



THIRUVALLUVAR UNIVERSITY

SERKKADU, VELLORE-632115

B.Sc. Geography

SYLLABUS

FROM THE ACADEMIC YEAR

2023 - 2024

THIRUVALLUVAR UNIVERSITY - VELLORE

DEPARTMENT OF GEOGRAPHY

Programme:	B.Sc GEOGRAPHY
Programme Code:	GEOG2023
Duration:	3Years
Programme Objectives:	<ol style="list-style-type: none">1. To provide students with a strong foundation in geographic knowledge. This includes understanding physical geography and the interconnectedness of these elements.2. To cultivate critical thinking and problem-solving abilities in real-world issues related to geography, such as natural resource management, environmental conservation and urban development.3. To develop research skills, including data collection, statistical analysis, and the ability to present findings effectively.4. To explore how geography intersects with other disciplines, such as economics, sociology and environmental science etc.5. To learn how to use Geo-informatic tools and software to collect, prepare thematic layers, analyse geo-spatial data, and visualize geospatial data, which is valuable in various professional fields, including urban planning, environmental management, and business.
Programme Outcomes:	<ol style="list-style-type: none">1. Understand the scope and evolution of the diverse discipline of Geography2. Develop ethical aptitudes and dispositions necessary to acquire and hold leadership positions in industry, government, and professional organizations.3. Recognize, synthesize and evaluate diverse sources of knowledge, arguments and approaches pertinent to exploring human-environment problems.4. Development of knowledge, skills and holistic understanding of the discipline among students. Encouragement of scientific mode of thinking and scientific method of enquiry in students.

	<p>5. Ability to undertake research in interdisciplinary studies and problems or issues beyond the realm of what strictly comes under the purview of geography.</p>
<p>Programme Specific Outcomes:</p>	<ol style="list-style-type: none"> 1. Understand the major biophysical and social patterns in the world, and the key drivers that give rise to those patterns. 2. Demonstrate in-depth knowledge of theories, concepts, techniques and technologies in human and physical aspects of geography, as well as geographic information science and technology, through real-world practical applications at the local, regional, and global scales. 3. Apply systems thinking and critical thinking skills to analyse problems and potential solutions in socio-economic-ecological systems at the human environment interface. 4. Practice obtaining, analysing, and interpreting complex geographic data. 5. Work effectively in interdisciplinary and multicultural real-world contexts to combine theory and practice in responding to local to global issues for human and non-humans

PART	SUBJECT	PAPERS	CREDIT	TOTAL CREDITS	TOTAL MARKS
PART I	LanguageTamil	4	3	12	400
PART II	English	4	3	12	400
PART III	Core	15	5/4	68	1500
	Elective	8	3	24	800
PART IV	FoundationCourse	1	2	2	100
	SkillBasedSubject	7	3	14	700
	FoundationCourse	1	2	2	100
	ValueEducation	1	2	2	100
	ProfessionalCompetencySkill	1	2	2	100
	SummerInternship	1	2	2	100
	EVS	1	2	2	100
PART V	ExtensionActivities	1	0	0	100
Total				140	4500

*Week-6Workingdayorder

**COURSE STRUCTURE OF B.Sc., GEOGRAPHY
HYPROGRAMME UG - SCHEME OF
EXAMINATIONS: CBCS PATTERN
(For the students admitted during the academic year 2023–2024 onwards)**

Part	SubCode	Title of the Paper	Hrs (week)	Internal (CA) Marks	External Marks	Total Marks	Credits
I	1.1	Part-I: Tamil-I	6	25	75	100	3
II	1.2	Part-II: English-I	6	25	75	100	3
III	1.3	Core Course-I: Fundamentals of Geomorphology	6	25	75	100	5
III	1.4	Core Course-II: Statistical Applications in Geography-I	5	25	75	100	5
III	1.5	Elective Generic/Discipline Specific Elective-I-Practical-I: Mapping Techniques	5	25	75	100	3
IV	1.6	Skill Enhancement Course-SEC-1 Basic Tools in Geography	2	25	75	100	2
IV	1.7	Skill Enhancement Course (Foundation Course) Earth and its System	2	25	75	100	2
			32				23

Part	SubCode	Title of the Paper	Hrs (week)	Internal (CA) Marks	External Marks	Total Marks	Credits
I	2.1	Part-I: Tamil-II	6	25	75	100	3
II	2.2	Part-II: English-II	6	25	75	100	3
III	2.3	Core Course-III: Climatology	5	25	75	100	5
III	2.4	Course Course-IV: Cartography	5	25	75	100	5
III	2.5	Elective Generic/ Discipline Specific Elective -II-Practical III- Statistical Application in Geography - II	6	25	75	100	3
IV	2.6	Skill Enhanced Course-SEC-2(NME) Recent Trends in Geography	2	25	75	100	2
IV	2.7	Skill Enhanced Course-SEC-3 Basic Geography for Non-Geographers	2	25	75	100	2
			32				23

Part	Sub Code	Title of the Paper	Hrs (week)	Internal (CA) Marks	External Marks	Total Marks	Credits
I	3.1	Part - I: Tamil – I	6	25	75	100	3
II	3.2	Part- II: English – I	6	25	75	100	3
III	3.3	Core Course – V : Oceanography	5	25	75	100	5
III	3.4	Course Course – VI : Geographical Thought	5	25	75	100	5
III	3.5	Elective Generic / Discipline Specific Elective - III – Practical – II: Representation of Relief, Climate and Socio – Economic Data	5	25	75	100	3
IV	3.6	Skill Enhanced Course – SEC – 4 Geography of Tourism	1	25	75	100	1
IV	3.7	Skill Enhanced Course – SEC – 5 Meteorology and Weather Forecasting	2	25	75	100	2
IV	3.8	EVS	2	25	75	100	2
			32				24

Part	Sub Code	Title of the Paper	Hrs (week)	Internal (CA) Marks	External Marks	Total Marks	Credits
I	4.1	Part-I: Language: Tamil –IV	6	25	75	100	3
II	4.2	Part-II: English –IV	6	25	75	100	3
III	4.3	Core Course VII: Population and Settlement Geography	5	25	75	100	5
III	4.4	Core Course VIII – Geography of India	5	25	75	100	5
III	4.5	Elective Generic / Discipline Specific – Elective IV – Practical – IV: Map Projection and Surveying Techniques	6	25	75	100	3
IV	4.6	Skill Enhancement Course SEC – 6 Political Geography	2	25	75	100	2
IV	4.7	Skill Enhancement Course SEC 7 Regional Planning	2	25	75	100	2
			30				23

Part	Sub Code	Title of the Paper	Hrs (week)	Internal (CA) Marks	External Marks	Total Marks	Credits
III	5.1	Core Course – IX Basis of GIS	5	25	75	100	4
III	5.2	Core Course – X Economic Geography	5	25	75	100	4
III	5.3	Core Course – XI Geography of Tamil Nadu	5	25	75	100	4
III	5.4	Core Course – XII Practical – V Cartographic Appreciation and Interpretation of Maps & Images	5	25	75	100	4

III	5.5	Elective Generic / Discipline Specific Elective – VBio – Geography / Social and Cultural Geography	4	25	7 5	100	3
IV	5.6	Elective Generic / Discipline Specific Elective – VI Geography of Health / Land Use Survey & Techniques	4	25	7 5	100	3
IV	5.7	Value Education	2	25	7 5	100	2
IV	5.8	Industrial Training and Internship	0	25	7 5	100	2
			30				2 6

Part	SubCode	Title of the Paper	Hrs(week)	Internal(CA) Marks	External Marks	Total Marks	Credits
III	6.1	Core Course–XIII Urban Geography	6	25	75	100	4
III	6.2	Core Course–XIV Remote Sensing and GNSS	6	25	75	100	4
III	6.3	Core Practical –XV C++ PROGRAMMING	3	25	75	100	2
III	6.3	Core Course–XV Practical–VI Application of Remote Sensing and GIS Techniques	3	25	75	100	2
III	6.4	Elective Generic/Discipline Specific Elective–VII Agricultural Geography/Transport Geography	5	25	75	100	3
III	6.5	Elective Generic/Discipline Specific Elective –VIII Disaster Studies / Resource Geography	5	25	75	100	3
IV	6.6	Extension Activity	-	25	75	100	1
IV	6.7	Professional Competency Skill	2	25	75	100	2
			30				21

FIRSTYEAR-SEMESTER- I

COURSENAME:CC-I:FUNDAMENTALSOFGEOMORPHOLOGY										
COURSE CODE 23UG	C	L	T	P	Semester	C4	INST.	MARKS		
	CORE-I				I		HOURS	CIA	External	Total
							60	25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	To understand scope and content of Geomorphology; and explain the Rocks and types of rocks.									
LO2	To Explain the continental drift theory, classify Endogenetic and Exogenetic forces. Discuss the fold, fault and volcano types.									
LO3	To illustrate the factors affecting weathering and its types									
LO4	To compare and classify Glacier and its types and types of landforms									
LO5	To explain the work of wind waves									
UNIT	CONTENTS							NO.OF HOURS		
I	Geomorphology– Meaning– Scope and Content (Structure of the earth) – Rocks-Rocks types (Igneous Rock, Metamorphic Rock, and Sedimentary Rock)							12		
II	Wegner’s Continental Drift Theory– Sea Floor Spreading– Plate Tectonics - Earth movements (Endogenetic and Exogenetic) - Fold and its types – Fault and its types - Earthquake and its types – Volcano and its types							12		
III	Weathering: Factors affecting Weathering -Types of Weathering - Mass Wasting and its types- Agents of Gradation – Normal Cycle of Erosion – Davis cycle of Erosion (Structure, Stage, Process) - Work of Rivers – Erosion –Transportation- Deposition – Landforms							12		
IV	Work of Glaciers: Types of Glaciers, Erosional and Depositional Landforms-Underground Water–Water Table – Aquifer- Spring and its types – Karst Landforms (Erosional and Depositional Landforms)							12		
V	Work of Wind- Erosional and Depositional Landforms. Work of Waves- Erosional and Depositional landforms - Types of Coast.							12		

CO	COURSE OUTCOMES	K-Level
1	<p>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, Identify the formation and type of rock when they travel PO1 PO2 PO3</p> <p>COURTESY: https://onlinecourses.nptel.ac.in/noc20_ce28/preview https://www.geographyrealm.com/importance-geomorphology-physical-geographers/</p>	K1 K2 K2 K3 K4 K5
2	<p>Relates Wegner's continental drift theory Discuss Sea floors spreading, Plate tectonics and Distinguish Earth movements (endogenetic and exogenetic) to the formation of mountain, plateau, plains and lakes with its types</p>	K1 K2 K3
	<p>Develop the map skill and know to mark those features in the world map PO1 PO2</p> <p>COURTESY: https://www.pmfias.com/fold-fault-block-residual-mountains/ Group Activity: Students will create models for drift and Plate tectonics (PO5, PO7)</p>	K6
3	<p>Explain the factors affecting weathering. Discuss the process of weathering, mass wasting and its types. Examine Normal Cycle of Erosion of Davis (structure, stage, process). Compare and distinguish the work of rivers in erosion, transportation and depositional landforms</p> <p>COURTESY: https://www.geographyrealm.com/what-are-the-two-main-causes-of-changes-to-the-earth-surface/</p>	K1 K2 K3 K4
4	<p>Understands and appreciates the formation of various landforms by Glacier, underground water, Aquifer and karst topography.</p> <p>COURTESY: http://www.scienceclarified.com/landforms/Faults-to-Mountains/Glacial-Landforms-and-Features.html https://www.clearias.com/erosion-deposition-running-water-ground-water/POI PO2 PO10</p>	K1 K2 K3 K4 K5
5	<p>Discuss and the formation of various landforms formed by wind and waves</p> <p>COURTESY: https://www.clearias.com/erosion-deposition-wind-waves/ Po1 Po2 Po7 Po8 Po9</p> <p>Activity-As Part Of Revision Students Conduct Quiz In The Class Po8</p>	K1, K2 K3, K6
TEXTBOOK:		
1	Savindra Singh (2012): Physical Geography	
2	Siddhartha. K & Mukherjee. R (2008): The Earth's Dynamics Surface	
3	Majid Hussain (2004): Fundamentals of Physical Geography	
4	Richard. H. Bryant (2006): Physical geography made Simple	
5	Dayal P. A. (2001): Textbook of Geomorphology	

REFERENCEBOOKS:

1	Dayal.P,(2001)' ATextbookofGeomorphology' ,SecondEdition,ShuklaBookDepot,Patna,India.
2	Richard.H.Bryant(2006):PhysicalgeographymadeSimple.
3	Dr.SavindraSingh,(2003)'PhysicalGeography' ,Revised&EnlargedEdition,Prayag PustakBhavan,Allahabad

WEBRESOURCES:

1	https://researchguides.darth.edu...
2	www.physicalgeography.net/about.html
3	www.4shared.net/physical+geography

MAPPING WITH PROGRAMME OUTCOMES

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	1	2	2	-	1	1	1	1
CO2	3	1	1	1	2	2	1	1	1	1
CO3	3	2	2	1	1	-	1	1	1	1
CO4	3	2	1	1	2	2	1	1	1	1
CO5	3	2	2	1	1	-	2	1	1	1
CO-PO_Total	15	8	7	6	8	4	7	5	5	5
Weightage	3	2	1	1	2	1	1	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

FIRST YEAR-SEMESTER-I

COURSE NAME: CCI STATISTICAL APPLICATIONS IN GEOGRAPHY-I										
COURSE CODE	C	L	T	P	Sem	Credits	INST. HOURS	MARKS		
	Part-3							CI	External	Total
23UG		4			I	4	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To acquire the basic knowledge of data collection									
LO2	To understand the need of basic statistical methods									
LO3	To get the knowledge of Time series and moving average									
LO4	To get the knowledge of diagrammatic representation of statistical methods									
LO5	To acquire the knowledge of statistical analysis									
UNIT	CONTENTS								NO. OF HOURS	
I	Statistics- Definition, Scope and Limitations – Types and Sources of Data – Methods of Collecting Primary Data – Tools for Data Collection – Sources of Secondary Data – Classification and Tabulation of Data.								12	
II	Frequency Distribution - Formation of Frequency Distribution - Presentation of Data. Diagrams: Bar Diagrams and Pie Diagram. Graphs- Histogram - Frequency Polygon - Frequency Curve and Ogives – Finding Median and Mode graphically.								12	
III	Measures of Central Tendency – Meaning – Objectives – Mean, Median, Mode, Geometric Mean and Harmonic Mean – Merits and Demerits – Properties of a Good Measure – The Best Measure among Measures of Central Tendency.								12	

IV	Measures of Dispersion – Meaning - Objectives - Range, Quartile Deviation, Mean Deviation, Standard Deviation and Co-efficient of Variation. The Best Measure among Measures of Dispersion. Skewness and Kurtosis -Definition–Concept of Symmetry and Skewness - Measures of Skewness– Karl Pearson’s Co-efficient of Skewness and Bowley’s Co-efficient of Skewness - Measures of Kurtosis.	12
V	Probability -Concept–Basic Concepts–Types of Events–Mathematical and Statistical Definitions of Probability – Conditional Probability – Addition and Multiplication Theorems (Without Proof)–Problems based on these theorems.	12

CO	COURSE OUTCOMES	K level
CO1	To Understand the purpose of data collection and its sources	K1 K2 K3 K4
CO2	The sampling is very essential to choose according to the types of data types and the purpose of the study	K1 K2 K3 K4
CO3	To understand of fact hypothesis testing and need of hypothesis in research analysis	K1 K2 K3
CO4	To explore the types of hypothesis and its significance and confidence level	K1 K2 K3 K4 K5
CO5	To examine the relationship between parametric and non-parametric procedures	K1 K2 K3 K5 K6

TEXTBOOK:

1	S.P. Gupta (2012). Statistical Methods, Sultan Chand & Sons, New Delhi, 42 nd revised Edition.
2	Gupta, S.C. and Kapoor V.K. (2018)- Fundamentals of Mathematical Statistics, Eleventh Edition, Sultan Chand & Sons, New Delhi.

REFERENCE BOOKS:

1	P.R. Vittal- Business Statistics, Margham Publications, Chennai.
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2	P.A.Navneetham(2008).BusinessMathematics&Statistics,JaiPublishers,Trichy.
3	GoonA.M.,GuptaM.K.,andDasGuptaB.(2013).FundamentalsofStatistics,Vol.1,WorldPress PrivateLtd,Calcutta.

