIPLINE SPECIFIC ELECTIVE - II	
SOCIAL GEOGRAPHY	
Teahing Hours: 60 (4Hours, 3 Credits)	
Course Objectives:	
To study the Social Geography how to relate to man, and their social activities, To examine the spatial distribution of tribes of the India.	
Unit – 1	Definition, Nature and scope of Social Geography – Social Structure and social process.
Unit – 2	Social Well being: Social Geography of inclusion and exclusion – inclusion: healthcare, housing and education – exclusion: slums, communal, conflicts and crime.
Unit – 3	Elements of social geography: Ethnicity, Race, Tribe, Dialect, Languages, Caste, Religion – Distribution of Race and Physical characteristics (Caucasoids, Mongoloids and Negroids)
Unit – 4	Distribution of Racial Groups: Negritos, Proto – Australoids, Mongoloids, Mediterraneans, Brachycephals and Nordics (India).
Unit – 5	Indian Tribes and their Distribution – Characteristics of some Indian Tribes: Santhals, Oraon, Gonds, Bhils, Minas – Social Pathology – Health care planning and policies in India.
Unit – 6	Social Discrimination and Differentiation – religion, caste, education, housing and food.
Expected Course Outcomes:	
1	Importance and development of social geography
2	Understand the social well being of inclusion and exclusion
3	Elements of social geography and their characteristics.
4	Evolution of man and races in India.
5	Identify different types of Indian Tribes and Their Distribution

UNIT	SPECIFIC OUTCOMES
1	Definition of Social Geography, Social Structure, Process
2	Health care, Housing, Education, Slum, Crimes
3	Distribution of races and Ethnicity
4	Distribution of Racial Groups
5	Indian Tribes and their Characteristics
Text Book(s):	
1	Jyotirmoy Sen., (2019): A Text Book of Social and Cultural Geography, Kalyani Publishers, New Delhi
2	P. K. Pande K. Chavan (2012): Social Geography, Crescent Publishing Corporation, India.
Reference Book(s):	
1.	Ahmand, Aijiazuddin, Social Geography, Rawat Publications, New Delhi, 1999
2.	Majid Husain – Human Geography – Rawat Publications 1994
3.	Aime Vincent Perpillou – Human Geography, Longman Group limited London 1977
4.	Gillian C. Morgan – Human and Economic Geography, Oxford University Publications 1999

IV SEMESTER

NMSDC-II
(2 Hours, 2 Credits)

V SEMESTER
Core Course -VIII : Geography of India

SEMESTER – V			
CORE COURSE – CC VIII			
GEOGRAPHY OF INDIA			
TEACHING HOURS : 60 (5 Hours, 5 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To elaborate on the Location and Physiography of India		
CO2	To understand the climate and soil distribution of India		
CO3	To illustrate the agricultural distribution of India and the need for geographical factors for crop production.		
CO4	To distinguish the metallic and non metallic minerals, and understand the distribution of Indian Industries.		
CO5	To elaborate the distribution of population and transport in India		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Location – Frontiers- Neighbouring Countries- Physiography -Himalayas, Western Ghats and the Eastern Ghats –Plateau - East Coastal Plain, West coastal plain and Islands - Rivers :Northern (Peninsular) and Southern (Non Peninsular).	12	CO1
II	Climate –Seasons, Monsoons, Rainfall Pattern and Distribution of Rainfall. Soil- Types of Soil - Natural Vegetation- Tropical Forest, Sub Tropical Forest, Evergreen Forest, Mangrove, Thorny Forest.	12	CO2
III	Agriculture – Geographical Requirements of Crops – Rice - Wheat – Oilseeds – Sugarcane – Cotton - Jute - Tea – Coffee – Rubber - Livestock – Fisheries- Irrigation – Types – Multipurpose Projects.	12	CO3
IV	Minerals – Metallic and Non-Metallic Minerals - Iron – Manganese – Bauxite- Copper- Mica- Illuminate- Energy (Hydel, Thermal and Atomic) - Industries- Iron & Steel – Textiles – Paper — Shipbuilding – Locomotives – Cement – Fertilizer- Major Industrial Regions of India.	12	CO4
V	Population – Distribution - Density and growth –Population Problems - Transport – Roadways	12	CO5

	– Railways – Water ways – Air ways – Ports and Harbors - Trade – Export and Import.		
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Recall** the geographic location and compare the neighbouring countries and compare its strategic importance, **classifying** the nature and extent of Himalayan rages, **identifying** the resource of various elevation, **compare the** northern perennial and southern non perennial rivers, assess the coastal stretch and its importance, estimate island resource Indian seas and oceans		
II	**Distinguish** the concept of climate and weather **, explain** the intensity of Indian Monsoon , **Evaluate** the amount and pattern of rainfall, analyse the tropical cyclones over Indian coasts,		
III	the agricultural regions, **classifying** the food crops and non food crops of India, **identifying** the cropping pattern and its distribution, **assess** the production based on rainfall**explain** the types of irrigation, **assess** the hydro electric power generation,		
IV	**classifying** the minerals- metallic and non metalic, **estimates** the hydel power generation Assess the thermal power and atomic power generation **,Analyse** the major industrial regions and its importance in economic growth		
V	Identifies the demography of India, estimate the amount and pattern of rainfall in India **,discuss the problems** of urbanization, **compare** the means of transport, **understand** the strategic importance of sea routes **evaluate** the imports and exports		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
1	Location of India, Neighboring Countries, Physical Structure		
2	Climate Seasons, Distribution of Rainfall, Soil, Natural Vegetation		
3	Agricultural Patterns , Various Crops		
4	Mineral Based Industries		
5	Human Resources, Transport System, trade		
WEB SOURCE:			
1	https://www.mapsofindia.com/geography		
2	www.indianmirror.com/geography/geography.html		

V SEMESTER
Core Course -IX : Population Geography

V – SMESTER	
Core Course - IX	
Population Geography	
Teaching Hours : 60 (5 Hours, 5 Credits)	
Course Objectives:	
This course is designed to gain knowledge thorough understanding to the population data population – distribution. Density Demographic structure, Migration India over, under population and problems.	
Unit – 1	Population Geography Nature Scope and Development of population Geography population data sources and methods of data collection.
Unit – 2	Composition of population Demographic Structure – Rural and Urban population Composition – major races.
Unit – 3	Population policy with reference to India over population, under population and problems.
Unit – 4	Population Growth Distribution of populations, Density and factors controlling population growth – population problems.
Unit – 5	Migration – Types causes and effects of Migration.
Unit – 6	Population policy with reference to India over population, under population and problems.
Expected Course Outcomes:	
1	Available sources of populations data
2	Population Growth, Distribution, Density and factors controlling problems.
3	Demographic structure Rural – Urban population.
4	Migration Types and Courses
5	Theories of Population.
6	Available sources of populations data
UNIT	**SPECIFIC OUTCOMES**
1	Development of Population Geography, Population Data
2	Demographic Structure
3	Population Policies, Population Problems
4	Affecting factors of population and Distribution, Problems
5	Migration, Causes, Types , Consequences
Reference Book(s):	

1.	Glenn.T.Trewartha- Geography Of Population - World Pattern, John Willey and Sons Publications
2.	Chandna R.C. and Sidhu M.S., 1980: An Intruduction to Population Geography, Kalyani Publishers
3.	Bhende A. and Kanitkar T., 2000: Principles of Population studies, Himalaya Publishing House

V SEMESTER
Core Course- X : Settlement Geography

V– SMESTER	
Core Course : X	
Settlement Geography	
Teaching Hours: 60 (6 Hours, 5 Credits)	
Course Objectives:	
1. To explain the formation and principles of settlements. 2. To study the distribution, pattern, and characteristics of settlements.	
Unit – 1	Settlement Geography: Meaning, Nature, Scope and development of Settlement: Origin – Site and situation of Settlements types – Fundamental concepts in settlement Geography.
Unit – 2	Rural Settlement: Meaning, Factors affecting Rural settlements – Origin and evolution of Rural settlements – Types – Size and spacing of Settlements – Rural Morphology: Patterns – Housing Types – Contemporary problems of Rural settlements (Rural – Urban Migration: Land use changes: Land acquisition and Transaction – Theory of Rural settlement location(JC HUDSON 1969)
Unit – 3	Urban Settlement: Meaning – Factors affecting site and situation of Towns – functional classification of Towns by HJ Nelson – Urbanization: – factors – Urbanization in India and World – Central Business District(CBD), Functions and Characteristics of CBD
Unit – 4	Urban Morphology: Urban Land Use Models – Concentric (Emest Burgess 1925), Sector (Homer Hoyt 1939) and Multiple Nuclei Model (Harris and Edward Ullman 1945) – Rural – Urban fringe – Urban Hierarchy – Primate City – Rank – Size rule – Christallers central place theory.
Unit – 5	Urban Issues: Water, Energy, Housing, Health – Urban Slums – Transport, Environment issues – Town and country planning and restructuring
Unit – 6	Recent and Future Development: Smart growth – Smart City –

	Definition – History of the Smart city – Technology used in smart Cities – Challenges and Opportunities Future of Smart city
Expected Course Outcomes:	
1	Discuss about the Settlement, Types and fundamental concepts in Settlement geography
2	Learn the concepts, characteristics and factors, Types and Patterns, Rural problem
3	Learn about the Urbanization in India and the World
4	Learn about Urban functions and characteristics, Urban Morphology
5	Study about the problem of urbanization
6	Get knowledge about the recent and future growth of smart cities.
UNIT	**SPECIFIC OUTCOMES**
1	Origin Of Settlements , Site and Situations, Types , Concepts
2	Rural Settlements, Types, Housing Types, Contemporary Problems
3	Urban Settlements, Origin of towns, Classification of Towns
4	Various Urban Land Use Models
5	Problems in Urban Areas, Towns and Country Planning
Text Book(s):	
1	RY Singh, Geography of Settlement, Ravat Publications, Reprinted 2008
2	Julfikar, Hussain settlement geography.
Reference Book(s):	
1.	Mandal R. B (2009) Urban Geography: a text book; concept publishing Co New Delhi
2.	Siddhartha K (2013) Cities, Urbanization and Urban Systems Kisalaya Publications New Delhi.
3.	V. N. P Sinha, Usha varma, Anuradha sahay (2020) Introduction to settlement Geography, Raajesh publications.
4.	Chisholm. M(1967) Rural settlements and Land use Johnwiley, Newyork