WEBRESOURCES:

1	RelatedOnlineContents[MOOC,SWAYAM,NPTEL,Websitesetc.]
2	https://nptel.ac.in/courses/111/105/111105041/
3	https://nptel.ac.in/courses/111/106/111106112/

	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	2	1	3	1	1	2	1	1	2
CO2	3	2	1	3	1	1	2	1	1	2
CO3	3	2	1	3	1	3	2	1	1	2
CO4	3	2	1	3	1	1	2	1	1	2
CO5	3	2	1	3	1	3	2	1	2	2
TOTAL	3	2	1	2	1	2	2	1	1	2
Weightage	3	2	1	2	1	2	2	1	1	2

S-STRONG-3,MEDIUM-2,LOW-1

FIRSTYEAR-SEMESTER I

COURSENAME: Practical–I-MAPPINGTECHNIQUES										
COURSE CODE	Category	L	T	P	S	Credit	TOTAL HOURS	MARKS		
	Part-3							CIA	External	Total
23UG	Elective–I	3			I	3	60	25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	To understand the components of Maps and Scale Measurements.									
LO2	To illustrate and examine the Representation of the direction on Maps.									
LO3	To elaborate on the need for conventional signs and symbols in Map.									
LO4	To enhance techniques applied in the Representation of relief on maps.									
LO5	To introduce the mapping techniques applied to interpret contours.									
UNIT	CONTENTS								NO.OF HOURS	
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	
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	
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	
IV	Representation of relief on maps: Spot heights, bench mark, triangulation station-layers shading-Hachuring, hill shading and Contours-Interpolation of contours.								12	
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–Composite).								12	

CO	COURSE OUTCOMES	K level
CO1	<p>Outline the Map components, Explain the Maps and Types of Maps. Construct Scale and how it is important to explore their knowledge in Representative fraction and Statement of the scale. Distinguish and Examine the Types of scales especially Plain scales Pace scale and Time scale. PO1 PO2. Understands the Purposes of which is essential to choose Comparative Scale. PO8 Acquire the knowledge through learning on Diagonal scale. PO3, PO4 PO5</p> <p>Group Activity: Students will compare maps with Atlas and will learn about the scales given in the Atlas</p>	K1 K2 K3 K4 K5 K6

CO2	Recall Representation of direction on maps. List and Infer the Directions, True north, Grid, Magnetic north Magnetic declination and Bearings. Distinguish the Latitude and Longitude Classify and Compile the International dateline and the International Time Calculation. Develop the skills of Map setting in the field–Map reading PO3, PO8, Identify.k3. Examine the relationship between PO10, activity given for time calculation PO5, PO6	K1 K2 K3 K4 K5
CO3	Relate and Show the Conventional signs and symbols. Calculate the Measurement of distance (Thread- Divider and Opisometer) and Evaluate Measurement of area (Graphical and strip method). Selecting and measuring the Enlargement and Reduction of maps and Combination of Maps PO3, PO6, PO8 . Students will measure the distance and area of the maps.	K1 K2 K4 K5
CO4	Explore the Representation of relief on maps, Spot heights, Bench Mark, triangulation station. Outline the layer shading and Calculate the Interpolation of contours. K4, PO5, PO6, PO8, PO10 . Acquire the knowledge to classify the distribution maps	K1 K2 K3 K4
		K5
CO5	Explains the Contour section drawing. Construct the Types of slopes (Uniform, Concave and Convex). Select and Prepare the contour section for all the features like Hill, Plateau, Ridge, Escarpment, V-shaped Valley, Waterfalls and Sand dunes). Draw Profiles for serials superimposed, projected, composite). PO7, PO5 Activity: Students will draw the contour sections and Profiles.	K1 K2 K3 K4 K5 K6

TEXTBOOK:

1	Khan, M.D. Zulfequar Ahmed (1997): Textbook of Practical Geography. Concept Publishing Company, New Delhi.
2	Saha, Pijushkanti (2010): Advanced Practical Geography. Pvt Ltd Books and Allied.
3	R. L. Singh, Rana P. B. Singh (2022) Elements of Practical Geography, Kalyani Publishers

REFERENCE BOOKS:

1	Sarkar. A (1997): Practical Geography- A systematic Approach. Orient/Blackswan Private Limited
2	Bagulia A. M (2006): Practical Geography, Anmol Pyblishers.
3	Khullar D. R (2014): Essentials of Practical Geography, New Academic Publishing Co

WEB RESOURCES:

1	https://uou.ac.in/sites/default/files/slm/CGIS-504.pdf
2	https://www.youtube.com/watch?v=TBxSGbFK8es
3	https://geographypoint.com/2022/08/how-to-do-map-enlargement-and-map-reduction/

CO/PO/PS O	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	1	1	2	1	1	1	1	1
CO2	3	1	1	1	1	1	1	1	1	1
CO3	3	1	1	2	2	1	1	1	1	1
CO4	3	2	2	1	2	1	1	1	1	1
CO5	3	2	2	1	2	1	1	1	1	1
CO-PO_Total	15	7	7	6	9	5	5	5	5	5
3Weightage	3	1	2	1	2	1	1	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

FIRSTYEAR-SEMESTER-I

COURSENAME:BASICTOOLSOFGEOGRAPHY										
COURSE CODE	C	L	T	P	Sem	C	INST. HOURS	MARKS		
								CIA	External	Total
23UG	SEC-1				I	2	30	25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	TolearnthebasictoolsofMapsandVirtualmodels									
LO2	ToenhanceknowledgeAtlasandreadingAtlas									
LO3	TooutlinecomponentsofGlobe									
LO4	Toknowaboutthetwodimensionandthreedimensionmodels									
LO5	ToupdatetheknowledgeonGoogleEarthandBhuvan									

CO	CONTENTS	NO.OF HOURS
1	Tools:Maps–Atlas–2DModels,3DModels-VirtualModels	6
2	Atlas–TypesofAtlas,ReadingAtlas	6
3	ComponentsofGlobe,Earth’sInclination	6
4	Twodimensionandthreedimensionmodels-TypesandImportance	6
5	VirtualModel:GoogleEarth–Bhuvan,2Dviewer,Map	6

CO	COURSEOUTCOMES	K level
CO1	Outline the Map components, Explain the Maps and Types of Maps. Construct Scale and how it is important to explore their knowledge in Representative fraction and Statement of the scale. Distinguish and Examine the Types of scales especially Plain scales Pace scale and Time scale. PO1 PO2. Understands the Purposes of which is essential to choose Comparative Scale. PO8 Acquire the knowledge through learning on Diagonal scale. PO3, PO4 PO5 Group Activity : Students will compare maps with Atlas and will learn about the scales given in the Atlas	K1 K2 K3 K4 K5 K6
CO2	Recall Representation of direction on maps. List and Infer the Directions, True north, Grid, Magnetic north Magnetic declination and Bearings. Distinguish the Latitude and Longitude Classify and Compile the International dateline and the International Time Calculation. Develop the skills of Map setting in the field–Map reading PO3, PO8, Identify. k3. Examine the relationship between PO10, activity given for time calculation PO5, PO6	K1 K2 K3 K4 K5
CO3	Relate and Show the Conventional signs and symbols. Calculate the Measurement of distance (Thread- Divider and Opisometer) and Evaluate Measurement of area (Graphical and strip method). Selecting and measuring the Enlargement and Reduction of maps and Combination of Maps PO3, PO6, PO8. Students will measure the distance and area of the maps.	K1 K2 K4 K5
CO4	Explore the Representation of relief on maps, Spot heights, Bench Mark, triangulation station. Outline the layer shading and Calculate the Interpolation of contours. K4, PO5, PO6 PO8 PO10. Acquire the knowledge to classify the distribution maps	K1 K2 K3 K4 K5
CO5	Explains the Contour section drawing. Construct the Types of slopes (Uniform, Concave and Convex). Select and Prepare the contour section for all the features	K1 K2 K3
	like Hill, Plateau, Ridge, Escarpment, V-shaped Valley, Waterfalls and Sand dunes). Draw Profiles for serials superimposed, projected, composite). PO7, PO5 Activity: Students will draw the contour sections and Profiles.	K4 K5 K6

TEXTBOOK:

1	Misra, R.P. and Ramesh A. (2002) : Fundamentals of Cartography, concept publishing company
2	Arthur Howard Robinson (1995): Elements of cartography, 6 print, J Wiley & sons.
3	Judith A. Tyner (2010): Principles of Map Design, The Guilford press, New York, London.

REFERENCEBOOKS:

1	Gohchenleong(2005)CertificatephysicalandHumangeography,OxfordUniversity Press, India
2	AtlasWorldmapandGK,fourthEdition(2018),DKPublishers

WEBRESOURCES:

1	https://insta.pdf.in
2	https://bhuvan.nrsc.gov.in
3	https://youtu.be/dHOYJPyFnJE?si=C10fMGG9Wz8gwn2g

CO/PO/PS O	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	1	1	1			1	1	1	1
CO2	3	1	1	1			1	1	1	1
CO3	3	1	1	1	2	1	1	1	1	1
CO4	3	1	2	1	1	1	1	1	1	1
CO5	3	2	2	1	2	1	2	1	1	1
CO-PO TOTAL	15	7	7	5	5	3	6	5	5	5
Weightage	3	1	1	1	1	1	1	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

FIRSTYEAR-SEMESTER-I

COURSENAME: EARTH AND ITS SYSTEMS										
COURSE CODE	C	L	T	P	Sem	C	INST. HOURS	MARKS		
								CIA	External	Total
23UG	SEC- 1				I	2	30	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To understand the basic concept of Universe and its Origin and to study about the theories of Evolution: Nebula, Kant and Big Bang Theory									
LO2	To understand Earth and Universe- Solar systems, Milky way Galaxy and Black hole theory and Meteorites									
LO3	To explain the Earth Internal Structure of the Crust, Mantle and Core and to understand the Isostasy and Earth's Magnetism									
LO4	To illustrate about the Earth's Size, Rotation and Revolution, causes for Seasons, Eclipses and Solstice									
LO5	To explain the latitude and longitude, Cardinal points, Greenwich Meridian and Indian Standard Time. Make them to understand of Time calculation									
UNIT	CONTENT								NO. OF HOURS	
I	The Universe and its Origin- Theories of Evolution: Nebula, Kant, and Big Bang Theory								12	
II	Earth and Universe- Solar system- Galaxy (Milky way) – Cosmo -body- Black hole – Meteorites								12	
III	Earth's Internal Structure – Earth's crust, mantle, and core – Discontinuity- Isostasy – Earth's Magnetism								12	
IV	Earth and its Size- Earth Rotation and Revolution – Causes of Inclination – (Seasons, Day and Night) – Summer and Winter Solstice – Eclipses								12	
V	Latitudes and Longitudes – Cardinal Points – Greenwich Meridian – Indian Standard Time- Time Calculation								12	

CO	COURSEOUTCOMES	K level
CO1	Recall the meaning of the universe and its origin. Summarise the theories of evolution, understand the formation of Nebula, Kant and Big bang theory PO1 PO2 Group activity to present ppt on this topic (PO7). COURTESY: https://www.slideshare.net > present. Big Bang Theory/PPT	K1 K2 K3 K4
CO2	Relate earth and universe. Classify and distinguish the solar system-galaxy (milky way) – cosmo-body - black hole – meteorites COURTESY: https://anvari.net > Astronomy	K1 K2 K3 K6
	Student Activity: Students will create models of Solar system. Students will debate cosmo body and black hole.	
CO3	Differentiate the earth's internal structure – earth's crust, mantle, and core – discontinuity-isostasy – identifies earth's magnetism. PO1PO2PO4PO5PO7PO8PO1 COURTESY: https://www.cusd80.com > lib6PPTEARTH'SINTERIOR Students Activity: Students will prepare seminar	K1 K2 K3 K4
CO4	Understands and appreciates earth and its size, earth rotation and revolution, causes of inclination, (seasons, day and night), summer and winter solstice, eclipses COURTESY: https://www.twinkl.com > resource Earth's Movement: Rotation vs Revolution Group Activity : Students will enact about the earth inclination	K1 K2 K3 K4 K5
CO5	Understands and appreciates the latitudes and longitudes, cardinal points. Greenwich Meridian – Indian Standard Time- Time Calculation Activity-As Part Of Revision Students Conduct Quiz In The Class on this paper PO8 COURTESY: https:// www.orange.k12.nj.us >	K1 K2 K3 K6

TEXTBOOK:

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

REFERENCE BOOKS:

1	Earth Systems models: an overview GMFLATO 2011
2	On the role of Geography in Earth System Science: A.J. PITMAN... Geofourm 2005
3	Gochenleong (2001): Certificate Physical and Human Geography

WEB RESOURCES:

1	https://geography.name/regionalism/
2	https://www.rawatbooks.com/geography/

MAPPING WITH PROGRAMME OUTCOMES

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	2	2	1		1	1	1
CO2	3	2	1		1	1	2	1	1	1
CO3	3	2	2	2	2	1	2	1	1	1
CO4	3	2	2		1	1		1	1	1
CO5	3	2	2	2	2	1	2	1	1	1
CO-PO-Avg	3	2	2	2	2	1	2	1	1	1
CO-PO_Total	15	10	6	8	3	6	5	5	5	6

S-STRONG-3,MEDIUM-2,LOW-1

FIRST YEAR- SEMESTER II

COURSE NAME: CCIII CLIMATOLOGY										
COURSE CODE 23UG	C	L	T	P	S	C	INST. HOURS	MARKS		
	CORE III	5			II	4		CIA	External	Total
								25	75	100

UNIT	LEARNING OBJECTIVES		
LO1	Understand weather and climate, weather elements and their distribution.		
LO2	Understand air pressure, winds, general circulation of winds.		
LO3	To illustrate types of air masses and fronts.		
LO4	To elaborate atmospheric moisture, water cycle and climatic regions.		
LO5	To explain formation of tropical and temperate cyclones, El Niño and La Niña		
UNIT	CONTENTS		NO. OF HOURS
I	Scope and Content – Weather and Climate – Climatic Elements – Atmospheric Composition and Structure – Isolation and Temperature: Factors and Distribution, Heat Budget, Temperature Inversion.		12
II	Atmospheric Pressure and Winds: Planetary Winds, Forces affecting Winds, General Circulation of Air, Jet Streams.		12
III	Air Masses – Classification of Air Masses – Fronts – Classification of Fronts.		12
IV	Atmospheric Moisture: Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions.		12
V	Cyclones: Tropical Cyclones, Temperate Cyclones, Monsoon – Origin and Mechanism, El Niño – La Niña.		12

CO	COURSE OUTCOMES	Klevel
1	Define Climatic and Elements Identify nature, scope and content climate. Demonstrate The Atmospheric Composition and Structure Summarize Factors and Distribution, Heat Budget, Temperature Inversion. Activity: Distribution of Climatic element (PO4, PO9) Courtesy: www.climate.org	K1 K2 K3
2	Atmospheric Pressure and Winds: Planetary Winds, Forces affecting Winds, General Circulation of Air, Jet Streams Discuss Pressure and winds. Explain the Planetary Winds. Classification of air and Jet Stream. Explain the factors affecting winds.	K1, K2 K3, K4 K6
	Activity: Group Discussion on the distribution pattern of pressure and winds. PO1 PO2 PO7 Courtesy: https://www.noaa.gov>weather-and-national-oceanic-and-atmospheric-administration	
3	Explain Air Masses, describe the causes Air Masses. Classification of fronts. Activity: Group Discussion on the distribution of air masses and fronts.	K1, K2 K3, K4
4	Analyse the Atmospheric Moisture, Distinguish Fog and Clouds – Discuss the types of Precipitation. List out the Climatic Regions. Activity: Group Discussion about the climatic Regions. (PO5) Courtesy: www.globalissues.com	K1, K2 K4, K5
5	Identify the types of Cyclones – Discuss the Origin and Mechanism, El Niño – La Niña. Student activity: conduct seminar on the Results and Conclusion of the risk of cyclones.	K1 K2 K4 K5

TEXTBOOK:	
1	Lal D.S (2006): Climatology, Chaitanya Publishing House, New Delhi.
2	Roger G. Barry & Richard J. Cholely, (2002): Atmosphere, Weather and Climate, Seventh Edition, Methuen & 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, Kisalay Publications Pvt Ltd Delhi.

REFERENCEBOOKS:

1	Ahrens, C. D. (2012). Meteorology today: an introduction to weather, climate, and the environment. Cengage Learning.
2	Collins, M., An, S. I., Cai, W., Ganachaud, A., Guilyardi, E., Jin, F. F., ... & Wittenberg, A. (2010). The impact of global warming on the tropical Pacific Ocean and El Niño. Nature Geoscience, 3(6), 391-397.
3	Elizabeth Kolbert, (2006) Field Notes from a Catastrophe: Man, Nature and Climate Change, Bloomsbury Publishing Plc.