V SEMESTER
Core Course-XI (P) : Map Projection

V– SMESTER	
Core Course - XI (P)	
Map Projection	
Teaching Hours: 60 (5 Hours, 5 Credits)	
Course Objectives:	
1. To Understand the principles, construction and classification of map projections 2. To transfer whole or part of the Earth into a plane surface with suitable map projection.	
Unit – 1	Map Projections: – General Principles, Classification, Choice of Projection: - Construction of the following projection with limitation and uses.
Unit – 2	Construction of Zenithal Projection: Equidistant, Equal area, Gnomonic, Orthographic (or) Stereographic Projections.
Unit – 3	Construction of Cylindrical Projection: Equidistant, Equal area and Mercator's Projections.
Unit – 4	Construction of Simple Conical Projections with One and Two Standard Parallels, Bone's and Polyconic Projections.
Unit – 5	Construction of Sinusoidal and Mollweide's Projections (normal) and Interrupted sinusoidal and Mollweide's projection.
Unit – 6	Assessment (Universal Transverse Mercator (UTM) and World Geodetic System 84 (WGS84) projections and its uses.)
Expected Course Outcomes:	
1	Complete knowledge on principles and classifications of map projections
2	Hands-on exercises for construction of Zenithal and cylindrical projections
3	Draw conical and conventional projections for the whole or part of Earth.
4	Draw a Conical Projection One and two Standard
5	Construction of Sinusoidal and Mollwide's projections
6	Assessment
UNIT	**SPECIFIC OUTCOMES**
1	Map Projections, Principles, Classificatiuons

2	Zenithal Projections, Properties
3	Cylindrical Projections, Properties
4	Conical Projections mid latitude zone that have an east-west orientations
5	Sinusoidal projections poles an points , Mollweide Projection Commonly used in Small scale maps and Thematic maps
Text Book(s):	
1	Jayachandaran, S. (1964). *Practical Geography (Tamil Edition)*. Tamil Nadu Text Book Society, Chennai.
2	Khan, M.Z.A. (1998). *Text Book of Practical Geography*. Concept Publishing Company, New Delhi.
	Alvi, Z. (1998). *A Text book of Practical Geography*. Sangam Books Limited, Hyderabad.
Reference Book(s):	
1.	Negi, B.S. (1998). *Practical Geography*. Kedarnath and Ramnath, Meerut.
2.	Singh, G. (1995). *Map Work and Practical Geography (3rd Edition)*. Vikas Publishing House Pvt. Ltd., New Delhi.
3.	Monkhouse, F.J. and Wilkinson, H.R. (1971). *Maps and Diagrams (3rd Edition)*. Methuen & Co., London.
4.	Saha, P. and Basu, P. (2013). *Advanced Practical Geography*. Kolkata Books and Allied Publisher, Kolkata.

V SEMESTER
ME- II/ Discipline Specific Elective - III Basics of GIS

SEMESTER _V			
ME-II/ DISCIPLINE SPECIFIC ELECTIVE - IIII			
BASICS OF GIS			
TEACHING HOURS : 60 (5 Hours, 3 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire the knowledge on the development of GIS		
CO2	To distinguish between the significance of Spatial and non-spatial data		
CO3	To understand the importance of DBMS		
CO4	To update the recent trends on GIS analysis		
CO5	To explore the application of GIS and its softwares		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Geographical Information System: Definition –Historical development - Components of GIS- data storage and manipulation – data transformation – data output devices.	12	CO1
II	Spatial and Non- spatial Data, Raster and Vector Data Structure. Comparison of raster and vector data.Geographical coordinate systems of earth: UTM.	12	CO2
III	DBMS – components - query - digitization – editing – topology – layout preparation.	12	CO3
IV	GIS analysis: Single layer analysis: butter – interpolation, multilayer analysis: overlay analysis, network analysis, WebGIS(A Basic Introduction).	12	CO4
V	Application of GIS and GIS Softwares; Land use/ Land cover/ Urban sprawl /Agriculture and environment. Disaster; Arc view, Arc GIS, ILWIS, GRASS, QGIS, ENVIS.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Recalls** maps and its importance in daily life, **understand** Geography as Spatial science and GIS concepts, **define** GIS, **trace** the history and development of GIS, **lists** the Components of GIS		
II	**List** Basic Data Models, (Spatial and Non-spatial Data, Raster and Vector		

	Data), **compares** Advantages and Disadvantages of Raster and Vector GIS
III	The need and importance of DBMS in the study of GIS
IV	Knowledge on basic introduction of Web GIS
V	**List** GIS Software s (CAD- GIS-ARC GIS, ARC VIEW, MAP INFO, GRASS and QGIS) **Summarise** GIS application (Environmental and National Resources Management, Planning and Engineering, Land Information System, Urban Planning)
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Historical development of GIS, Components
II	Raster and Vector Data Structure, UTM
III	Data Analysis : Soil, Forest, Population Etc….
IV	GIS Analysis , Layer , Buffer
V	GIS Applications , Land Use , Urban, Agriculture, Environment
VI	Assessment
TEXT BOOK:	
1	Chandra A.M&Ghosh.S.K. (2016).*Remote Sensing and Geographic Information System*.Narosa Publishing House
2	Bhatta,Basudeb(2011). *Remote sensing and GIS*, Oxford University Press/ Radha press NewDelhi
3	Siddique,Dr. M.A.(2006).*Introduction to Geographic Information Systems.*ShardaPustakBhawan, Allahabad
4	Anand,Dr. P.H. and V. Rajesh Kumar (2003). *Principles of Remote Sensing and GIS.* Sri Venkateswara Publications, Kumbakkonam.
WEB SOURCE:	
1	www.gdmc.nl/oosterom/PoGISHyperlinked.pdf
2	gisgeography.com › GIS Analysis
3	www.gisresources.com
4	www.researchgate.net