WEBSOURCE:

1	www.physicalgeography.net/about.html
2	www.4shared.net/physical+geography .
3	science>earthsciences>geography">books.google.com>science>earthsciences>geography
4	https://en.wikipedia.org/wiki/Tropical_cyclone

MAPPING WITH PROGRAMME OUTCOMES

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	1	1	1	1	1	1	1	1	1
CO2	3	1	1	2	2	1	1	1	1	1
CO3	3	2	1	1	2	1	1	1	1	1
CO4	3	2	1	1	2	1	1	1	1	1
CO5	3	2	1	2	1	1	2	1	1	1
CO-PO_Total	15	8	5	7	8	5	6	5	5	5
Weightage	3	2	1	1	2	1	1	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

FIRSTYEAR-SEMESTER-II

COURSENAME:CC IVCARTOGRAPHY										
COURSE CODE	PART3 CC IV	L	T	P	Sem	Credits	INST. HOURS	MARKS		
								CI A	Externa l	Total
23UG		5			II	4	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	RecalltheHistoryanddevelopmentofCartography.OutlinetheElementsofCartography									
LO 2	ClassifythetypesandComponentsof Maps									
LO 3	UnderstandtheCharacteristicsandPurposeof Maps									
LO 4	ElaboratetheDigitalCartographyandits significance									
LO 5	UnderstandtheimportanceofSoftware'sinCartography									
UNIT	CONTENTS								NO.OF HOURS	
I	Cartography–Definition–History&DevelopmentofCartography–Earthasa Cartographic Problem –Elements of Cartographic Communication								12	
II	Maps–TypesanditsComponents:Scales -Direction–Projection–Conventional Signs & Symbols - Lettering and Symbolization								12	
III	QuantitativeMapsandQualitativeMapsinGeography-Characteristicsand Purpose								12	
IV	DigitalCartographyandRemotesensing–Development&Significance- Aerial Photography and Satellite Imageries - Advantage of Digital Maps								12	
V	RecentTechnologiesinCartography–CAD-GIS-Arc GIS-QGIS– GNSS								12	

CO	COURSEOUTCOMES	Klevel
CO1	Define Cartography – Recall the History andDevelopment of Cartography . Discuss the Earth as aCartographic Problem. List out the Elements of Cartographic Communication (PO1) Courtesy https://geography.wisc.edu	K1 K2 K3 K4
CO2	Outline theMaps. Classify thetypesanditsComponents, Listout theScales,Direction,and Projection. Differentiate Conventional Signs & Symbols. Classify theLettering and Symbolization Activity giventoapplyingacquiredknowledgeofcomponentsofmapsandsignificance of lettering, conventional signs and symbols.PO2,PO4	K1 K2 K3 K4

	Courtesy: https://blog.socialstudies.com/how-to-engage-students-in-map-construction Courtesy http://youtu.be/2U9RK33VWK4	
CO3	Distinguish Quantitative Maps and Qualitative Maps in Geography and List out the Characteristics and Outline the Purpose of Maps. Courtesy https://gis.depaul.edu Students prepare PPT for Qualitative and Quantitative Maps (PO3, PO7)	K1 K2 K3
CO4	Relate the Digital Cartography and Remote sensing. Recall the Development & Significance. Classify the Aerial Photography and Satellite Imageries. Discuss the Advantage of Digital Maps Courtesy http://youtu.be/NiH-Y9KeCbE Group Activity: Students will compare the aerial photos and satellite images and write the interpretation (PO5, PO9)	K1 K2 K3 K4 K5
CO5	Recall and relate Recent Technologies in Cartography – Classify and Compile the GIS software like CAD - GIS- Arc GIS-QGIS – GNSS Courtesy http://youtu.be/n83ZuJWpk_1 Courtesy http://youtu.be/SyvZq2V3SzY Courtesy http://youtu.be/PZ7oUmD5DnU Courtesy: https://www.geoowl.com Group Activity: Students will prepare maps using the open source GIS software (PO5, PO10)	K1 K2 K3 K5 K6

TEXTBOOK:

1	Monkhouse, F.J. and Wilkinson (1994): H.R. Maps and Diagram, Methuen & Co., London.
2	Arthur Howard Robinson (1995): Elements of cartography, 6 print, J Wiley & sons
3	Misra, R.P. and Ramesh A. (2002): Fundamentals of Cartography, concept publishing company

REFERENCE BOOKS

1	Judith A. Tyner (2010): Principles of Map Design, The Guilford press, New York, London
2	Pijushkant Saha and Partha Basu (2010) Advanced Practical Geography, Books and Allied Private limited, Kolkata
3	Singh R. Land Rana P.B. Singh (2014): Elements of Practical Geography, Kalyani Publishers

WEB RESOURCES:

1	https://gacbe.ac.in/pdf/ematerial/18BGE34A-U1.pdf
2	http://www.igntu.ac.in/eContent/IGNTU-eContent-403493872964
3	https://www.e-education.psu.edu/geog160/node/1882

	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	1					1	1	1	1
CO2	3	1	1	1			1	1	1	1
CO3	3	1	2	1	2	1	1	1	1	1
CO4	3	2	2	1	1	1	1	1	1	1
CO5	3	2	2	2	2	1	2	1	1	1
TOTAL	15	7	7	5	5	3	6	5	5	5
Weightage	3	1	1	1	1	1	1	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

FIRSTYEAR-SEMESTER-II

COURSENAME:STATISTICALAPPLICATIONS INGEOGRAPHY-II										
COURSE CODE	Category Part-3 Elective	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG		4			II	3	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To acquire the basic knowledge of data in geography.									
LO 2	To understand the need of basic scales of measurement of data									
LO 3	To get the knowledge of descriptive statistics.									
LO 4	To explore the basic knowledge of dispersion variance.									
LO 5	To acquire the knowledge of sampling and its types..									
UNIT	CONTENTS									NO.OF HOURS
I	Use of data in geography: Spatial and attributed data, geographical data matrix, types and sources of data (Discrete and grouped, primary and secondary).									12
II	Scales of measurement of data-Nominal, Ordinal, interval and ratio. (Distribution of data: Nominal and Binomial).									12
III	Descriptive statistics – frequency distribution (grouped and ungrouped data) measures of central tendency (mean, median and mode)									12
IV	Measures of Dispersion, Variance, Mean, Deviation, Standard Deviation and Co-efficient of variation, chi-square test.									12
V	Types of Sampling-Random, Stratified, Systematic and Purposive.									12

UNIT	COURSE OUTCOMES	K Level
COI	Recall the use of data, understand the difference between spatial data and attribute data, List out the types of data.	K1,K2 K3

COII	Explain the scales of measurement and its types. Discuss the distribution of the data – Nominal and Binomial.	K1, K2 K3, K4
COIII	Recall and explain the Descriptive Statistics- Frequency distribution (mean, median and mode)	K1 K2 K3 K4
COIV	Discuss and elaborate the measures of dispersion and illustrate the Variance, Mean, Deviation, Standard Deviation and Co-efficient of variation, chi-square test.	K1, K2, K3 K4, K5
COV	Explains sampling and its types. Activity: Group discussion on Random, Stratified, Systematic and Purposive.	K1, K2, K3 K4, K5, K6

TEXTBOOK:

1	Zamir Alvi (2002), Statistical Geography: Methods and Applications, Rawat Publishers.
2	Shrikant Karlekar; Mohan (2023), Statistical Analysis of Geographical Data, Diamond Publications Pune.
3	Chandan Surabhi Das (2023), Geospatial Techniques and Research in Geography, Enova Publications.

REFERENCE BOOKS

1	Peter A. Rogerson (2023), Statistical Methods for Geography.
2	S.C. Gupta (2018), Fundamentals of Statistics, Himalaya Publishing House.
3	N. Das (2017), Statistical Methods, Rawat Publishers.

WEB RESOURCES:

1	https://www.statisticalmethodsforgeography.com/geography
2	www.indianmirror.com/geography/geospatialtechniques.html
3	https://www.iasgyan.in/blogs/statistics

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	2	2	1	2	1	1	1
CO2	3	1	2	1	2	1	2	1	1	1
CO3	3	1	1	1	1	1	1	1	1	1
CO4	3	1	1	1	2	1	1	1	1	1
CO5	2	1	1	2	1	1	2	1	1	1
CO-PO_Total	14	7	7	7	8	5	8	5	5	5
Weightage	3	1	1	1	2	1	2	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

FIRST YEAR – SEMESTER II

COURSE NAME: SEC-2(NME)-RECENT TRENDS IN GEOGRAPHY										
COURSE CODE	Category PART 4	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	SEC-2 NME	2			II	2	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To gain knowledge on recent development in Geography									
LO 2	To enrich the spatial organization and its structure									
LO 3	To know the process and forms of Physical Geography and Regional Geography									
LO 4	To widen the knowledge on Post modernism in socio-economic perspectives									
LO 5	To understand the uses of Modern tools and techniques in Geographical study									
UNIT	CONTENTS								NO.OF HOURS	
I	Recent trend of development in geography during 20 th centuries- Paradigms in geography, quantitative revolution, system approach, system analysis.								12	
II	Geography- spatial organization structure, pattern and processes								12	
III	Geography- processes and forms in physical geography – environment and regional geography.								12	
IV	Post modernism and human geography. Political-social-economic, environmental perspective in geography.								12	
V	Changes in modern tools and techniques – GIS, Satellite, Remote Sensing, Digital Photogrammetry, ML & AI, WebGIS, Cloud Computing and Modelling.								12	

UNIT	COURSE OUTCOMES	Klevel
1	Recall and explain the history of geographical growth Classify the Recent trend from 20 th century and describe the current growth Discuss Paradigms in geography, quantitative revolution, system approach, system analysis.	
2	Explain the Geography and its structural development, Demonstrate with some theories on spatial organization discuss how structure, pattern and processes influence Geographical studies	

3	Recall and explain the processes and forms in physical geography– differentiate the growth and structure of environment and regional geography.	
4	Discuss and elaborate the Postmodernism and Illustrate the trending growth of human geography. Explain the Political-social-economic, environmental perspective of geography with recent illustration and theories	
5	Explain the Changes in modern tools and techniques used in geographical Studies demonstrate and summarise the role of recent software GIS, Satellite, Remote Sensing, Digital Photogrammetry in Geographical data ML&AI, WebGIS, Cloud Computing and Modelling adding new dimension of Recent development in the subject matter of Geography	

TEXTBOOK:

1	Adams, W.M.(1990): Green Development, Environment and Sustainability in the Third World, Routledge, London.
2	Chapman, K.(1979): people, Pattern and Process, Arnold Heinemann. Chorley, R.J. and Haggett, P(eds)(1967): Models in Geography, Methuen, London.(U.K.)
3	Cole, J.P.(1981): development gap, John & Wiley and Sons. Deskins, D.R.(jr), Kish, G., Nystuen, J.D. and Olsson G.(1977): Geographic Humanism, Analysis and Social Action, Michigan University.

REFERENCE BOOKS

1	Anit Daiman–2010-Recent trends in Geography
2	Earth Systems models: an overview GMFLATO 2011
3	On the role of Geography in Earth System Science: A.J.PITMA Geofourm 2005

WEB RESOURCES:

1	http://www.geog.com.cn
2	https://www.geographynotes.com/essay/recent-trends
3	https://www.researchgate.net/publication/344149231

CO/PO/PSO	PO									
	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1										
CO2										
CO3										
CO4										
CO5										
CO-PO-Total										
Weightage	3	2	2	2	2	1	1	1	1	1

SEMESTER-II			
SKILL ENHANCEMENT COURSE SEC-1 (NME)			
BASIC GEOGRAPHY FOR NON GEOGRAPHERS			
TEACHING HOURS: 60			
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 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 of 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 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, 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

TEXTBOOK:	
1	Thornbury, W.D. (1960): Principles of Geomorphology, John Wiley and Sons, New York.
2	Savindra Singh (2002): Physical Geography, Prayag Pustak Bhawan, Allahabad.
3	D.S. Lal: Climatology. Sharda Pustak Bhawan
4	D.S. Lal: Climatology. Sharda Pustak Bhawan, 11, University road Allahabad-211002 Edition 2003.

WEBSOURCE:	
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

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skill	2 Skilled communicators	3 critical thinkers and problem solver	4 Sense of inquiry	5 Team players/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/reasoning	9 National and International perspective	10 Life long learners
CO1	3	2	1	2	2	1		1	1	1
CO2	3	2	1		1	1	2	1	1	1
CO3	3	2	2	2	2	1	2	1	1	1
CO4	3	2	2		1	1		1	1	1
CO5	3	2	2	2	2	1	2	1	1	1
CO-PO-Avg	3	2	2	2	2	1	2	1	1	1
CO-PO_Total	15	10	6	8	3	6	5	5	5	6

SECOND YEAR –SEMESTER - III

COURSE NAME: OCEANOGRAPHY										
COURSE CODE	Category	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	Core X	5			V	4	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To introduce ocean and their surface configurations.									
LO 2	To illustrate bottom relief of all oceans and composition of sea water.									
LO 3	To know about the factors affecting temperature and salinity of oceans and their distribution.									
LO 4	To describe the movement in ocean water.									
LO 5	To explain ocean as resource.									
UNIT	CONTENTS								NO. OF HOURS	
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	
II	Bottom Relief of the Pacific, Atlantic and Indian Oceans, Sea water – Composition of sea water.								12	
III	Ocean Temperature and Salinity: Distribution and factors – Horizontal and vertical - Factors affecting temperature and salinity distribution.								12	
IV	Ocean Water Movement – Waves – Tides: Types - Ocean Currents: Types - Currents of Pacific, Atlantic and Indian Oceans.								12	
V	Ocean Deposits: Types - Coral Reefs: Formation and types - Ocean resources and need for conservation - National Institute of Ocean Technology (NIOT).								12	

UNIT	COURSE OUTCOMES	K level
1	<p>Define oceanography, explains distribution of Land and Sea describes the structure and composition of the Ocean floor the oceanic crust, Group Activity makes a model of Ocean Bottom relief. Figure out distribution and surface configuration of ocean floor</p> <p>https://www.pmfias.com/ocean-relief-major-minor-ocean-relief-features</p> <p>PO1 PO2 PO4 PO5</p>	K1,K2,K3 K4,K5
2	<p>Understands the relief features of the major oceans, Describes the composition of sea water</p> <p>Students activity: Create model on ocean Ocean floor project model</p>	K1,K2,K3,K4 K5,K6

3	List out the factors Governing sea Temperature , illustrate the variation in Temperature distribution (Horizontal and Vertical Distribution) defines Salinity analyse the pattern of salinity Distribution	K1,K2,K3 K4,K5
4	Realizes the role of ocean currents and their influence in climate .https://ocean.tamu.edu/about/what-is-oceanography/index.html	K1,K2,K3 K4,K5,K6
5	Define Ocean Deposits List the Types of Coral Reefs discuss the Formation and types - Ocean resources and need for conservation Values the ocean resources and develops involvement in conservation of the resources. Student's Activity: Visit the National Institute of Ocean Technology (NIOT), Chennai	K1K2K3 K4, K5

TEXT BOOK:	
1	Savindra Singh, (2008), Oceanography, Prayag Pushtak 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.

REFERENCE BOOKS	
1	Lal D.S., (1990) Oceanography, Chatianya Publishing House, Allahabad
2	David N.Thomas , Introducing Oceanography, Dunedin Academic Press Ltd, 01-Jun-2021
3	Tom Garrison, Oceanography: An Invitation to Marine Science, Thomson Brooks/Cole, 2005

WEB RESOURCES:	
1	https://www.google.co.in/books/edition/Oceanography_Resources_on_the_Internet/lbdfvgAACA AJ?hl=en
2	https://www.google.co.in/books/edition/Environmental_Oceanography/FkwPEAAAQBAJ?hl=en&gbpv=0
3	https://www.google.co.in/books/edition/Essentials_of_Oceanography/

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO5	PO 6	PO 7	PO8	PO 9	PO 10
CO1	3	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	2	1	2	1	1	1
CO3	3	2	1	1	1	1	1	1	1	1
CO4	3	2	1	2	2	1	1	1	1	1
CO5	3	1	2	2	2	2	1	1	1	1
CO-PO-Total	15	7	6	7	8	6	6	5	5	5
Weightage	3	2	1	1	2	1	1	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

SECOND YEAR –SEMESTER –III

COURSE NAME: EVOLUTION OF GEOGRAPHICAL CONCEPTS										
COURSE CODE	C Part – 3	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	CC – VI	5				4				
			30	25	75		100			
UNIT	LEARNING OBJECTIVES									
LO1	Enriches knowledge on the basic concepts of Geography									
LO 2	Understand the origin of Geographical concepts in terms of graticules, time calculation and revolution of Geographical thought in various phases.									
LO 3	Recall the Modern geographical thought, discuss the various founder of geographical concepts,									
LO 4	Enrich the knowledge on various theories in geography and the recent trend in geography.									
LO 5	Classify the regions and recall the concept and attributes of region									
UNIT	CONTENTS								NO. OF HOURS	
I	Indian Geographical Concepts – Universe and its Origin - Eclipses- Earth and its Size - Latitudes and Longitudes – Cardinal Points – Weather and Climate – Continents Mountains and rivers								6	
II	Earth and Universe- Solar system- Milky way- Galaxy- Cosmo body - Black hole - Meteorites- Earth Rotation and Revolution – Causes – (Seasons Day and Night) Inclination – Time Calculation- Greenwich Meridian – Indian Standard time.								6	
III	Theories in Geography- Nebula – Big Bang Theory Kant- Resent Trends in Geography- Quantitative Revolution- Historical Perspective – merits and demerits of Quantitative methods.								6	
IV	Regional Concepts - Region Definition – Attributes of Region – Classification of Region – Physical Regions – Cultural Regions – Regionalism.								6	
V	Modern Geographical Thought – Founders – Alexander Von Humbolt – Carl Ritter – Charles Robert Darwin.								6	

UNIT	COURSE OUTCOME	K Level
CO1	<p>Recall the geographic location and identifying extent and location of the planets and compare their orbital period and bring out the reason behind evolution of Universe, 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 ,classifying and estimate mountain resource continents and oceans(Students are allowed to estimate the stretch of continents and mountain resources[PO3]) (Interactive session with questions) [PO2] https://exoplanets.nasa.gov/</p>	K1K2K3K4 K5 K6
CO2	<p>explain the solar system and its origin , analyse the changes over the universe periodically , distinguish 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 timeCritically evaluate PO - 3 causes of day and night, recall and Understand PO - 4evaluate the size and position of planets, summarise with importance of direction in Geographical location(Interactive session with questions) [PO2] https://www.texasgateway.org/resource/earth-rotation-and-revolution</p>	K1K2K3K4K5
CO3	<p>Define 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 bring out the historical perspective of geography, discuss the merits and demerits of quantitative revolution - PO -4 explain the Kant and Big bang and Nebula theory of origin of sun, PO -3 summarize how geography has change from qualitative to quantitative methods (Interactive session with questions) [PO2] http://abyss.uoregon.edu/</p>	K1K2K3K4K5
CO4	<p>classifying the regions and recall the concept and attributes of region PO - 4 Assess the importance of resource region PO - 4, classifying the types of region on resource and development basis Analyse the difference between the physical and cultural regions PO – 4 define the regionalism and its concepts (Interactive session with questions) https://www.yourarticlelibrary.com/geography/</p>	K1K2K3K4K6
CO5	<p>Explain the Modern geographical thought, discuss the various founder of geographical concepts, PO-3, discuss the concept of various environmentalist determinist and compare the various contributors , Kant Vonhumbolt and Carl ritter, understand the various perspective of the modern thinkers PO -7, evaluate the enhance of geographical knowledge PO -3, (Interactive session with questions) [PO2]https://www.thoughtco.com/ https://making-science.royalsociety.org/</p>	K1K2K3K4K5 K6

TEXT BOOK:

1	Savindra Singh (2012) : Physical Geography, Prayag Pushtak Bhawan, Allahabad.
2	Majid Hussain (2004): Fundamentals of Physical Geography, Rawat publications.
3	Siddhartha.K & Mukherjee.R (2008): The Earth's Dynamic Surface, Kysala Publications, New Delhi.