V SEMESTER
ME- II/ Discipline Specific Elective - III (or)
Trends In Geography

SEMESTER-V			
ME - II / DISCIPLINE SPECIFIC ELECTIVE- III			
TRENDS IN GEOGRAPHY			
TEACHING HOURS : 60 (5 Hours, 3 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To enhance the students in gaining knowledge of concepts and components using Remote Sensing		
CO2	To get an idea of Aerial Photographs and their uses in topographical mapping in planning and execution		
CO3	To enhances the quality of data collection and avoid the possibility of error at the point of field data collection		
CO4	To display the new technology used and analyze spatial data, it combines the advantages of both the Internet and GIS		
CO5	To enrich the knowledge about the data acquired and study of major Satellite Systems in world		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Remote sensing: Components of remote sensing – Electro Magnetic Spectrum - Energy interaction with atmosphere and Earth - Resolutions (Spectral, Spatial, Temporal & Radiometric) - Optical Remote Sensing: Basic concepts - Optical sensors and scanners.	12	CO1
II	Aerial photography: Types of aerial photography and uses - Stereoscopic parallax - Aerial triangulation– ground control for aerial photography - Digital Photogrammetry-Planning and execution.	12	CO2
III	Digital Data: Basic Characteristics of digital image - data type and file format- Data acquisition and interpretation- Use of multiple images- multi-station – multi-band-multi-stage – multi-polarization – multi-spectral- Digital Image Processing.	12	CO3
IV	Web GIS: components of Web GIS - concept	12	CO4

	of maps and software -Open source Software- – GRASS – ILWIS – Openstreet map - QGIS - SagaGIS - Map window-cloud GIS.		
V	Thermal Remote sensing & Microwave remote sensing - data formats and systems, - Major satellite systems: Sensors and data products of IRS, LANDSAT, SPOT, ERS, IKONOS, Quick Bird, ORBVIEW, ASTER, MODIS, WORLD VIEW, AVIRIS, CASI, MODIS and Hyperion.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Defines** remote sensing, **lists** the types of remote sensing, **summarize** development of Space Programs **explores** Organizations Associated with Remote Sensing in India and in other Countries.**Lists** the Sources of Energy, **defines** Electromagnetic Radiations (EMR), **Categorize** Electromagnetic Spectrum, **identifies** Atmospheric Windows, **explains** Energy Interaction with Atmosphere and Earth.		
II	**Lists** the Components of Aerial Camera, **differentiates t**ypes of Aerial Photographs, **examines** Marginal Information of Aerial Photographs, **summarizes** Elements of Photo Interpretation. **Activity Each student Prepare five questions for a quiz related to the above sub topics**.		
III	**Define** the components of Slope, Aspects, overlay operations and statistical analysis. **Understands** Vector data – topological and non-topological vector data, **Identifies** map scale, spatial resolution, spatial data accuracy, **Explains and Examines** the vector data sources. **Distinguish and Compare** between raster and vector data.		
IV	**Recalls and Understands** GNSS and GIS Integration: **Identifies** Integration techniques - **Distinguishes** Data focused integration, position focused and technology focused integration; **Explains** Technology convergence for data use; Hardware and software platforms; GPS, GIS.		
V	Board		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
I	Basics of Remote sensing		
II	Aerial Photos, Types, Uses		
III	Digital Data		
IV	Web GIS, Open source Software		
V	Satellite System		
VI	Assessments		
TEXT BOOK:			
1	Schowengerdt, R. A., Remote sensing - Models and methods for image processing. Academic press. London.1997.		
2	Richards,J.A, Remote Sensing Digital Image Analysis., Springer-Verlag, London 1986.		

WEB SOURCE:	
1	www.gdmc.nl/oosterom/PoGISHyperlinked.pdf
2	gisgeography.com › GIS Analysis
3	www.gisresources.com
4	www.researchgate.net

V SEMESTER
Non Major Elective - II Geography of Asia with Special Reference to Japan

SEMESTER-V			
NON MAJOR ELECTIVE - II			
GEOGRAPHY OF ASIA WITH SPECIAL REFERENCE TO JAPAN			
TEACHING HOURS : 60 (2 Hours, 2 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To enhance the students in gaining knowledge of concept of Physiographic Division		
CO2	To enhance the Knowledge of Soil Types in Japan		
CO3	To enhances the Idea of Mineral and Energy Resources of Japan		
CO4	To display the used and analyze Industrial Production and Distribution		
CO5	To enrich the knowledge about the Transport network		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Significance of Geographical location – Physiographic divisions – Climate Drainage systems	12	CO1
II	Soil types and classification – Agricultural production – Rice and Wheat – Rubber, Tea and Coffee, Sugar cane and Jute	12	CO2
III	Mineral and Energy Resources – Iron Ore, Manganese, Tin, Bauxite, Coal, Petroleum and Natural Gas	12	CO3
IV	Industrial Production and Distribution Iron and Steel, Cotton and Textile, Sugar cane and Automobile	12	CO4
V	Population Transport and Trade and Commerce	12	CO5
UNIT	**LEARNING OUTCOMES**		
I	Learn about the Physiographic Division **,** Climate and Drainage System		
II	Learn the concepts**,** characteristics and Types Of Soils, Agricultural Production		
III	Learn about the Mineral Resources in Japan		
IV	Learn about Industrial Production and Distribution of Iron and Steel		
V	Study about the Population , Transport and Trade of Japan		
UNIT	**SPECIFIC OUTCOMES**		

I	Location and Physiographic Division In Japan
II	Soil and Agricultural Production In Japan
III	Mineral and Energy Distribution In Japan
IV	Iron and Steel Distribution In Japan
V	Population Sources and Trade Distribution In Japan
TEXT BOOK:	
1	Human and Economic Geography Coh Cheng Leong Oxford Press
2	Human and Economic Geography Coh Cheng Leong Oxford Press
3	Geography of Asia – Dobby 4. A Regional Geography of the World – D.S. Manku.

V SEMESTER
Non Major Elective - II (or)
WORLD REGIONAL GEOGRAPHY

SEMESTER V			
NON MAJOR ELECTIVE - II			
NATURAL REGIONS OF THE WORLD			
TEACHING HOURS : 60 (2 Hours, 2 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To have wide knowledge on the physical and political divisions of North America and South America		
CO2	To have broad regional knowledge of Africa and its Cultural Aspects		
CO3	To have depth regional knowledge of Australia and its Cultural Aspects		
CO4	To acquire regional knowledge of Physical and political features of Europe		
CO5	To acquire the regional knowledge of Asia and its Cultural Aspects		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	North America and South America: Political divisions– Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural Aspects.	12	CO1
II	Africa: Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects.	12	CO2
III	Australia: Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects.	12	CO3
IV	Europe : Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects.	12	CO4
V	Asia: Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation –	12	CO5

	Animal Life – Transport and trade Cultural aspects.		
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Appreciate the knowledge** on political division of North America and South America,explain the soil resource and drainage of the region **understand** the flora and fauna over this latitudes **. Develop** the in depth knowledge of natural resource and its importance.		
II	**Explore** the basic facts on African continent of facts and **explain** the political division and strategy location of the continent **classify** the resource over the region. **Elaborate** the drainage pattern and its importance of the continent		
III	Understands the basic facts on Australian continent, **explain** the (political division, Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects) strategy location of the continent **classify** the resource over the region.		
IV	**Appreciate the knowledge** on political division of Europe , explain the geographical knowledge such as physical, Drainage soil resource and agricultural aspects of the region **understand** the flora and fauna over this latitudes		
V	**Define** the concepts of political region and **Examine** the subjective aspects of Asia physiographic divisions		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
I	Physiographic Division in the World		
II	Africa: Mode of Animal life and Human Life		
III	Australia: Natural Vegetation in the World		
IV	Europe : Transport and Trade Distribution in Europe		
V	Asia: Soil types And Agricultural Distribution in Asia		
VI	Assessment		
TEXT BOOK:			
1	Majid Hussain (2012): World geography, Rawat Publications, 4th Edition.		
2	Majid Hussain (2011): Concise Geography, Tata Mc Graw Hill Education Private limited, NewDelhi.		
3	Alka Gautam (2007) :World geography, first edition, Sharda pustakbhawan, Allahabad.		
4	Gochenleong(2001): Certificate Physical and Human Geography, Oxford university press, New Delhi.		
WEB SOURCE:			
1	World Regional Geography, Global pattern, local lives Third Edition,LydiaMihelic Publisherwww.whfreeman.com/catalog/pulsipher3e.		

2	*examrace.com/.../Geography/.../Regional_Geography/Geography_Na..*

V SEMESTER

SSD
(2 Hours, 2 Credits)

V SEMESTER

EA
(1 Credits)

VI SEMESTER

Core Course - XII : REMOTE SENSING and GNSS

SEMESTER _ VI			
CORE COURSE – CC XII			
REMOTE SENSING AND GNSS			
TEACHING HOURS : 60 (6 Hours, 6 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To have basic knowledge on basics of Remote sensing		
CO2	To elaborate on the fundamentals and significance of Aerial photographs and satellite types		
CO3	To have the deep knowledge on the types of resolution and marginal information of Aerial photos and satellite images		
CO4	To explore the application of Remote sensing		
CO5	To have wide understanding on GNSS, Segments and Satellite tracking		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Remote Sensing – Definition and types- History of Remote Sensing in India – Remote Sensing Processes – Electromagnetic Spectrum, Atmospheric Window – Plat Forms and its types.	12	CO1
II	Fundamentals of Aerial and Satellite Remote Sensing- Aerial Photography and Scale of Aerial Photographs and its types – types of Satellites.	12	CO2
III	Resolution: Spectral, Spatial, Radiometric and Temporal- Marginal Information of Aerial Photographs and Satellite Images.	12	CO3
IV	Application of Remote Sensing ; Land use/ Land cover/ Urban sprawl Agriculture and environment.	12	CO4
V	Global Navigation Satellite System: Segments: space segment - GPS Satellite systems – New Programmes – IRNSS - Control segment - Satellite tracking - User segment – Modern survey instruments – Error sources – Satellite augmented systems - DGPS - GNSS Applications.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Define** Remote Sensing**, describe** the Principles of Remote Sensing,		