REFERENCE BOOKS

1	Hussain Majid (2007): Evolution of Geographical concepts, Rawat Publications, Jaipur.
2	K.Siddhartha and S.Mukherjee (2006) The Dynamics of Earth Surface, Kisalaya Publications.
3	Gochenleong(2001): Certificate Physical and Human Geography, Oxford university press, New Delhi

WEB RESOURCES:

1	https://www.universetoday.com/
2	https://www.universetoday.com
3	https://www.rawatbooks.com/geography/

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	2	1			2	1	1	1
CO2	3	1	2	1	1		1	1	1	1
CO3	3	2	2	1	1	1	1	1		1
CO4	3	2	1	1	1	1	1		1	1
CO5	3	2	1	2	1	1	1	1	1	
GY -AVG	3	2	2	1	1	1	1	1	1	1
GY TOTAL	15	8	8	7	4	3	6	5	5	5

S- STRONG-3, MEDIUM-2, LOW-1

SECOND YEAR –SEMESTER –III

COURSE NAME: PRACTICAL III : REPRESENTATION OF RELIEF, CLIMATE AND SOCIAL										
- ECONOMIC DATA										
COURSE CODE	Category	L	T	P	S	Credit	TOTAL HOURS	MARKS		
	Part -3							CIA	External	Total
23UG	ElectiveIII	4			IV	3	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To understand the representation of Climatic Data									
LO 2	To illustrate the Symbols used to interpret the Weather maps									
LO 3	To differentiate the Socio-economic data using the different methods of Mapping techniques.									
LO 4	To elaborate on the different methods and techniques of map representation									
LO 5	To summarize diagrammatic representation of mapping techniques using computer									
UNIT	CONTENTS								NO. OF HOURS	
I	Representation of climatic data- Climatic graph –Taylor’s Climograph – Hyther graph – Ergo graph –simple wind rose diagrams.								12	
II	Weather symbols – Synoptic weather chart -Interpretation of Indian weatherreport - Weather In sat - Cyclonic track.								12	
III	Representation of socio-economic data- Distribution maps – Dot map – Mono-Circle-Square- Sphere- block pile - Simple pyramid – Flow diagram.								12	
IV	Maps - Isopleth – Choropleth – Choro-schematic – Choro-chromatic - Indexof concentration – Rainfall dispersion diagram – co-efficient of variation- Lorenz curve-Gini coefficient.								12	
V	Diagrammatic representation using computer: Bar diagram (Vertical – Horizontal- Compound and Multiple) – Graphs (simple and poly graph) - Pie – Pictorial-Star diagram.								12	

CO	COURSE OUTCOMES	K Level
1	Define Climatic data. Demonstrate the types of Climatic Graphs. Classify and Construct the type of Climatic graph - Taylor's Climograph – Hyther graph – Ergo graph – Construct simple wind rose diagrams. Activity: Courtesy: www.climate.org	K1K2K3K5 K6
2	Discuss the weather symbols. Interpretation of Indian weather report Explain the Synoptic weather chart. Demonstrate the Weather In sat – Cyclonic track. Activity: using the INSAT pictures from the news papers students will track the cyclonic track. PO1 PO2 PO7 Courtesy: weather-an">https://www.noaa.gov>weather-an National Oceanic and Atmospheric admi.....	K1K2K3K4 K5
3	Define socio-economic data, Make use of the Distribution maps. Classification of Dot map – Mono- Circle-Square- Sphere- block pile - Simple pyramid – Flow diagram. Activity: Students should portray distribution maps (population data).	K1K2K3K4 K5
4	Classify Maps – Differentiate the types of map- Isopleth – Choropleth – Choro-schematic – Choro-chromatic Understand the need for Index of concentration – Rainfall dispersion diagram – co-efficient of variation- Lorenz curve-Gini coefficient.	K1K2K3K4 K6
5	Discuss Diagrammatic representation using computer: Classify and outline Bar diagram (Vertical –Horizontal- Compound and Multiple) – Graphs (simple and poly graph) -Pie – Pictorial-Star diagram.	K1K2K3 K4K5

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.

REFERENCE BOOKS

1	Statistical Data Analysis for the Physical Sciences. Adrian Bevan ISBN : 9781139342810
2	Climate Data and Resources. A Reference and Guide. Edward Linacre 1992, ISBN 9780415057035
3	Climatology: An Atmospheric..... John E Oliver, 1993

WEB RESOURCES:	
1	Climate Data and Monitoring WCDMP_72_TD_1500_en_1.pdf
2	https://link.springer.com/article/10.1007/s41324-022-00497-8
3	Climatic changes-Social aspects-India https://www.workwithdata.com/topic/climatic-changes-social-aspects-india

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	1	2	2	1	2	1	1	1
CO2	3	1	2	1	2	1	2	1	1	1
CO3	3	1	1	1	1	1	1	1	1	1
CO4	3	1	1	1	2	1	1	1	1	1
CO5	2	1	1	2	1	1	2	1	1	1
CO-PO_Total	14	7	7	7	8	5	8	5	5	5
Weightage	3	1	1	1	2	1	2	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

SECOND YEAR – SEMESTER – III

COURSE NAME: SEC – 4 GEOGRAPHY OF TOURISM										
COURSE CODE	Category Part - 4	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	SEC - 4	2			III	2	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To Enrich the knowledge on Growth and development of Tourism									
LO 2	To elaborate on the Types of Tourism.									
LO 3	To elaborate on the Accommodation of Tourism									
LO 4	To understand the Tourism organisation									
LO 5	To acquire knowledge on Tourism promotion									
UNIT	CONTENTS								NO. OF HOURS	
I	Tourism :Growth and development – Modern Tourism Transport-development– Basic components of Tourism – Elements of Tourism.									
II	Tourism – Motivation – Physical – Cultural – Social – Types of Tourism – Leisure – Recreation – Hospitality. Tourist centers – classification – Peter’s Inventory – Geffrey Wall’s Theory.									
III	Accommodation – Emergence of Hotels – Supplementary accommodation – classification – geographic distribution – changing profile – food continental –ethnic cuisines.									
IV	Tourism organisation – International – National – Regional – Local – Public – Private – Travel information – Role of Travel Agency – Guide Services – Soft skills – Role of Soft Skill in Visitor’s service.									
V	Tourism promotion – Advertisement – Public Relations –Tourist Publicity – Mass communication – Role of Handicrafts – Fairs and Festivals, India as a paradise for Tourist – Importance of Tourism in Indian Economy.									

UNIT	COURSE OUTCOMES	K level
1	Defines Tourism :Growth and development , Modern Tourism Transport development Analyze Basic components of Tourism – Elements of Tourism. (PO1,PO2)	K1K2 K3K4
2	Recalls Tourism, Motivation, Physical , Cultural, Social Understands Fertility Types of Tourism Leisure Recreation Hospitality Analyse and Develops Tourist centres classification Peter’s Inventory Geffrey Wall’s Theory.	K1,K2K3,K4 K5,K6
3	Finds Accommodation Emergence of Hotels Supplementary accommodation Compare and Contrast classification geographic distribution changing profile, Understands food continental ethnic cuisines.	K1,K2K3,K4 K5,K6
4	Recalls Tourism organisation International National Regional Local Public Private Compare and Contrast – Travel information Role of Travel Agency Understands Guide Services – Soft skills – Role of Soft Skill in Visitor’s service Activity: Group Discussion on the merits and demerits of selected earch topics. (K1,K2K3,K4K5
5	Finds Tourism promotion, Advertisement Public Relations Tourist Publicity Explains Mass communication Role of Handicrafts Explain Fairs and Festivals, India as a paradise for Tourist – Importance of Tourism in Indian Economy.	K1,K2K3,K4 K5,K6

TEXT BOOKS

1	S.D.Maurya (2017) Population Geography ,Himalaya Publishing House, New Delhi.
2	Siddhartha, K & Mukherjee. S. (2016). <i>Cities, Urbanisation and Urban Systems(Settlement Geography)</i> . Kitabmahal Publishers.
3	R.C.Chandana(2012) Geography of Population, Kalyani Publishing House, New Delhi.

REFERENCE BOOKS

1	Misra M.P. 1978, 1998 ‘Million cities of India’, Vikas Publishing
2	Negi, B.S. 1991 ‘Rural Geography’, Kedarnath & Ramanath, College Road, Meerut.
3	Northem .R.K. 1972 ‘Urban Geography’, John Wiley and Sons, New York.

WEB RESOURCES:

1	https://www.e-education.psu.edu/geog597i_02/node/814
2	www. Geography of Population .wisc.edu/
3	www. Rural Settlements .com

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	2						1	1
CO2	3	2							1	1
CO3	3	2	2	2	2		2	2	1	1
CO4	3		3	3			2	2	1	1
CO5	3								1	1
CO-PO-Total	15	6	7	5	2		4	4	5	5
Weightage	3	2	2	2	2	1	1	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

SECOND YEAR – SEMESTER III

COURSE NAME: SEC – 5: METEOROLOGY AND WEATHER FORECASTING										
COURSE CODE	Category Part -4	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	SEC- 5	2			III	2	30	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To understand the meteorology and the associated features.									
LO 2	To illustrate the difference of weather and climate									
LO 3	To list out the weather phenomena.									
LO 4	To elaborate and understand the meaning of weather forecast and its symbols.									
LO 5	To summarize satellites used to forecast the weather.									
UNIT	CONTENTS								NO. OF HOURS	
I	Meteorology – Meteorological variables-atmosphere, atmospheric pressure, equation of state, heat and energy, moisture variable.								6	
II	Weather and Climate - Sun - Earth System Rotation – Revolution- Seasons Parallelism of the earth Axis. Weather elements - Temperature - Pressure- Wind – Humidity – Rainfall								6	
III	Weather Phenomena - Evaporation - Condensation - Precipitation - Cyclones – Anticyclones - Thunderstorms.								6	
IV	Weather Forecast - Weather Symbols - (Mono - Chromatic and Poly Chromatic) – Forecast Types (Short range, Medium Range, Long range) and methods of Forecasts (Synoptic, Numerical and Statistical).								6	
V	Satellites in Weather Forecasting - Geo Stationary- Weather Watch Satellites								6	

CO	COURSE OUTCOMES	K level
CO 1	<p>Recall the need of the study of Meteorology, understand the different variables required to Meteorology study.(PO1,PO2) Courtesy:https://www.Weather and Climate.com Courtesy:https:// Worldweather.wmo.intCourtesy: https://www.nasa.gov.com Student Activity: Student will have Question session to understand the basic PO4 concepts of weather. Teaching aid- Globe, Quiz will also conducted. PO5</p>	K1 K2 K3 K5 K6
CO 2	<p>Define the Weather and Climate. Explain the sun and earth rotation system. Understands the Seasons and Parallelism of the earth Axis.Courtesy:https://public.wmo.int/en Courtesyhttps://severeweather.wmo.int/ Courtesyhttps://public.wmo.int/en/bulletin/meteorological-services-aviation Student Activity: Students will prepare an Assignment. Students are instructed to prepare a chart using Collage work or ppt</p>	K1 K2 K3 K4 K5
CO3	<p>Recall the Weather phenomena. Discuss the Evaporation .Categorize and Explain the Condensation. Recall and explain the Precipitation. Differentiate Cyclones and Anticyclones , Thunderstorms Courtesy : https://youth.wmo.int/ Courtesy:https://www.usgs.gov/special-topic/water-science- schoolCourtesy https://www.sciencedaily.com/terms/evaporation.html Student Activity: Students will prepare the report based on the INSAT maps and Observe the Cyclonic track during monsoon season</p>	K1K2 K4K5 K6
CO4	<p>Understand the Weather Forecast Interpret the Weather Symbols (Mono-Chromatic and Poly Chromatic) Classify the Forecast Types (Short range, Medium Range, Long range) and methods of Forecasts (Synoptic, Numericaland Statistical) Courtesy:https://weather.com/en- Courtesy https://www.windy.com/?12.900,80.221,5 Courtesyhttps://help.salesforce.com/articleView?id=sf.forecasts3_forecast_types_overview.htm&type=5 https://www.weather-forecast.com/locations/Madras/forecasts/latest</p>	K1K2 K3K4 K5
CO5	<p>Understand Satellites in Weather Forecasting Examine Geo Stationary Survey Weather Watch Satellites Courtesy : https://www.isro.gov.in/applications/weather-forecasting https://youth.wmo.int/en/what-we-do/weather https://www.weather.gov/about/satellites http://cimss.ssec.wisc.edu/SCALE/grade5/satellites.html Student group Activity: Student prepare an assignment and present seminar</p>	K1,K2 K3,K4 K5, K6

TEXT BOOKS

1	Barry, B.G and R.J Chorley (1976) Atmosphere, Weather and Climate Methuen
2	P.A.Menon (1989) Our Weather' National Book Trust, New Delhi.
3	D.S. Lal (2001) Climatology, Chaitanya Publishing House, New Delhi

REFERENCE BOOKS

1	Goh Cheng Leong (2001) Certificate Physical and Human Geography, Oxford University press, New Delhi
2	Introducing Meteorology: A Guide to the Weather (Introducing Earth and Environmental Sciences) Jon Shonk February 2020, ISBN-13978-1780460918
3	Climatology : Atmosphere Weather Climate Paperback – 1 January 2018, by K. Siddhartha ISBN-13978-8122508024

WEB RESOURCES

1	https://mausam.imd.gov.in/srinagar/img/wd.pdf
2	https://www.quora.com/What-is-the-difference-between-weather-and-meteorology
3	https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/meteorology-and-climatology

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	1	1	1	1	1	2	1	1	1
CO2	3	1	1	1	1	1	2	1	1	1
CO3	3	1	2	1	2	1	1	1	1	1
CO4	3	2	1	1	2	1	1	1	1	1
CO5	3	2	1	2	2	1	1	1	1	1
CO-PO_Total	15	7	6	6	8	5	7	5	5	5
Weightage	3	1	1	1	2	1	2	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

SECONDYEAR–SEMESTER–IV

COURSE:CCVIIPOPULATIONANDSETTLEMENTGEOGRAPHY										
COURSE CODE	Category PART-3	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	CORE	5			IV	4	60	25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	To Enrichthe knowledgeonScopeandSignificance ofPopulationGeography									
LO2	Toillustrateonthe Components ofDemography									
LO3	ToelaborateonRuralandUrbanSettlements									
LO4	TounderstandtheFunctionalclassificationoftownsandvillages									
LO5	ToacquireknowledgeonHousingandHouseTypes, Factorsinfluencinghousetypes.									
UNIT	CONTENTS								NO.OF HOURS	
I	Nature,ScopeandSignificanceofPopulationGeography– TheoriesofPopulationGrowth– Malthustheory,Optimumtheory,theoryofDemographic Transition.									
II	ComponentsofDemography:Fertility,Mortality,Sexratio- WorldTrendofPopulationGrowth-WorldPopulationDistribution- DensityPatterns.									
III	RuralandUrbanSettlements:Site–Situation–Pattern– FormsandFunctionsPlannedSettlement– RankSizerule.Migration:CausesofMigration,Emigrationversus Immigration,Laws ofMigration.									
IV	Functional classification of towns and villages:Size of village,Size anddistribution of hamlets, Character of villages and village sites; Functionalclassificationofurbancenters,Functionalstructureofcities,megacities and megapolisinIndia.									
	Housing and House Types, Factors influencing house type – Relief, Climate,Socioeconomicandotherfactors,BuildingmaterialsforHousetypes– Walls,Roofing, Typesofruralandurbanhouses inIndia. Materials.TypesofHousesinIndia-									

UNIT	COURSE OUTCOMES	K level
1	Defines Nature, Scope and Significance of Population Geography – Explains Theories of Population Growth – Analyze Malthus theory, Optimum theory,theoryofDemographicTransition.(PO1,PO2)	K1 K2 K3 K4
2	Recalls ComponentsofDemography: Understands Fertility,Mortality,Sexratio -WorldTrendofPopulationGrowth- AnalyzeandDevelops WorldPopulationDistribution-DeterminesDensityPatterns.	K1 K2 K3,K4 K5,K6
3	Recalls Rural and Urban Settlements : Site – Situation – Pattern – Compare andContrast Forms and Understands Functions Planned Settlement – Rank Sizerule. Migration: Causes of Migration, Emigration versus Immigration, Laws ofMigration. Activity:GroupDiscussiononthemeritsanddemeritsofselectedresearchtopics.(PO5)	K1,K2 K3,K4 K5,K6
4	Finds the concept Functional classification of towns and villages: Compare andContrast Sizeofvillage,Sizeanddistributionofhamlets, Understands Charactero fvillagesandvillagesites; Explains theFunctionalclassificationofurban centres,Functionalstructureofcities,megacitiesandmegapolisinIndia.	K1,K2 K3,K4 K5
5	Finds Housing and House Types, Factors influencing house type – Explains theRelief,Climate,Socioeconomicandotherfactors,BuildingmaterialsforHousetypes – Walls, Roofing, Materials. Explain Types of Houses in India-Types ofruralandurbanhousesinIndia. (PO4,PO10)	K1,K2 K3,K4 K5,K6

TEXTBOOKS	
1	S.D.Maurya(2017)PopulationGeography,HimalayaPublishingHouse, NewDelhi.
2	Siddhartha,K&Mukherjee.S. (2016). <i>Cities, UrbanisationandUrbanSystems(Settlement Geography)</i> . KitabmahalPublishers.
3	R.C.Chandana(2012)GeographyofPopulation,KalyaniPublishingHouse, NewDelhi.