	memorize the bands in Electromagnetic**, Distinguish** between Radiation Interaction with Atmosphere and Earth Surface-Interaction, Distinguish between the types of Remote sensing based on platform, Energy sources, Imaging media, regions of Electromagnetic spectrum.
II	Acquires knowledge about the types of resolutions and information of satellite and aerial photographs.
III	**Define** Microwave Remote sensing, **differentiate** between Passive and Active Microwave Remote Sensing, **distinguish** between Airborne versus space bore radars **correlate** the images from SLAR and SAR System
IV	**Summarise** application of Remote Sensing in Land Cover and Land use mapping, **Distinguish** Change detection in land use, Water, Forest, Agriculture, Environmental Impact assessment and Urban planning
V	Introduction of Global Navigation Satellite System(GNSS) gives a wide knowledge about the application of GPS and its uses.
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Remote sensing process
II	Aerial Photos and Its Types
III	Resolution and its Types
IV	Application of remote sensing : Land use and Land cover
V	GPS, GNNS and Application
VI	Assessment
TEXT BOOK:	
1	Siddique M.A.(2006): Introduction to Geographic Information Systems, Sharda Pustak Bhawan, Allahabad.
2	Chandra A.M &S.M.Ghosh, (2006) Remote sensing and Geographical Information System, Alpha Science Int'l limited, New Delhi.
3	Panda B.C(2005): Remote sensing principles and applications, Viva books private limited.
4	Anji Reddy. M. (2001): Remote sensing and Geographical information system, BS publication, Hyderabad.
WEB SOURCE:	
1	www.gdmc.nl/oosterom/PoGISHyperlinked.pdf
2	RSgeography.com › RS Analysis

SEMESTER - VI

CORE COURSE XIII : SOCIAL AND CULTURAL GEOGRAPHY

SEMESTER -VI			
CORE COURSE – CC XIII			
SOCIAL AND CULTURAL GEOGRAPHY			
TEACHING HOURS : 60 (6 Hours, 5 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire basic knowledge on the social structure and society		
CO2	To elaborate the spatial distribution of Ethnicity, Language, Caste and Religion		
CO3	To discuss the social welfare and well being		
CO4	To distinguish on the races and cultural diffusion of the world		
CO5	To assess the Human development indicators and its Index		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Introduction: Nature and Scope of Social Geography – Concepts of Social Geography - Social Structure (Family, Marriage, Kinship) and Processes - Rural and urban society.	12	CO1
II	Spatial distribution of Ethnicity, Tribe, Dialect, Language, Caste and Religion in the World with special reference to India.	12	CO2
III	Welfare and Social Well being : Quality of Life – Health- Education – Economic Status – Gender – Wellbeing of Women.	12	CO3
IV	Cultural geography :Concept of Culture, Evolution of Human beings – Major Races of the world- Culture Interaction and diffusion – Culture Exchange.	12	CO4
V	Measurement of Human Development – Social, Economic and Environmental	12	CO5

	Indicators –Human Development Index.		
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	Broadens knowledge of the Concepts of Social Geography		
II	Enhances the knowledge about the Spatial distribution of ethnicity.		
III	Enriches the knowledge about the Social welfare and social well being		
IV	**Recalls** and memorize the framework of cultural Geography and its importance in Geography, it is important to **explore** their knowledge in culture of the world in order to map the social map of the world		
V	Acquires the information about the indicators – social, economic and environmental.		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
I	Scope and content of Social Geography		
II	Language and Religious Distribution In the World		
III	Social Well Being : Health, Education, Economic Status		
IV	Cultural and Major Races Distribution in the World		
V	Measurement of Human Development		
VI	Assessment		
TEXT BOOK:			
1	Jon Anderson, Taylor & Francis. (2021) Understanding Cultural Geography Places and Traces		
2	S.D.Maurya (2016) Cultural Geography, Sharda pustak bhavan, Allahabad		
3	G.S. Mohanty (2007) Social and Cultural Geography		
4	Ajjazuddin Ahmad (2004) Social Geography, Rawat Publications, Jaipur		
WEB SOURCE:			
1	https://en.wikipedia.org/wiki/Cultural_geography		
2	https://en.wikipedia.org/wiki/Race_(human_categorization)		
3	https://en.wikipedia.org/wiki/Clothing_in_the_ancient_world		
4	https://books.google.co.in/books?isbn=8180690741		

SEMESTER - VI

CORE COURSE XIV: POLITICAL GEOGRAPHY

SEMESTER -VI			
CORE COURSE – CC XIV			
POLITICAL GEOGRAPHY			
TEACHING HOURS : 60 (5 Hours, 5 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To acquire basic knowledge on the Political Geography		
CO2	To elaborate the spatial distribution of Core Areas of Political Geography		
CO3	To discuss the importance of Boundaries and Frontiers		
CO4	To elaborate on Geography of Elections		
CO5	To illustrate the Political Geography of India		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Political Geography: Definition, Scope, Content and Development – Geopolitics - State: Categories -Powers and Functions - Nations and Nationalism.	12	CO1
II	Core Areas: Types – Capitals: Types - Morphological classification - Factors of Development, Federal Capitals – New and Neutral Capitals – Capitals in Post -1945 federations.	12	CO2
III	Boundaries and Frontiers: Definition – Classification: Genetic and Functional – Morphological Classification (Buffer Zone – Land locked Countries) – Border Disputes.	12	CO3
IV	Electoral Geography: Geography of Elections – Election Campaigning - Voting Pattern - Voters' Participation – Gerry Mandering – Election Commission.	12	CO4
V	Political Geography of India: Integration of Indian States: Integration of Sikkim – India's Bilateral Relationship with Pakistan and Sri Lanka – SAARC Countries - India's Foreign Policies.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Acquire** knowledge on the basic concepts of Political Geography and its importance and scope in Geography, it is important to **explore** their knowledge		