REFERENCEBOOKS	
1	MisraM.P.1978,1998‘MillioncitiesofIndia’,VikasPublishing
2	Negi, B.S.1991‘RuralGeography’,Kedarnath&Ramanath,CollegeRoad,Meerut.
3	Northem.R.K.1972 ‘UrbanGeography’,John Wileyand Sons,NewYork.

WEBRESOURCES:	
1	https://www.e-education.psu.edu/geog597i_02/node/814
2	www.GeographyofPopulation.wisc.edu/
3	www.RuralSettlements.com

SECONDYEAR– SEMESTER -IV

COURSENAME:CCVIII GEOGRAPHY OF INDIA										
COURSE CODE	Category PART 3	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	CC	5			IV	5	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To understand the Physiographic of India.									
LO2	To illustrate and examine the climatic data and Distribution of Rainfall									
LO3	To elaborate on the Geographical Requirements of Crops.									
LO4	To enhance Metallic and Non Metallic Minerals.									
LO5	To introduce the Distribution Density and growth Population.									
UNIT	CONTENTS								NO. OF HOURS	
I	Location – Frontiers- Neighbouring Countries- Physiography(Himalayas- Plateau -Western Ghats and Eastern Ghats - Rivers – Northern Rivers and Southern Rivers – East Coastal Plain, West coastal plain and Islands								12	
II	Climate: Seasons, Monsoons, Rainfall Pattern and Distribution of Rainfall. Soil: Types of Soil - Mountain Soil, Alluvial Soil, Desert Soil, Black Soil, Laterite Soil, Red Soil. Natural Vegetation: Tropical Forest, Sub Tropical Forest, Evergreen Forest, Mangrove, Thorny Forest- Fauna and its types.								12	
III	Agriculture–Geographical Requirements of Crops–Rice- Wheat Oilseeds –Sugarcane–Cotton- Jute- Tea–Coffee–Rubber–Livestock– Fisheries- Agricultural Problems– Monsoon vagaries–Irrigation–Types– Multipurpose Projects								12	
IV	Minerals–Metallic and Non Metallic Minerals- Iron–Manganese–Bauxite- Copper- Mica- Illuminite- Energy (Hydel, Thermal and Atomic) (Significance of non- conventional energy sources)- Industries- Iron & Steel– Textiles – Paper — Ship building – Locomotives – Cement – Fertilizer- (Major Industrial regions of India)								12	
V	Population–Distribution- Density and growth–Population Problems–Transport– Roadways–Railways–Waterways–Airways–Ports and Harbours- Trade–Export and Import.								12	

CO	COURSE OUTCOMES	K level
CO1	<p>Recall the Geographic location and Compare the neighbouring countries and its strategic importance. Classifying the nature and extent of Himalayan ranges, identifying the resources of various elevation. Outline the Western Ghats and eastern Ghats and Plateaus. Compare the northern perennial and southern non-perennial rivers and assess the coastal stretch and its importance of Coastal plains, Estimate Island resources. (Students are allowed to estimate the water and land resources [PO3]) (Interactive session with questions) [PO2] Courtesy: https://www.jagranjosh.com/general-knowledge/summary-on-the-physiography-of-india</p>	K1 K2 K3 K4 K5 K6
CO2	<p>Distinguish the concept of climate and weather; explain the intensity of Indian Monsoon, Evaluate the amount and pattern of rainfall, Summarise the distribution of various soils over the region. Critically evaluate Natural vegetation especially the types of forests (PO3 PO4). Recall the animal resources, (Interactive session with questions) [PO2] Courtesy: https://www.futurelearn.com/info/blog/cyclones-in-india-weather-preparation-recovery</p>	K1 K2 K3 K4 K5
CO3	<p>Define 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 (PO4) Explain the type of irrigation, assess the hydroelectric power generation, PO -3 summarize the various purpose of the project (Interactive session with questions) [PO2] Courtesy: http://www.un-csam.org/</p>	K1 K2 K3 K4 K5
CO4	<p>Classifying the minerals. Distinguish metallic and non-metallic, estimate the Hydel power generation PO - 4 Assess the thermal power and atomic power generation PO - 4, Analyse the major Industrial regions and its importance in economic growth PO- 4. Discuss the growth of iron steel industries of India (Interactive session with questions) [PO2]</p>	K1 K2 K3 K5 K6

	Courtesy: http://studymaterial.unipune.ac.in	
CO5	<p>ExplaintheDemographyofIndia,EstimatingthePopulationdistribution,Density andGrowthPO-3,DiscussthePopulationproblems,Comparethemeansof transport,UnderstandthestrategicimportanceofSearoutesandAirports.PO-7,EvaluatetheimportsandexportsPO-3,Rememberthemajorandminor PortsandimportancePO7 (Interactivesessionwithquestions)[PO2]</p> <p>Courtesy: https://www.theigc.org/ Courtesy: http://egyankosh.ac.in/</p>	K1 K2 K3 K4 K5 K6

TEXTBOOKS	
1	Hussain,Majid.(2018).GeographyofIndia.McGrawHillEducation(India)Privatelimited,Chennai
2	Khullar,D.R.(2014):IndiaaComprehensiveGeography,KalyaniPublishers, Edition03
3	Tiwari,R.C(2010)GeographyofIndia,PrayagPustakBhawan, Allahabad

REFERENCEBOOKS	
1	R.LSingh(1993)India:AREgionalGeography,NationalGeographicalSocietyofIndia
2	RanjitTirtha(2002)GeograpyofIndia,RawatPublications,India
3	ChandraVijayPurty(2011):GeographyofIndia,ABD Publishers

WEBRESOURCES	
1	https://www.mapsofindia.com/geography
2	www.indianmirror.com/geography/geography.html
3	https://www.iasgyan.in/blogs/mineral-distribution-in-india

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	1	1	1	1	1	2	1	1	1
CO2	3	1	1	1	1	1	2	1	1	1
CO3	3	1	2	1	2	1	1	1	1	1

CO4	3	2	1	1	2	1	1	1	1	1
CO5	3	2	1	2	2	1	1	1	1	1
CO-PO_Total	15	7	6	6	8	5	7	5	5	5
Weightage	3	1	1	1	2	1	2	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

SECONDYEAR-SEMESTER- IV

COURSE:PRACTICAL-IV:MAPPROJECTIONANDSURVEYINGTECHNIQUES										
COURSE CODE	Category PART-3	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	ELE-IV	3		IV		3	60	25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	To appreciate the choice of projection for various purpose.									
LO2	To develop the skillson various surveying techniques.									
LO3	To update the knowledge on the usage of GPS.									
LO4	To get depth knowledge to construct international projection and Choice of Projection.									
LO5	To acquire the basic knowledge of survey techniques									
UNIT	CONTENTS									NO.OF HOURS
I	Map projection-Construction-Properties and utilities-Conical Projection- One standard Projection-Two standard parallel Projection-Bonne's projection and Polyconic projection.									
II	Construction of Cylindrical Projection-Equal area Projection-Equidistant Projection- Mercator's Projection.									

III	Zenithal Projection (Polar case) Gnomonic, Stereographic–Orthomorphic world projection–Molleweide–Sinusoidal-International projection-Choice of projection.	
IV	Simple methods of surveying–Chain (open and closed)–Prismatic compass (open and closed).	
V	Plane table survey-Open and Closed Travers–Clinometer-Dumpy level–GPS, Survey with GPS.	

CO	COURSE OUTCOMES	K level
CO1	<p>Recalls the uniqueness of each projection and significance of each projection- lists out types of projections -able to construct Conical One standard Projection and Two standard parallel Projection - the properties and uses of each projection- differentiate Bonne’s projection and Polyconic projection their construction, properties and uses. PO4 PO7 PO9 PO10</p> <p>https://www.geographyrealm.com/types-map-projections/http://geokov.com/education/map-projection.aspx</p>	K1 K2 K3 K4
CO2	<p>Understands the concept of Cylindrical Projection– able to construct Equal area Projection, Equidistant Projection and Mercator’s Projection-distinguishes between the three types, their properties and uses PO4 PO7 PO9 PO10http://www.radicalcartography.net/index.html?projectionref http://mathworld.wolfram.com/Topics/MapProjections.html</p>	K1 K2 K3 K5
CO3	<p>Appreciates the concept of Zenithal Projection, (Polar case) able to construct Gnomonic, Stereographic and Orthomorphic projections-Recognizes the importance of world projection able to construct Molleweide, Sinusoidal and International projection-Analyze and evaluate Choice of projection PO4 PO7 PO9 PO10 http://www.csiss.org/map-projections/https://www.e-education.psu.edu/geog486/node/677 https://www.gistda.or.th/main/en/node/955</p>	K1 K2 K3 K4 K6
CO4	<p>Briefs about Simple methods of surveying Individual candidate is able to do Chain (open and closed) and Prismatic compass (open and closed). PO4 PO5 PO7 PO9 PO10 Curtesy https://www.youtube.com/watch?v=mnnOPTlvOIUhttps://civildjungle.com/chain-surveying/ https://www.civilknowledges.com/prismatic-compass-surveying-parts-uses/</p>	K1 K2 K3 K5 K6
CO5	<p>Individual candidate is able to do Plane table survey- Open and Closed Travers, Clinometer - Dumpy level and Survey with GPS. PO4 PO5 PO7 PO9 PO10https://civilseek.com/plane-table-surveying/http://www.fao.org/3/w8297e/w8297e05.htm https://www.icsm.gov.au/about</p>	K1 K2 K5 K6

TEXTBOOK:	
1	Khan,ZulfequarAhmedM.D(1997):TextbookofPracticalGeography,ConceptPublishing Company, NewDelhi.
2	BaguliaA.M(2006) : PracticalGeography,AnmolPublishers.
3	Saha,Pijushkanti(2010)”AdvancedPracticalGeography,BooksandAlliedpvtLtd.

REFERENCE:	
1	SinghR.L.andKanonjia(1978):MapWorkandPracticalGeography, LondonPress,London
2	MonkhouseF.J.and Wilkinson(1994) :H.R.MapsandDiagram,Methuen&Co.,London.
3	RobinsonA.H. et al(1995)ElementsofCartography,WileySons,NewYork.

WEBSOURCE:	
1	https://www.geographyrealm.com/types-map-projections/
2	http://geokov.com/education/map-projection.aspx
3	http://www.radicalcartography.net/index.html?projectionref

CO/PO/PSO	PO									
	Po1	Po2	Po3	Po4	Po5	Po6	Po7	Po8	Po9	Po10
CO1	3	1	1	1	1		1	1	1	1
CO2	3	1	1	1			1	1	1	1
CO3	3	2	2	2	2	1	1	1	1	1
CO4	3	2	2	2	2	1	1	1	1	1
CO5	3	2	2	2	2	1	1	1	1	1
CO-PO-Avg	3	2	2	2	2	1	1	1	1	1
CO-PO_Total	15	8	8	8	7	3	5	5	5	5

S-STRONG-3,MEDIUM-2,LOW-1

SECONDYEAR-SEMESTER -IV

COURSENAME:SEC- 6-POLITICALGEOGRAPHY										
COURSECODE 23UG	C	L	T	P	S	C	INST.H OURS	MARKS		
								CIA	External	Total
	SEC-6	2					2	60	25	75
UNIT	LEARNINGOBJECTIVES									
LO1	ToacquirebasicknowledgeonthePoliticalGeography									
LO2	ToelaboratethespatialdistributionofCoreAreasofPoliticalGeography									
LO3	TodiscusstheimportanceofBoundariesandFrontiers									
LO4	ToelaborateonGeographyofElections									
LO5	ToillustratethePoliticalGeographyofIndia									
UNIT	CONTENTS						NO.OF HOURS			
I	PoliticalGeography:Definition,Scope,ContentandDevelopm ent–Geopolitics-State:Categories-Powersand Functions-NationsandNationalism.						12			
II	CoreAreas:Types–Capitals:Types- Morphologicalclassification - Factors of Development, Federal Capitals –NewandNeutralCapitals–CapitalsinPost- 1945 federations.						12			
III	BoundariesandFrontiers:Definition–Classification: GeneticandFunctional– MorphologicalClassification(BufferZone–Land lockedCountries)–BorderDisputes.						12			
IV	ElectoralGeography:GeographyofElections–Election Campaigning-VotingPattern-Voters’Participation– GerryMandering–ElectionCommission.						12			
V	Political Geography of India: Integration of Indian States:Integration of Sikkim – India’s Bilateral Relationship withPakistanandSriLanka–SAARCCountries- India’s ForeignPolicies.						12			

UNIT	COURSE OUTCOMES	K level
1	Broadens the knowledge of the Concepts of Political Geography understands Geopolitics	K1 K2 K3 K4
2	Enhance the knowledge about the Core Areas of Political Geography, differentiates Capital types	K1 K2 K3 K4 K5
3	Enriches the knowledge about the importance of Boundaries and Frontiers. List out the Classification of Boundaries and identifies the Border disputes	K1, K2 K3, K5
4	Obtain the knowledge on Geography of Elections, Voting patterns. Analyse the Election Commission.	K1, K2, K4 K5, K6
5	Acquire the information about the indicators – Political Geography of India. List out the SAARC countries and discuss their Polices	K1, K2 K3, K5 K6

TEXTBOOK:	
1	Dwivedi, R.L. (2014). <i>Fundamentals of Political Geography</i> . Chaitanya Publishing House, Allahabad.
2	Adhikari, Sudepta. (2009). <i>Political Geography of India - A Contemporary Perspective</i> . Sharada Pustak Bhavan, Allahabad.
3	Sudeeptha Adhikari, (2004), <i>Political Geography</i> , Rawat publications, New Delhi.

REFERENCE BOOKS:	
1	Dikshit, R.D. (1982). <i>Political Geography: A contemporary perspective</i> , McGraw Hill Publishing co., New Delhi.
2	Dr. Monika Kannan (2018). <i>Political Geography</i> :
3	Peter J. Taylor (1985) <i>Political Geography: World-Economy, Nation, State and Locality</i>

WEBSOURCE:	
1	https://slcc.pressbooks.pub/humangeography/ part
2	https://www.eolss.net/sample-chapters
3	https://researchguides.dartmouth.edu/human_geography/political

CO/PO/PSO	PO									
	1	2	3	4	5	6	7	8	9	10
CO1	3	2		2			3	1	2	2
CO2	3	1	2	2	2		1	1	1	1
CO3	3	2	2	2	2		3	2	1	2
CO4	3	2	3	2	2		2	2	1	2

CO5	3	2	2	3	3		3	2	1	2
AVG	3	2	2	2	2		3	2	2	2
TOTAL	15	9	9	11	9		12	8	6	9

S-STRONG-3,MEDIUM-2,LOW-1

THIRD YEAR –SEMESTER -V

COURSE NAME :CC IX - BASIS OF GIS										
COURSE CODE	Category	L	T	P	S	Credits	TOTAL HOURS	MARKS		
	PART -3							CIA	External	Total
23UG	CC -IX	5			V	5	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To acquire the knowledge on the history and development of GIS and its concepts.									
LO 2	To understand Maps and GIS and its types with Geo referencing									
LO 3	To explain the importance of data sources, Aerial photos, Satellite Imageries.									
LO 4	To discuss the Basic Data Models and Data base management									
LO 5	To explore the application of GIS and its software's									
UNIT	CONTENTS									NO. OF HOURS
I	Geography as Spatial science and GIS concepts: Introduction - Definition – History and development of GIS – Components: Hardware, Software, Procedure, Data and Users – Digital Cartography									12
II	Basic Data Models: Spatial and Non-spatial Data – Raster and Vector Data – Advantages and Disadvantages of Raster and Vector GIS									12
III	Data Base Management System (DBMS): structure, functions and organizational aspects – RDBMS-GIS software: Data Storage -Analysis-Buffering –Overlay									12
IV	GIS Software and modules : CAD- GIS-ARC GIS, ARC VIEW, MAP INFO,GRASS and QGIS - Network, TIN, DTM,DEM &Recent trends in GIS									12
V	GIS application: Agriculture, Environmental and National Resources Management, Planning and Engineering, Land Information System, Urban Planning, Disaster and water resources.									12

UNIT	COURSE OUTCOMES	K level

1	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, List the Components-Hardware, Software, understands the Procedure, differentiate Data types and Users, realize the significance of Digital Cartography Group Discussion Hardware and software PO-4 PO-5 P0-6 PO-7 PO-8 PO-9 PO-10. COURTESY: https://www.esri.com/en-us/what-is-gis/overview	K1 K2 K3 K4, K5,K6
2	List Basic Data Models, (Spatial and Non-spatial Data, Raster and Vector Data), compares Advantages and Disadvantages of Raster and Vector GIS, Evaluate types of Database (Hierarchical, network, relational and object oriented.) Individual seminar on any one of the sub topic PO1 PO2 PO7 PO9 PO10 courtesy: https://desktop.arcgis.com/en/arcmap/latest/manage-data/geodatabases/design-data-types-in-the-dbms.htm	K1 K2 K3 K6
3	Appreciate and recalls Data Base Management System (DBMS): structure, functions and organizational aspects – RDBMS Assess and understand Data Storage -Analysis-Buffering –Overlay	K1,K2 K3,K4 K5K6
4	List and understands the GIS Software and modules : CAD- GIS-ARC GIS, ARC VIEW, MAP INFO,GRASS and QGIS – List modules Network, TIN, DTM,DEM &Recent trends in GIS	K1 K2 K5
5	Summarise GIS application (Environmental and National Resources Management, Planning and Engineering, Land Information System, Urban Planning).PO1 PO2 PO5 PO6 PO7 PO8 PO 10 Group activity to present seminar on any one topic. courtesy: https://grindgis.com/blog/gis-applications-uses	K1 K2 K5 K6

TEXT BOOKS

1	Anji Reddy. M. (2001): Remote sensing and Geographical information system, BS publication, Hyderabad.
2	Burrough P.A & McDonnell (1998):Principles of Geographic Information System, Oxford University Press.
3	Siddique M.A.(2006): Introduction to Geographic Information Systems, Sharda Pustak Bhawan, Allahabad

REFERENCE BOOKS

1	Chandra A.M. & Ghosh.S.K. <i>Remote Sensing and Geographic Information System</i> . Narosa Publishing House (2016).
2	Bhatta, Basudeb, <i>Remote sensing and GIS</i> , NewDelhi. Oxford University Press /Radha press (2011).
3	Siddique, Dr. M.A. <i>Introduction to Geographic Information Systems</i> . Allahabad. ShardaPustakBhawan, (2006).
4	Clarke. <i>Getting started with Geographical Information systems</i> . New Jersey. Prentice Hall, (2001).

WEB RESOURCES:	
1	wamis.org/agm/pubs/agm8/Paper-6.pdf
2	http://igre.emich.edu/wsatraining/TManual/Chapter1/Chap1.pdf
3	https://en.wikipedia.org/wiki/GIS_file_formats
4	www.gisinecology.com/Introduction_To_GIS_Software.htm

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	1	1	1	1	-	2	2	1	1
CO2	3	1	1	1	1	-	2	1	1	1
CO3	3	2	2	1	2	2	2	1	1	1
CO4	3	2	2	1	-		2	1	1	1
CO5	3	2	-		1	2	2	1	1	1
CO/PO Total	15	8	7	4	5	4	10	6	5	5
Weightage	3	2	2	2	2	1	1	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

THIRD YEAR –SEMESTER – V

COURSE NAME: CC X - ECONOMIC GEOGRAPHY										
COURSE CODE	Category PART -3	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	CC X	5			V	5	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To recall the Scope and content of Economic Geography and observe the Resource classification.									
LO 2	To examine the factors of agriculture and to describe the distribution of Crops.									
LO 3	To differentiate and classify the Mineral Resources and distribution of Power Resources.									
LO 4	To Compare and distinguish the Industries and Industrial Regions.									
LO 5	To infer and integrate the transport and major importing and exporting trade.									
UNIT	CONTENTS								NO. OF HOURS	
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	
II	Agriculture – Factors affecting Agriculture –Agriculture Region - Food crops and Non -food crops – Distribution and Production of Rice, Wheat, Sugarcane, Pulses - Horticultural crops - Fibre crops (Cotton and Jute)- Beverage crops(coffee, tea, cocoa) spices.								12	
III	Mineral Resources- Types of Minerals – Metallic Minerals, Non-Metallic Minerals- Fuel Distribution of minerals Iron ore, copper, Manganese, aluminium, Mica, Gypsum, Limestone Coal, Petroleum, Natural gas Power resources – Hydel power, Thermal, Atomic power, Geothermal energy.								12	

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, Industrial region.	12
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

CO	COURSE OUTCOMES	K Level
1	Recall the concepts of Economic Geography with its definite scope and content outline the significance of Economic Geography; Infer the importance of resources and it's 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	K1 K2 K3 K4 K5 K6
2	Understands the Agricultural 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	K1 K2 K3 K4 K5 K6
3	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, aluminium, Mica, Gypsum, Limestone Coal, Petroleum , Natural gas Power resources. Hydel power, Thermal, Atomic power, Geothermal energy at national level.	K1 K2 K3 K4
4	Define 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.	K1 K2 K3 K4 K5
5	Recall and relate the Transport and Trade: Transport. Compare and Illustrate 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	K1 K2 K3 K4

	countries of the world	K5
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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.

REFERENCE BOOKS	
1	Ahmad. A (2011) :Economic Geography, Omega publications
2	Goh Cheng Leong (2001) : Human and Economic Geography, Mc grew hill, New Delhi.
3	Knowles.R,Waring.J (1992) Economic and Social Geography,Butterworth –Heinemann limited

WEB RESOURCES:	
1	joeg.oxfordjournals.org/
2	https://www.uou.ac.in/sites/default/files/slm/GE-302.pdf
3	https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=KwH6L

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	1	1	1	1		1	1	1	1
CO2	3	1	1	1	1		1	1	1	1
CO3	3	2	2	1	2	1	2	1	1	1
CO4	3	2	2	2	2	1	1	1	1	1
CO5	3	2	2	2	2	1	2	1	1	1
CO-PO_Total	15	8	8	7	8	3	7	5	5	5
Weightage	3	2	1	1	2	1	1	1	1	1

THIRD YEAR – SEMESTER - V

COURSE NAME: CC – XI - GEOGRAPHY OF TAMIL NADU										
COURSE CODE	COURSE PART -3	L	T	P	S	C	INST. HOURS	MARKS		
								CIA	External	Total
23UG	C C - XI	5			V	5	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To enrich wide and depth knowledge of Political and Physiography of Tamil Nadu									
LO2	To elaborate the Soil profile, natural vegetation and the significant understanding regarding wild life and bird sanctuaries									
LO3	To elucidate the Distribution of Crops and the significance of livestock rearing and Fisheries									
LO4	To explore the knowledge of Minerals and Industries									
LO5	To distinguish the distribution of population and its problems									
UNIT	CONTENT								NO. OF HOURS	
I	Tamil Nadu: Location – Districts of Tamil Nadu - Physiography – Mountains, Plateaus, Plains - Climate – Seasons - South West and North East Monsoon - Cyclonic Rainfall - Distribution of Rainfall- Rivers of Tamil Nadu.								12	
II	Soils – Types of Soil - Natural Vegetation- Forest and its types- Flora and Fauna -Wild life sanctuaries - Bird sanctuaries - Botanical gardens.								12	
III	Distribution of Crops: Food Crops - Paddy, Millets, Pulses, Oilseeds- Cash Crops (Sugarcane, Cotton) - Plantation Crops (Tea, Coffee, Rubber and Spices) – Livestock (cattle, sheep and dairying) – Fisheries(inland and deep sea fishing).								12	
IV	Distribution of Minerals and Industries-Metallic- Non-Metallic (Iron, Manganese, Bauxite, Copper, Mica, Illuminate and power resources) - Agro Based Industries-(Textile, Sugar, Paper) – Cement – Automobile.								12	
V	Population : Distribution – Growth – Density - Population Problems –Transportation- Roadways- Railways- Airports- Ports- Trade (Import and Export)- Special Economic Zones.								12	

UNIT	COURSE OUTCOMES	
CO1	<p>Recall the geographic location and compare the neighbouring countries and compare its strategic importance of Tamil Nadu, classifying the nature and extent of mountain ranges, 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, seas and oceans(Students are allowed to estimate the water and land resources[PO3]) (Interactive session with questions) [PO2] https://www.jagranjosh.com/general-knowledge/summary-on-the-physiography-of-india .https://www.mapsofindia.com/maps/tamilnadu/rivers/</p>	K1 K2 K3 K4 K5
CO2	<p>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 Coramandel coast, Critically evaluate PO - 3 the floods and droughts in Tamil Nadu recall and Understand PO - 4 the Forest and animal resources, summarise the distribution of various soil over the regions of Tamil Nadu Student activity :Interactive session with questions and Group Discussion with poster ppt PO2, PO4,PO5</p>	K1,K2 K3,K4 K5,K6
CO3	<p>Define the agricultural regions, classifying the food crops and non food crops of Tamil Nadu, identifying the cropping pattern and its distribution, assess the production based on rainfall - PO-4 explain the types of irrigation, assess the hydro electric power generation, PO-3 summarize the various purpose of the project of Tamil Nadu(Interactive session with questions)[PO-2] http://www.bharatonline.com/tamilnadu/travel-tips/local-transport.html https://agritech.tnau.ac.in/govt_schemes_services/pdf/nadp_sap1.pdf</p>	K1 K2 K3 K4 K5
CO4	<p>Classify the minerals Resources of Tamil Nadu- metallic and non metallic, estimate the hydel power generation PO - 4Assess the thermal power and atomic power generation PO - 4, Analyse the major Industrial regions and its importance in economic growth PO – 4 discuss the growth of iron steel industries of Tamil Nadu (Interactive session with questions) [PO2] http://www.tnervis.nic.in/Content/MineralResourcesofTamilNadu_1207.aspx?format=Print</p>	K1 K2 K3 K4

		K5
		K6
CO5	Explain the demographic structure of Tamil Nadu, estimate the amount and pattern of rainfall in Tamil Nadu PO -3 , discuss the problems of urbanization, compare the means of transport, understand the strategic importance of sea routes PO -7 , evaluate the imports and exports PO -3 , remember the major and minor ports of Tamil Nadu and discuss the strategic location and its importance PO7 http://www.bharatonline.com/tamilnadu/travel-tips/local-transport.html (Interactive session with questions) [PO2]	K1 K2 K3 K4 K5

TEXT BOOK:	
1	Statistical Hand Book (2015) :Published by Tamil Nadu Government.
2	Geography of Tamil Nadu (2014) :Economic appraisal of Tamil Nadu
3	Sakthi Venkata Kumuraswamy (2003) :Tamilnadupuviyiyal, Sakthi Abirami printers, kumbakonam.

REFERENCE BOOK:	
1	Negi, B.S. (1998) : Agricultural Geography, Kedarnath & Ramanath, New Delhi.
2	Economic Survey of Tamil Nadu, 2015.
3	Negi, B.S. (1998) : Agricultural Geography, Kedarnath&Ramanath, New Delhi.

WEB SOURCE:	
1	https://www.mapsofindia.com/geography
2	www.indianmirror.com/geography/geography.html
3	www.mheeducation.co.in

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	2	2	1	1	2	1	1	1
CO2	3	1	2	2	2	1	2	1	1	1
CO3	3	1	2	2	1	1	1	1	1	1
CO4	3	1	1	1	1	1	1	1	1	1
CO5	3	1	1	2	2	1	1	1	1	1

CO-PO-Avg	3	1	2	2	1	1	2	1	1	1
CO-PO_Total	15	5	8	9	7	5	7	5	5	5

S- STRONG-3, MEDIUM-2, LOW-1

THIRD YEAR – SEMESTER -V

COURSE CC – XII Practical – V CARTOGRAPHIC APPRECIATION AND INTERPRETATION OF MAP AND IMAGES

COURSE CODE	Category PART -3	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	Core XII	5			V	5	60	25	75	100

UNIT	LEARNING OBJECTIVES
LO1	To acquire basic knowledge of appreciating the Indian Topo sheets.
LO 2	To elaborate on the interpretation techniques of topographical maps.
LO 3	To discuss the importance of aerial photographs.
LO 4	To elaborate on the importance of satellite images.
LO 5	To compare the differences of topo-sheets, aerial photo with satellite imagery.

UNIT	CONTENTS	NO. OF HOURS
I	Cartographic Appreciation of Survey of India (I: 25000. 1:50000. 1 to one million. 1 to one mile. 1 to 4 mile) Ordinance survey and United States.	12
II	Interpretation of 1:50,000 of topographical maps of survey of India (minimum 6 exercises) - Partial -Relief and Settlements, Relief and Land use.	12
III	Aerial Photographs - marginal information - Determination of Scale, distance, height and area - Identification of Flight line - Aerial photo interpretation elements–Aerial Photo Interpretation (2 exercises).	12
IV	Satellite Images - Marginal Information - Image Interpretation elements— Interpretation of land sat Images (2 exercises).	12
V	Comparison of survey of India Topographic sheet with ordinance survey and US maps- comparison of Aerial photo with Topographic sheet- Comparison of Aerial photo with Satellite Imagery.	12

CO	COURSE OUTCOMES	K level
1	Understanding the basic concepts of Cartographic Appreciation is important to explore student’s knowledge in maps and its types. PO1PO2. Explore the Purposes in creation of Topographic maps by Survey. To develop the skills to work on cartographic process PO-3	K1,K2 K3K4 K5

2	Understanding of facts and ideas of Interpretation of Plates of Physical, Land use plate. Construct and develop the Interpretation of two different land use plates. Students individually will Interpret the Topographical maps. Build the land use plates for given maps as group activity PO-5, PO-6,PO7, PO-2	K1,K2 K3,K4 K5,K6
3	Appreciate the goals of Marginal information of Aerial Photographs and Annotation. (PO1,PO2) Develop the in-depth knowledge of marginal information of aerial photography(2 exercises)	K1,K2,K4 K5,K6
4	Classify and understand the Satellite Imagaries – Annodate Marginal Information - Classify Image Interpretation elements—Interpretation of land sat Images, list the elements Land Sat Imagery. Applying acquired knowledge to draw land sat imagery PO-3,PO-6 Activity given to acquired knowledge of satellite imagery (2 exercises).	K1,K2 K3,K4 K5,K6
5	Comparison of Topo-Sheet, Aerial photographs, and satellite Imagery Comparison of Indian Topographic sheet with ordinance survey and US maps. 2 exercises	K1,K2 K3,K4 K6

TEXT BOOKS

1	K. Rampal(1996)‘Mapping and Compilation – Methods and Techniques’, Concept Publishing Company, New Delhi.
2	Misra R.P. & Ramesh A.(1999) ‘Fundamentals of Cartography’, MacMilan.
3	Monk House F.J., Wilkinson H.R.(1994) ‘Maps &Diagrams’, Methuen &Co., London.

REFERENCE BOOKS

1	Rahunathan Singh (1972)‘Practical Geography’, Central Book Depot, Allahabad.
2	Singh R.L. and Dutt P.K. (1968) ‘Elements of Practical Geography’, - Central Book Depot, NewDelhi.
3	Saha, Pijushkanti (2010): Advanced Practical Geography. Books and Allied pvt Ltd

WEB RESOURCES:

1	http://www.worldatlas.com/aatlas/imageg .
2	http://www.map-symbol.com/sym_lib.htm .
3	http://www.researchgate.net/publication/228567023_An_Introduction_to_Diffusion_maps

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	2	1	1	1	1	1
CO3	3	2	2	2	2	1	1	1	1	1
CO4	3	2	2	2	2	1	2	1	1	1
CO5	3	2	2	2	2	1	2	1	1	1
CO-PO-Total	15	8	8	8	9	5	7	5	5	5
Weightage	3	2	2	2	2	1	1	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

THIRD YEAR –SEMESTER -V

COURSE NAME : ELECTIVE – V - BIO GEOGRAPHY										
COURSE CODE	Category PART 3	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	ELE-V	4			V	3	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To understand the content of Bio-Geography and components of biosphere.									
LO 2	To identify elements and types of biodiversity									
LO 3	To illustrate the different types of Biomes of India									
LO 4	To understand the ecosystem balance and biosphere reserves									
LO 5	To elucidate the association between biodiversity and sustainable development.									
UNIT	CONTENTS								NO. OF HOURS	
I	Bio Geography- Nature, Scope and Content – branches of Biogeography -types of biogeography, Evolution of flora and fauna with geological time scale-Biosphere-components of the biosphere – Ecology and Environment.								12	
II	Biodiversity – Meaning – Definition – Elements and Types of Biodiversity – Biodiversity- Hot Spots – Value and Importance of Biodiversity – Biodiversity								12	
III	Biomes of India – Terrestrial Biomes, Freshwater Biomes, Marine biomes– Biosphere Reserves of India. Anthropogenic Biome.								12	
IV	Ecosystem balance -Species Extinction (nature of extinction, threatened species, species conservation, Gene banks, and Botanical Gardens, Zoological Gardens and Captive Breeding Centres, Biosphere Reserves, National Parks and Wildlife Sanctuaries								12	
V	Bio diversity and Sustainable Development -Global Environmental Policies – EIA - Environmental Education and Legislation- Treaties and laws to protect endangered species, SDG- 17 Goals.								12	

CO	COURSE OUTCOMES	K level
1	Define Biogeography the Nature, scope and Content of bio geography appreciate branches of Biogeography, explain branches of Biogeography, appreciate evolution of fauna and flora with geological time scale-Biosphere-	K1 K2 K3

	Recall components of biosphere - Differentiate ecosystem, ecology and environment Group activity based on this web reference https://www.inspiritvr.com/general-bio/ecology/biogeography-study-guide PO4 PO5 PO7 PO10	K4
2	Define -Biodiversity , Meaning, explain Elements and Types of Biodiversity explain and draw the map Biodiversity Hot Spots appreciate Value and Importance of Biodiversity . Activity :Quiz https://lotusarise.com/factors-influencing-world-distribution-of-plants-and-animals-upsc/ PO1, PO2, PO4, P10	K1 K2 K3 K5
3	Define Biomes of India - Appreciates Terrestrial Biomes, Freshwater Biomes, Marine biomes– understands Biosphere Reserves of India. Anthropogenic Biome. Oceania and Antarctic- Group Activity -model making for biomes. PO5 PO8, PO9, PO10	K1 K2 K3 K4 K6
4	Defines and lists Ecosystem balance, analyze -Species Extinction (nature of extinction, threatened species, species conservation, Gene banks, and Botanical Gardens, Zoological Gardens and Captive Breeding Centres, Biosphere Reserves, National Parks and Wildlife Sanctuaries https://lotusarise.com/influence-of-man-on-ecology-and-environment-upsc/#:~:text=Humans%20impact%20the%20physical%20environment,air%20quality%2C%20and%20undrin PO1 PO2 PO4 PO5 PO7 PO10	K1 K2 K3 K5 K6
5	Construct Bio diversity and Sustainable Development - Analysis & Applies concepts Global Environmental Policies – EIA, Evaluates Environmental Education and Legislation- Treaties and laws to protect endangered species, SDG-17 Goals. PO1 PO2 PO4 PO5 PO7 PO10 https://worldoceanreview.com/en/wor-1/climate-system/great-ocean-currents/	K1 K2 K5 K6

TEXT BOOK:	
1	Bhattacharyya N.N (2003): Bio Geography, Rajesh Publication New Delhi.
2	George Simonds Bougler (2009):The Science Teaching of Forestry, BiblioBazar
3	Savindra singh (2008):Environmental Geography, Prayag Pustak Bhawan, Allahabad.