	in various phases of political Geography
II	**Enhances** the knowledge on Morphological classification - Factors of Development, Federal Capitals
III	**Understands** the facts and ideas of various political areas of our Territory, State, Nation and the world. **Acquire** through knowledge on frontiers and boundaries.
IV	**Understands** the concept of electoral Geography. **Examine** the subjective aspects of electoral divisions of India
V	Summaries the knowledge on political geography of India and need for SAARC
VI	Assessment Unit
UNIT	**SPECIFIC OUTCOMES**
I	Geopolitics : State Level
II	Capital and Morphological Classification
III	Boundaries (Buffer Zones land Locked Countries)
IV	Election Campaigning – Voting Patterns and Voter's Participations
V	Bilateral Relationship with Pakistan and Sri Lanka
VI	Assessment
TEXT BOOK:	
1	Dwivedi, R.L. (2014). *Fundamentals of Political Geography*. Chaitanya Publishing House, Allahabad.
2	Adhikari, Sudeepta. (2009). *Political Geography of India- A Contemporary Perspective*. Sharada Pustak Bhavan, Allahabad.
3	Sudeeptha Adhikari, (2004), Political Geography, Rawat publications, New Delhi.
4	Dikshit, R.D. (1982). Political Geography: A contemporary perspective, McGraw Hill Publishing co., New Delhi.
WEB SOURCE:	
1	www.geography.about.com/od/politicalgeography
2	www.electoralgeography.com/new/en/category/countries/i/india
3	https://en.wikipedia.org/wiki/Political_geography

SEMESTER - VI

CORE COURSE XV(P) : SURVEYING

VI – SMESTER	
Core Course XV (P)	
SURVEYING	
Teaching Hours: 60 (6 Hours, 5 Credits)	
Course Objectives:	
To Understand the surveying instruments To conduct survey for primary data collection.	
Unit – 1	Introduction of surveying – chain surveying- use- equipments, chain traverse: principles, the procedures, taking offsets, field book, preparation of map.
Unit – 2	Prismatic compass surveying- lines of reference, magnetic bearings- taking bearings- compass traverse- open and closed, compass sketch survey- closing error and its correction
Unit – 3	Plane table surveying- methods of surveying- open traverse.
Unit – 4	Dumpy level surveying- method and use, use profile leveling**.**
Unit – 5	Indian clinometers and the Abney level-procedures-measurement of elevation and depression
Unit – 6	Google earth**,** Drone**.**
Expected Course Outcomes:	
1	Students know about basics of chain survey
2	Students will have knowledge about prismatic compass survey
3	Students able t conduct plane table survey
4	Students will have knowledge dumpy level survey
5	Students able to conduct the survey of Clinometer and Abney Level
6	Students will have knowledge about latest survey techniques
UNIT	**SPECIFIC OUTCOMES**
1	Chain Surveying Equipments:- Chain, Ranging Rods, Tapes, Arrows, Open Traverse, Closed Traverse, Field Work Preparation of Plains

2	Prismatic Compass, Bearing, Open Traverse, Closed Traverse, Closing Arrows And its Correction
3	Plans Table and its Accessories, Surveying Methods
4	Dumpy level surveying, Methods, Profile Leveling
5	Indian Clino meter and planetary level survey, angle of elevation and depression
Text Book(s):	
1	Singh R. L Elements of practical Geography
2	Gopal Singh: Map and Practical Geography (1973) – Central book depot, Allahabad.
Reference Book(s):	
1.	1. Jayachandaran, S. (1964). *Practical Geography (Tamil Edition)*. Tamil Nadu Text Book Society, Chennai.
2.	2. Khan, M.Z.A. (1998). *Text Book of Practical Geography*. Concept Publishing Company, New Delhi.

SEMESTER - VI

ME - III / DISCIPLINE SPECIFIC ELECTIVE - IV
BIO GEOGRAPHY

VI – SMESTER	
ME - III / DISCIPLINE SPECIFIC ELECTIVE - IV	
BIOGEOGRAPHY	
Teaching Hours : 60 (5 Hours, 3 Credits)	
Course Objectives:	
1. To study about principles and processes going on in our environment. 2. To Identify the importance of animals and plants.	
Unit – 1	Introduction to Biogeography: Nature, Scope and Components - Significance and development of Biogeography, Paleo biogeography – Environment, habitat and plant animal association, Biome types – Soils: Genesis of soils, Classification and Distribution of soils, Soil profile and Soil erosion.
Unit – 2	Darwin theory of evolution laws of thermodynamics – Biogeochemical cycle, (Carbon, Nitrogen, Hydrologic, Prosperous, Oxygen cycles) tropic level – Food chain, Food web
Unit – 3	Concept of Biome, Ecotone and community – Concept of ecosystem, energy flow in ecosystem – Types of ecosystem: – Forest, Grassland, Desert and Marine – Ecological balance, conservation and management.
Unit – 4	Elements of plant Geography: Distribution of forest and major communities – Distribution of major animal grouping in the world – Desertification – factors influencing world distribution of plants and animals.
Unit – 5	Definition of Deforestation – Deforestation causes and consequences – Pollution types and their effects – Significance of biodiversity and controlling factors.
Unit – 6	Application of Geo informatics in Species identifications and Tracking of animals in the forest (Drone, GNSS Survey, RADAR) – Application of Geoinformatics Indigenous species identified animals

	in the Forest.
Expected Course Outcomes:	
1	Learn about the Concept and Component of Bio-geography
2	Learn about the Darwin's theory and chemicals cycles.
3	Understand the concepts of Eco systems.
4	learn about the factors affecting world distribution of plants
5	Understand about the deforestation and the pollution effects.
UNIT	**SPECIFIC OUTCOMES**
1	Development of Bio-geography, Plant and Animal Associations, Bio Types Soils
2	Darwin Theory, Bio Chemical Cycles, Food Chain, Food Web
3	Concept of Biome, Ecosystem, Conservation and Management
4	Plant Geography, Major Forests, Animals, Dessertifications
5	Deforestation, Causes, Consequences, Pollutions
Text Book(s):	
1	Mathus H S, Essentials of Biogeography, Anuj printers, Jaipur.
2	Peras N, Basic Biogeography, Longman, London
Reference Book(s):	
1.	Simmon I G, Biogeography, Natural and cultural, Longman
2.	Cox C D and Moore P D. Biogeography, an ecological and evolutionary approach, Blackwell
3.	Gaur R, Environment and ecology of early man in northern India, RB Publication Corporation
4.	K. Kumarasamy, I. C Kamaraj Uir poviyal Varthamanan Publications, Chennai 2018
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	https://wii. gov. in and https://www. gislounge. com

SEMESTER - VI

ME - III / DISCIPLINE SPECIFIC ELECTIVE - IV (or)
GEOGRAPHY OF HEALTH

SEMESTER-VI			
ME - III/ DISCIPLINE SPECIFIC ELECTIVE-IV			
GEOGRAPHY OF HEALTH			
TEACHING HOURS : 60 (5 Hours, 3 Credits)			
UNIT	**LEARNING OBJECTIVES**		
CO1	To understand the relationship between health and geography and the driving force of health and environment.		
CO2	To recall the history of disease and elaborate on the agents of disease		
CO3	To illustrate the components of the influencing environment on health.		
CO4	To differentiate the types of diseases like communicable and non-communicable diseases.		
CO5	To elaborate on the health care planning and management of the World and India.		
CO6	Assessment Unit		
UNIT	**DETAILS**	**NO. OF HOURS**	**COURSE OBJECTIVES**
I	Geography of Health – Definition – perspectives and Bio-Medical Approach – Psychological – Sociological – Economic – Geographic Approach - Driving Forces in Health and Environment.	12	CO1
II	Concept of Diseases – History of Diseases – Agents of diseases – Control of Diseases, Transmission Triad and mode.	12	CO2
III	Health and Diseases – Control of Diseases in Environmental context with special reference to India – types of Diseases and their regional Pattern – Communicable and Non-communicable diseases.	12	CO3
IV	Environment and Health – Three components of the environment – Physical, Biological, and Social, Occupational Health, Mental health, Health Information, and Basic Medical	12	CO4

	Statistics – Mapping of Diseases.		
V	Health Care Planning and Management– Health Organization – Hierarchy of Public Health Care System in India, health planning in India– Health Policies and Schemes in India – International health -WHO, UNICEF, UNDP.	12	CO5
VI	Assessment Unit		
UNIT	**LEARNING OUTCOMES**		
I	**Recalls** the importance of health., **Understands** the relationship between. Health and environment., **Define** health. **Distinguish**.-Development and health. Realizepopulation dynamics with health		
II	**Understands** the impact of Environmental Quality and health., **Analyses** the impact of human activities and environmental pressures., **Compare** the reasons and influence level of climatic change and human health.		
III	**Learns** the disease patterns, **understand** the context of disease pattern with Indian setup**. Compare** the types of disease and analyse the types of disease with regional concepts. **Differentiate** the communicable and non-communicable diseases.Summarize biological agents in the spread of diseases.		
IV	Understands the relationship between the Environment and Health and also assess the influence of the various components of environments on health.		
V	**Categorises,** the various healthcare planning. **Examines** the role of WHO show in the healthcare planning. **Understands**- healthcare centres in India. **Classifies** the importance of voluntary health agencies. **Evaluate** the need for the family and community healthcare planning. **Understands** and list the various health schemes of India.		
VI	Assessment Unit		
UNIT	**SPECIFIC OUTCOMES**		
I	Various Approaches of health – Bio medical , psychological, Sociological, Economic and Geographical Approach		
II	Diseases – Concepts, Agents, Control of Diseases		
III	Incidence of Diseases in India, Communicable and non-Communicable Diseases		
IV	Environment and Health, Components of the Environment Medical Statistics, Mapping of Diseases		
V	Planning, Management, Health care System In India, World Health Polices		
TEXT BOOK:			
1	K.Park XX edition, 2009Park's Textbook of Preventive and Social Medicine.M/s Banarisdas.Bhanot Publishers, India		
2	Avon Joan L. and Jonathan A Patzed.2001: Ecosystem Changes and Public Health,Baltimin,JohnHopling UNIT Press(ed).		
3	Christaler George and HristopolesDionissios, 1998: Spatio Temporal Environment Health		

	Modelling, Boston Kluwer Academic Press.
4	Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
WEB SOURCE:	
1	https://jhpn.biomedcentral.com/
2	https://www.researchgate.net/
3	https://www.healthgeography/

SEMESTER - VI

NM SDC- III

(2 Hours, 2 Credits)