REFERENCE:	
1	Cox ,C. Berry et.al (1990):Bio Geography: An ecological and evolutionary approach, English Language Book Society, London
2	Charan , Anil .K. (1992): Plant Geography , Rawat Publications.
3	Begon, Michael. Colin R, Townsend, JohnL.Harper,(2006):Ecology – From Individuals to ecosystem

WEB SOURCE:	
1	www.botany.wisc.edu/
2	www.biogeography.com
3	https://earthobservatory.nasa.gov/biome/teacherresource.php

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	2						1	1
CO2	3	2							1	1
CO3	3	2	2	2	2		2	2	1	1
CO4	3		3	3			2	2	1	1
CO5	3								1	1
CO-PO-Total	15	6	7	5	2		4	4	5	5
Weightage	3	2	2	2	2	1	1	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

THIRD YEAR - SEMESTER - V

COURSE NAME: ELECTIVE VI - SOCIAL AND CULTURAL GEOGRAPHY										
COURSE CODE	Category	L	T	P	S	Credit	TOTAL HOURS	MARKS		
	PART -3							CIA	External	Total
23UG	ELE - VI	4			V	3	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To acquire basic knowledge on the social structure and society.									
LO 2	To elaborate the spatial distribution of Ethnicity, Language, Caste and Religion.									
LO 3	To discuss the social welfare and wellbeing.									
LO 4	To distinguish on the races and cultural diffusion of the world.									
LO 5	To assess the Human development indicators and it's Index.									
UNIT	CONTENTS									NO. OF HOURS
I	Introduction: Nature and Scope of Social Geography – Concepts of Social Geography -Social Structure (Family, Marriage, Kinship) and Processes - Rural and urban society.									12
II	Spatial distribution of Ethnicity, Tribe, Dialect, Language, Caste and Religion in the World with special reference to India									12
III	Welfare and Social Wellbeing: Quality of Life – Health- Education – Economic Status – Gender – Wellbeing of Women.									12
IV	Cultural geography :Concept of Culture, Evolution of Human beings – Major Races of the world- Culture Interaction and diffusion – Culture Exchange.									12
V	Measurement of Human Development – Social, Economic and Environmental Indicators –Human Development Index.									12

CO	COURSE OUTCOMES	K level
1	Recall Nature and Scope of Social Geography – Explain and apply the Concepts of Social Geography - Classify Social Structure (Family, Marriage, Kinship) and Processes – Distinguish Rural and urban society.	K1 K2 K3 K4

2	Define Spatial distribution of Ethnicity, Tribe, and Dialect, Classify the major Language, Identify and Categories the Caste and Religion in the World with special reference to India.	K1 K2 K3, K4
3	List out the factors of Welfare and Social Wellbeing : Elaborate the Quality of Life – Illustrate and Explain the Health- Education – Understand the Economic Status – Gender – Distinguish the level of social Wellbeing of Women.	K1 K2 K3 K4 K5
4	Explain the background of Cultural geography :Elaborate the Concept of Culture, Discuss the Evolution of Human beings – Classify the Major Races of the world- Discuss the Theory of Culture Interaction and diffusion – Elaborate and Examine the Culture Exchange.	K1 K2 K3 K5 K6
5	Explain the Measurement of Human Development – Elaborate the Social, Economic and Environmental Indicators – Classify and discuss the Human Development Index.	K1 K2 K3 K4

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.

REFERENCE BOOKS

1	S.D.Maurya (2016) Cultural Geography, Sharda pustak bhavan, Allahabad.
2	G.S. Mohanty (2007) Social and Cultural Geography.
3	Ajjazuddin Ahmad (2004) Social Geography, Rawat Publications, Jaipur.

WEB RESOURCES:

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

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	2	1	1	1	1	1
CO3	3	2	2	2	2	1	1	1	1	1
CO4	3	2	2	2	2	1	2	1	1	1
CO5	3	2	2	2	2	1	2	1	1	1
CO-PO_Total	15	8	8	8	9	5	7	5	5	5
Weightage	3	2	1	1	2	1	1	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

THIRD YEAR –SEMESTER -V

COURSE NAME: ELECTIVE VI - GEOGRAPHY OF HEALTH										
COURSE CODE	Category PART -3	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	Elective VI	4			V	3	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To understand the relationship between health and geography and the driving force of health and environment.									
LO 2	To recall the history of disease and elaborate on the agents of disease									
LO 3	To illustrate the components of the influencing environment on health.									
LO 4	To differentiate the types of diseases like communicable and non-communicable diseases.									
LO 5	To elaborate on the health care planning and management of the World and India.									
UNIT	CONTENTS								NO. OF HOURS	
I	Geography of Health – Definition – perspectives and Bio-Medical Approach –Psychological – Sociological – Economic – Geographic Approach - Driving Forces in Health and Environment.								12	
II	Concept of Diseases – History of Diseases – Agents of diseases – Control of Diseases, Transmission Triad and mode. – types of Diseases and their regional Pattern – Communicable and Non-communicable diseases								12	
III	Environment and Health – Three components of the environment – Physical, Biological, and Social, Occupational Health, Mental health, Health Information, and Basic Medical Statistics								12	
IV	Exposure and Health Risks: Air pollution, water pollution, Impacts on Health, Epidemics, Endemic and Pandemic Diseases; Covid 19, Climate change and Health- Changes in Climate system- extreme heat and Extreme cold								12	
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	

UNIT	COURSE OUTCOMES	K level
1	Recalls the importance of health, Understands the relationship between. Health and environment., Define health. Distinguish. -Development and health. Realises population dynamics with health	K1 K2 K3 K4
2	Recalls and discuss the concepts of Disease, List out the agents of disease and analyse the types of diseases. Bring out the control of diseases. 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. Summarises the biological agents in the spread of diseases.	K1 K2 K3 K4, K5
3	Understands the relationship between Health and Environment, list the components of Environment on health, Understands the impact of Environmental Quality and health., Analyses the impact of human activities and environmental pressures.,	K1, K2 K3, K5
4	Assess the reasons for health risk - Air pollution, water pollution, Understands the Impacts on Health, Differentiate the Epidemics, Endemic and Pandemic Diseases ; Analyse the reasons for the spread of Covid 19, Compare the reasons and influence level of climatic change and human health.	K1, K2K 4 K5, K6
5	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.	K1, K2 K3, K5 K6

TEXT BOOKS	
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.

REFERENCE BOOKS	
1	Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
2	Christaler George 2009: Spatio Temporal Environment Health Modelling, Boston Kluwer Academic Press.
3	HristopolesDionissios, 2010: Spatio Temporal Environment Health Modelling, Boston Kluwer Academic Press.

WEB RESOURCES:	
1	https://jhpn.biomedcentral.com/
2	https://www.researchgate.net/
3	https://www.healthgeography/

CO/PO/PSO	PO									
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	2	1	1		2	1	1	1
CO2	3	2	2	1	1	1	2	1	1	1
CO3	3	2	2	1		1	1	1	1	1
CO4	3	2	1	1	1	1	1	1	1	1
CO5	3	2	1	2		2	1	1	1	1
CO-PO-Total	15	10	8	6	3	5	7	5	5	5
Weightage	3	2	2	2	1	1	2	1	1	1

S- STRONG-3, MEDIUM-2, LOW-1

THIRD YEAR – SEMESTER – V

COURSE NAME: LANDUSE SURVEY TECHNIQUES

COURSE CODE	CATEGORY CORE / ELE / SEC	L	T	P	S	CREDITS	TOTAL HOURS	MARKS		
								CIA	EXTERNAL	TOTAL
23UG	SEC-7	5				2	60	25	75	100

LEARNING OBJECTIVES

LO1	To understand the use of surveys and the application of surveys in land use – Physical surveys
LO2	To understands the Proximate Sensing techniques applied for preparing base map
LO3	Toknow and classifythetypes of land use
LO4	To recall the methods of data collections in the field survey
LO5	To explore the techniques of Fieldwork

UNIT	CONTENTS	NO. OF HOURS
I	Land use survey - the importance of Land use – locational knowledge – identification of landforms. Data Base for Physical surveys (incl. land use/building use/density/building age, etc.) and Socio-economic surveys; Survey techniques, etc.; Land use classification/ coding; expected outputs.	6
II	Proximate Sensing technique- maps, diagrams, Sketch maps. Layout plans and route maps. Techniques of preparing base maps – concepts of scales, components, and detailsfor various levels of plans (regional, city, zone, local area plans).	6
III	Land use types – Residential, Commercial, Recreational, Institutional, Open Space, Mixed, and other land use.	6
IV	Fieldwork and collection of data – primary and secondary data – Field survey – Interview methods, questionnaire method, schedules.	6

V	Fieldwork surveying techniques- Chain survey, Prismatic Compass, Plane table survey, GPS survey, Drone surveying and GIS.	6
CO	COURSE OUTCOMES	K LEVEL
1.	To recall Land use survey – to analyse the importance of Land use – locational knowledge –to identify the types of landforms.	K1, K2, K3, K4
2.	To Explain Proximate Sensing technique- List maps, diagrams, Sketch maps. Layout plans and route maps. Understand Techniques of preparing base maps	K1, K2, K4
3.	List Land use types and Explain and Classify Residential, Commercial, Recreational, Institutional, Open Space, Mixed, and other land use.	K1, K2, K4, K5
4.	Define Fieldwork and collection of data- Categorise primary and secondary data – Discuss Field survey – Interview methods, questionnaire method, schedules.	K1, K2, K4, K5
5.	Enrich Fieldwork surveying techniques- Understands and plan- Chain survey, Prismatic Compass, Plane table survey, GPS survey, Drone surveying and GIS.	K2, K4

TEXT BOOKS	
1	Monkhouse, F.J. and Wilkinson (1994): H.R. Maps and Diagram, Methuen & Co., London.
2	Saha, Pijushkanti (2010) "Advanced Practical Geography, Books and Allied pvt Ltd.
3	Ioannis A. Pissourios (2023) "Urban Land use survey methods: A discussion on their Evolution.

REFERENCE BOOKS	
1	Khan, Zulfequar Ahmed M.D (1997): Text book of Practical Geography, Concept Publishing Company, New Delhi.
2	D.R. Khullar (2019) Essential of Practical Geography, Chaukhamba Auriyantiya, New Delhi
3	R.B. Mandal (1990) "Land Utilization : Theory and Practice, Concept Publishing Company, New Delhi.

WEB RESOURCES:	
1	https://www.sciencedirect.com/science/article/pii
2	https://study.com/academy/lesson/what-is-a-land-survey-definition-types.html
3	https://planningtank.com/urban-regional-planning/methods-of-conducting-density-survey-or-landuse

CO/PO/PSO	PO									
	Po1	Po2	Po3	Po4	Po5	Po6	Po7	Po8	Po9	Po10
CO1	3	1	1	1	1		1	1	1	1
CO2	3	1	1	1			1	1	1	1
CO3	3	2	2	2	2	1	1	1	1	1
CO4	3	2	2	2	2	1	1	1	1	1
CO5	3	2	2	2	2	1	1	1	1	1

CO-PO-Avg	3	2	2	2	2	1	1	1	1	1
CO-PO_Total	15	8	8	8	7	3	5	5	5	5

S- STRONG-3, MEDIUM-2, LOW-1

THIRD YEAR – SEMESTER VI

Coursecode:	EASC011	URBANGEOGRAPHY	L	T	P	C
Core/Elective		Core	3	1	0	4
Pre-requisite		NopriorknowledgeinCartography				
CourseObjectives:						
1. TounderstandtheNatureandScopeofUrbanGeography-Urbangrowthandrelatedtheories. 2. Tolearntheconceptofurbangrowthandtheories,organizationofUrbanspace 3. Toanalyseandidentifytheurbanissues. 4. Tostudythepoliciesandplanning. 5. ToleanGISandRemotesensingapplicationforurbanstudies						
Unit- 1	NatureandScopeofUrbanstudies					
Urban Geography - Definition, nature and scope; Origin and growth of urban places; classificationofurbansettlements,Aspectsofurbanplaces:Location,siteandsituation;Majorprocesses of urbangrowth and change;						
Unit- 2	Urban systems					
Urban Systems: Concept of National Urban System, CentralPlace Theory ofChristallerand Losch; the rank-sizedistributionofcities;PrimateCitydistribution,DiffusiontheoriesOrganizationofurbanspace: urban morphology and land use structure, city-region relations, urban sprawl, umland and periphery; rural-urban fringe, Theories of city structure (Burgess, Hoyt, Harris and Ullman, Mann, White)						
Unit- 3	Urbanisation					
Urbanization: definition and measures of urbanization, factors affecting urbanization, cycle of urbanization; Regional aspects of world urbanization; Patterns and trends of urbanisation in India and Tamilnadu.						
Unit- 4	UrbanIssues					
Contemporaryurbanissues:urbanpoverty;urbanrenewal;slums; transportation; housing;urbaninfrastructure;urbanfinanceenvironmentalpollution:solidwastes,urbancrime, issues of human health.						
Unit- 5	ApplicationsofGISinurbanenvironment					
Urban GIS, Urban Spatial Data Types -Raster and Vector, Attributes and metadata, Sources of data: locate,download ApplicationsofGISinurbanenvironment: Urbangrowth,Landuse landcoverchange analysis, Network analysis, Site suitability analysis, Poverty & Crime analysis, Urban Public Health, Conservation of green space, water resources, urban modelling						
Unit- 6	ContemporarytrendsinUrbanGeography					
Urbanpolicyandplanning:ConceptandHistoryofurbanplanning, urbanlanduse						

planning, Urban Policy and programmes in India. city planning, greenbelts, garden cities - urban policy; contemporary issues in urban planning - globalization and urban planning in the Third World.

Expected Course Outcomes:		
On the successful completion of the course, student will be able to:		
1	Understand the urban places origin and growth from Ancient to Modern period, the bases and process in urbanization & urban theories, current issues in urbanization and policies.	K1, K2
2	Understand the urban places origin and growth from Ancient to Modern period, the bases and process in urbanization & urban theories.	K2, K3
3	Employing the knowledge of urban growth and related theories in analysing the urban landscape, issues and development or reshaping towns	K3, K6
4	Understanding the basic concepts approaches to urban planning and urban policy.	K4, K5
5	Analyse the contemporary issues related to urban sprawl, environment pollution and human health issues	K4, K6
K1-Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create		

Text Book(s)	
1	Chorley, R.J. and Haggett, P. (1966): Models in Geography, Methuen, London.
2	Dickinson, R.E. (1964): City and Region, Routledge, London.
3	Dwyer, D.J. (1971): The City as a Centre of Change in Asia, University of Hong Kong Press, Hongkong.
4	Hall P. (1992): Urban and Regional Planning, Routledge, London.
5	Hauser, P.M. and Schnore L.F. (ed.) (1965): The Study of Urbanisation, Wiley, New York.
6	James, P.E. and Jones C.F. (ed.) (1954): American Geography: Inventory and Prospect, Syracuse University Press, Syracuse.

Reference Book(s)	
1	GIS for the Urban Environment by Juliana Maantay, John Ziegler, ESRI Press, 2006.
2	Berry, B.J.L. and Horton F.F (1970). Geographic Perspectives on Urban Systems, Prentice Hall, Englewood Cliffs, New Jersey.
3	Carter (1972). The Study of Urban Geography, Edward Arnold Publishers, London.
4	Chorley, R.J.O., Haggett P. (ed.) (1966). Models in Geography, Methuen, London.

5	Gibbs J.P. (1961). Urban Research Methods D. Van Nostrand Co. Inc. Princeton, New Jersey.
6	Hall P. (1992). Urban and Regional Planning, Routledge, London.
7	Kundu, A. (1992). Urban Development and Urban Research in India, Khanna Publication.
8	Meyor, H.M. Kohn C.F. (eds.) (1955). Readings in Urban Geography, University of Chicago Press, Chicago.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1	https://www.princeton.edu/~erossi/UG.pdf
2	https://urbanpolicyplatform.org/national-urban-policy/
3	https://urbangeographyjournal.org/course-material/
4	https://www.kngac.ac.in/elearning-portal/ec/admin/contents/2_18KP3G10_2020101607351631.pdf
5	https://www.un.org/en/ecosoc/integration/pdf/fact_sheet.pdf

Mapping with Programme Outcomes (MPO)*

MPO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	1	2
CO2	1	1	3	1	1
CO3	1	2	1	1	1
CO4	1	1	1	1	1
CO5	1	1	1	2	2

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 1, 2, 3 (Strong, Medium and Low)

THIRD YEAR-SEMESTER-VI

COURSE:CCXIV-REMOTESENSINGANDGNSS										
COURSE CODE	C	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	CCXIV	6			VI	5	60	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To have basic knowledge on basics of Remote sensing									
LO2	To elaborate on the fundamentals and significance of Aerial photographs and satellite types									
LO3	To have the deep knowledge on the types of resolution and marginal information of Aerial photos and satellite images									
LO4	To explore the application of Remote sensing									
LO5	To have wide understanding on GNSS, Segments and Satellite tracking									
UNIT	CONTENTS								NO.OF HOURS	
I	Remote Sensing – Definition and types - History of Remote Sensing in India – Remote Sensing Processes – Electromagnetic Spectrum, Atmospheric Window – Platforms and its types.								12	
II	Fundamentals of Aerial and Satellite Remote Sensing- Aerial Photography and Scale of Aerial Photographs and its types – types of Satellites.								12	
III	Resolution: Spectral, Spatial, Radiometric and Temporal- Marginal Information of Aerial Photographs and Satellite Images.								12	
IV	Application of Remote Sensing; Land use/Land cover/Urban sprawl Agriculture and environment.								12	
V	Global Navigation Satellite System: Segments: space segment - GPS Satellite systems – New programmes – IRNSS - Control segment - Satellite tracking - User segment – Modern survey instruments – Errors sources – Satellite augmented systems - DGPS - GNSS Applications.								12	

UNIT	COURSE OUTCOMES	K level
1	Illustrate remote sensing system and its components list the platforms and its types	K1, K2, K3, K4
2	Elaborate on aerial photographs and its types. Understand the scale of Aerial photo Differentiate types of satellites used for collection of data.	K1, K2, K4
3	Distinguishes between the types of resolution. interpret available marginal information on aerial photographs and satellite imagery	K1, K2, K4, K5
4	Explore the application of remote sensing in various fields.	K1, K2, K4, K5
5	Recognize the connectivity through GNSS, GPS, understand the segments of GPS, Analyse the application of GNSS. Student's activity: Locate points in your locality and survey using GPS.	K2, K4

TEXTBOOKS	
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.

REFERENCE BOOKS	
1	Anji Reddy. M. (2001): Remote Sensing and Geographical Information System, BS publication, Hyderabad
2	Burrough P. A & McDonnell (1998): Principles of Geographic Information System, Oxford University Press.
3	Clarke (2001): Getting started with Geographical Information Systems, Prentice Hall, New Jersey

WEB RESOURCES:	
1	www.gislounge.com
2	www.nationalgeographic.org
3	www.novatel.com

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	1				1	1	1	1
CO2	3	1	1	1	2		1	1	1	1
CO3	3	1	1	2		2	1	1	1	1
CO4	3	2	2	2	3	2	1	1	1	1
CO5	3	3	2	2		2	1	1	1	1
Average	3	1	2	2	2	2	1	1	1	1
Total	15	8	7	7	5	6	5	5	5	5

S-STRONG-3, MEDIUM-2, LOW-1

THIRDYEAR-SEMESTERIV

COURSENAME: PRACTICAL-VI APPLICATIONS OF REMOTE SENSING AND GIS TECHNIQUES										
COURSE CODE	Category	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	EGD	5			VI	3	30	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	This paper helps to acquire more knowledge about aerial photographs and satellite imageries.									
LO2	Training given to the students about stereoscope, how to view the image through stereoscope, marking principal point, identification of flight direction.									
LO3	Satellite imageries are digitized through the image classification.									
UNIT	CONTENTS								NO. OF HOURS	
I	Interpretation of Satellite Imageries- Interpretation Keys- Annotation - Interpretation- Interpretation of Radar image from IMD website- Cyclonic tracking									
II	Hands on processing of digital data- Data formats and storage of digital data (BIP, BIL, BSQ)- Grey Scale- Intensity profile- Histogram- supervised and unsupervised classification.									
III	Database creation (Spatial and Non Spatial data- tourist) DataBase Manipulation (Data conversion into percentage, Ratio, Average, Deviation) Data Analysis- growth rate,.									
IV	Vector data Analysis- Creation of Point, Line and Area layers,									
V	Creation of Thematic layers- thematic layers and its types- Buffer analysis - Overlay analysis.									

CO	COURSE OUTCOMES	K level
CO1	<p>Recalls Aerial Photographs, Orientation and Stereoscope Viewing of Photographs, Identifies of Flight Direction and Flight route deflection, PO1 PO2 calculates Scale, and are a measurement in Aerial Photo, PO3 PO4 PO5 PO6 Execute Distance and area measurement with Google map for their local area, PO7 interprets by Comparative study of Aerial Photograph, with Toposheet and imagery PO8 PO9 PO10</p> <p>https://www.nrcan.gc.ca/maps-tools-publications/satellite-imagery-air-photos/air-photos/national-air-photo-library/about-aerial-photography/concepts-aerial-photography/9687</p>	K1 K2 K3 K4 K5

	https://www.makeuseof.com/tag/measure-area-distance-google-maps-earth/#	
CO2	<p>Recalls Elements of Aerial photo Interpretation, Identify analyse and judge the Relief, River features, Drainage pattern Land use, Builtup Structure and Transportation lines</p> <p>https://www.geographynotes.com/topography/aerial-photography/aerial-photography-meaning-and-interpretation-geography/5964</p> <p>PO1PO2PO4PO5PO7PO8PO9PO10</p>	K1K3K3 K4 K5
CO3	<p>Recalls Interpretation Keys and Annotation (2 exercise), PO1 PO2 PO3 PO4 Interpretates features in true colour and false colour composite, PO5 PO7PO8PO9 Interpretation of Radar image from IMD website – Cyclonic tracking PO10</p> <p>https://earthobservatory.nasa.gov/features/ColorImage https://mausam.imd.gov.in/imd_latest/contents/cyclone.php</p>	K1K4K5
CO4	<p>recognizes the Data formats and storage of digital data (BIP,BIL,BSQ) PO1 PO2 applies the concept of Grey Scale PO3 understands Intensity profile and Histogram as a pre-processing and enhancement technique for image interpretation, differentiates between supervised and unsupervised classification. PO4PO5PO7PO8Po9PO10</p>	K1K2K4 K5
CO5	<p>Develops the skill of handling GPS. PO1PO2 identifies the Latitude and Longitude of a place – calculates the Track length</p> <p>PO3PO4PO5PO7PO8 Do a survey for Open and Closed track to draw the plan for the area, measures the Height of a place using GPS</p> <p>https://www.techwalla.com/articles/how-to-use-gps-to-survey-land</p>	K1K2K3 K6

REFERENCE BOOK

1	Bhatta, Basudeb. (2011). <i>Remotesensing and GIS</i> . Oxford University Press, India
2	Partha Basu, Pijushkanti Saha (2010). <i>Advanced Practical Geography</i> . Books and Allied Limited
3	Khan, M.Z.A (1998). <i>Textbook of Practical Geography</i> . Concept publishing Company, New Delhi
4	Khullar, Dr. (1997). <i>King's Practical Geography</i> . Educational Publishers, Delhi.
5	Negi, Balbir Singh (1995). <i>Practical Geography</i> . (3 rd edition). Kedar Nath and Ram Nath, Meerut, Delhi
6	Aslam Mohammed 1977 'Statistical Methods in Geographical Studies', Rajesh Publications.
7	Cole and King 1989 'Quantitative Geography – Techniques and Theories in Geography', John Wiley and Sons Ltd., London.
8	K. Briggs. B.A. 1976 'Introducing Transportation Network', University of London Press Ltd. 4. Monk House F. J 1984 'Maps and Diagrams', Methuen and Co. Ltd., London.
9	'Science in Geography Series', 1994, Oxford University Press.
10	Taffy E. J. and Gauthier Jr. H.L. 1973 'Geography of Transportation', Prentice Hall, Englewood Cliffs, New Jersey.

WEB RESOURCES

1	landsat.gsfc.nasa.gov/education/tutorials.html
2	www.iirs.gov.in/
3	www.nrsc.gov.in/&remotesensing.org/
4	https://people.hofstra.edu/geotrans/eng/methods/ch1m3en.html

5	psscive.nic.in/.../CBSE%20Class%20XII%20Travel%20&%20Tourism/C...
6	https://books.google.co.in/books?isbn=817022957X
7	https://www.stat.berkeley.edu/~aldous/206-SNET/.../xie_levinson.pdf
8	http://www.gdufs.biz/Questionnaire%20Design.pdf

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 Critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	1	1	1	1		2	1	1	1
CO2	3	1	1	1	1		2	1	1	1
CO3	3	2	2	2	1		2	1	1	1
CO4	3	2	2	2	2	1	2	1	1	1
CO5	3	2	2	2	2	1	1	1		1
CO-PO-Avg	3	2	2	2	1	1	2	1	1	1
CO-PO-Total	15	8	8	8	7	2	10	5	5	5

THIRDYEAR-SEMESTERVI

COURSENAME:ElectiveVII: AGRICULTURALGEOGRAPHY										
COURSE CODE	Category	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	EGD	5			VI	3	30	25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	Todescribeandexplainspatialvariationsinagriculturalactivityovertheearth's surface.									
LO2	Tointroducesalltherelevantaspects ofagriculturein a systematic manner.									
LO3	Tofamiliarizesthestudentswiththeapplicationofvarious theories,modelsand Classificationschemesandfoodsecurity.									
UNIT	CONTENTS								NO.OFHOURS	
I	Nature, scope, significance and development of agricultural geography. Approaches to the study of agricultural geography: Commodity, systematic and regional and systems.								6	
II	Determinants of agricultural land use - Physical, economic and social systems, - cropping pattern, crop concentration, intensity of cropping, diversification and specialization, efficiency and productivity, crop combination regions and agricultural development-green revolution-its impact and consequences.								6	
III	Theories of agricultural location based on several multi-dimensioned factors: Von Thunen's theory of agricultural location and its recent modifications; Whittlesey's classification of agricultural regions; land use and land capability.								6	
IV	Agricultural in India- land use and shifting cropping pattern - regional pattern of productivity in India - green revolution, white revolution, food deficit and food surplus regions; nutritional index-specific problems in Indian agriculture								6	
V	Land use studies, Land capability classification and Land Use Planning, Cropping Pattern, Role of Remote Sensing in Land Use Studies, Agricultural regions of India and Tamil Nadu.								6	

COURSE OUTCOMES

After completion of the Agricultural Geography, the student will be able to:

Agricultural geography seeks to describe and explain spatial variations in agricultural activity over the earth's surface.

This course introduces all the relevant aspects of agriculture in a systematic manner.

The course familiarizes the students with the application of various theories, models and classification schemes and food security.

REFERENCE BOOKS

1	Dr. Alaguraja Palanichamy (2016) Rainfall and Groundwater Reliability for cropping using Geospatial Techniques" Publisher: Archers & Elevators Publishing House, Bangalore, India
2	Hussain, M. (2014) Systematic Agricultural Geography, Rawat Publications, Jaipur.
3	Shafi, M. (2006) Agricultural Geography, Doring Kindersley India Pvt. Ltd., New Delhi.
4	Venugopal, S. (2014) Agricultural Geography, Arise Publication and Distribution, New Delhi.
5	Sivasubramanian, K. (2014) Irrigated agriculture in Tamilnadu, Simres Publications, Chennai, Bangalore.

**Third Year
Semester–VI**

COURSE NAME: Elective VII: TRANSPORT GEOGRAPHY										
COURSE CODE	Category	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	EGD	5			VI	3	30	25	75	100
UNIT	LEARNING OBJECTIVES									
LO1	To acquire basic knowledge and Scope of Transport Geography									
LO2	To elaborate the Types of Transportation									
LO3	To discuss the importance of Network Characteristics of transport									
LO4	To elaborate on Theories related to freight rate structure									
LO5	To illustrate the Transport system in India									
UNIT	CONTENTS								NO. OF HOURS	
I	Nature and Scope of Transport Geography - Importance of Transport - Development of Transport Geography – Associated factors - Transport Development - Physical, Economic, Technology.								6	
II	Types of Transport – Railways, Roads, Airways and Waterways, Pipelines								6	
III	Network Characteristics – Topology - Graph Theory - Binary Matrix - Measures of Connectivity and Accessibility.								6	
IV	Theories related to freight rate structure - Bases of Spatial interaction – Complementarily - Intervening Opportunity and Transferability.								6	
V	Transport system in India - Role of Transport in Regional development In India - Role of Transport in Regional development In India - Urban and Rural Transportation Planning and Management.								6	

CO	COURSE OUTCOMES	K level
CO1	Recall Nature and Scope of Transport Geography. Discuss Importance of Transport. Outline the Development of Transport Geography. Analyze the Associated factors. Explore the Transport Development. Classify the Physical, Economic, Technology of Transport (PO1, PO3, PO4, PO5) Students Activity: Present PPT for Factors and Development of Transport Geography	K1 K2 K3 K4 K5
CO2	List the Types of Transport. Classify and Contrast Railways, Roads, Airways and Waterways, Pipelines (PO4, PO6) Courtesy: https://www.ScienceDirect.com Courtesy https://transportgeography.org	K1 K2 K3 K4 K5

CO3	Trace and recall the Network Characteristics. Outline the Topology Discuss the Graph Theory and Binary Matrix. Analyze and Examine the Measurements Of Connectivity and Accessibility. Students Activity: Students will calculate and map the topology of transport network	K1 K2 K5 K6
CO4	Outline the theories related to freight rate structure. Discuss the Bases of Spatial interaction. Comment on Complementarily, Intervening Opportunity and Transferability.	K1 K2 K3
CO5	Summarize the transport system in India. Discuss the Role of Transport in Regional development In India. Examine the role of Transport in Regional development In India. Conclude the Urban and Rural Transportation Planning and Management. Students will prepare report on the role of rural and urban transport planning and Management	K1 K2 K3 K4 K5 K6

TEXTBOOKS

1	Peter Haggett (2001) Geography: A Modern Synthesis, 4 th edition, New York, Prentice Hall
2	H. M. Saxena (2022) Transport Geography, Rawat Publications
3	Dwivedi, R.L. (2014). 'Transport Geography'. Chaitanya Publishing House, Allahabad

REFERENCE BOOKS

1	Transport for the Space Economy: A Geographical Study - Hay, A, Macmillan, 1973
2	White H.P. and Senior 1983 'Transport Geography', Longman, London
3	Transport and Developing Countries - Hillings, H., Routledge, 1996 Geography of Transportation, Naresh Kumar, Concept Publication, 1991

WEB RESOURCES

1	https://transportgeography.org/?page_id=40,
2	https://www.e-education.psu.edu/geog597i_02/node/814
3	ww.geography.about.com/od/Transportgeography

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	1	1	1	1	1	1
CO3	3	1	2	1	2	1	1	1	1	1
CO4	3	2	1	1	2	1	1	1	1	1
CO5	3	2	1	2	2	1	1	1	1	1
CO-PO_Total	15	7	6	6	8	5	5	5	5	5
Weightage	3	1	1	1	2	1	1	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

ThirdYear-Semester-VI

COURSENAME:Elective–VIII:DISASTER STUDIES										
COURSE CODE	Core Part-3	L	T	P	S	C	TOTAL HOURS	MARKS		
								CI A	External	Total
23UG	DSE	5			VI	3		25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	TolearnthedisasterandClassificationofdisasters.									
LO2	Toenhanceknowledgenaturaldisasteranddistributionofdisaster									
LO3	ToenhanceknowledgeManmadedisasteranddistributionofdisaster									
LO4	ToknowaboutDisastermanagementandMitigation									
LO5	ToupdatetheknowledgeofDisaster AssessmentPlanningandManagement									
UNIT	CONTENTS							NO.OF HOURS		
I	Disastermanagement:Definition-Nature-scopeandcontent-Classification of disasters- Distribution of disaster (Global, National and Regional)							6		
II	Natural disasters- process and generalcharacteristics- distribution –pattern: Earthquakes -Tsunami- Volcanoes- Cyclones- Floods–Droughts- Landslides							6		
III	ManmadeDisaster-causes–Prediction,DistributionandPatterns(Ethnic waste– man destruction – leakage of Toxic waste – fireandStampede.							6		
IV	DisastermanagementandMitigation–StagesofMitigation–planning (Awareness – Preparedness- Forecast – warning- prevention and Precautionary measures) - Reconstruction and Rehabilitation.							6		
V	DisasterAssessmentPlanningandManagement–RoleofGovernmentand Non Government Agencies- NDMA,TNSDMA,NIDM andUNDM.							6		

CO	COURSEOUTCOMES	Klevel
CO1	Define Disastermanagement. Identify nature,scopeandcontent.Outlinethe Classification of disasters. Compare and Contrast Distribution of disaster (Global, National and Regional) Activity:Distributionofdisaster(Global,NationalandRegional)(PO4,PO9)	K1,K2 K3
CO2	Discuss Naturaldisasters. Explain theprocessandgeneralcharacteristics. Distinguish and classify the distribution. Categorize disasters (Earthquakes - Tsunami- Volcanoes- Cyclones- Floods –Droughts- Landslides)	K1 K2 K3

	Activity: Group Discussion on the distribution pattern of different natural disasters. PO1 PO2PO7 Courtesy: www.naturaldisasters.com ;	K4 K6
CO3	Explain Manmade Disaster, describe the causes. Predict the Prediction, Distribution and discuss its Patterns (Ethnic waste – man destruction – leakage of Toxic waste – fire and Stampede). Activity: Group Discussion on the distribution pattern of different Manmade disasters	K1 K2 K3 K4
CO4	List out Disaster management and Mitigation. Organize the Stages of Mitigation – Discuss planning (Awareness – Preparedness – Forecast – warning – prevention and Precautionary measures) Identify and rectify Reconstruction and Rehabilitation. Activity: Group Discussion on the Reconstruction and rehabilitation programs (PO5) Courtesy: www.globalissues.com	K1 K2 K4 K5
CO5	Identify Disaster Assessment Planning and Management – Discuss and list out the Role of Government and Non Government Agencies and List the agencies involved in the mitigation processes of disaster management. Seminar: on the Results and Conclude their risk and vulnerable analysis and damage assessment	K1 K2 K3 K4

TEXTBOOK:

1	Harsh, K. Gupta, (2004): Disaster Management, University Press.
2	Husain, Ahmad (2006): Natural disaster Management, Aavishkar Publication Jaipur, India.
3	SC Sharma, (May 2023): Disaster Management Second Edition AICTE by SC Sharma, Khanna Publishers, ISBN 9780727765086

REFERENCE BOOKS

1	D.R. Khullar and JACS Rao (2021), Environment & Disaster Management: Ecology, Climatic Change & Biodiversity, McGraw Hill Education, India Private Limited, New Delhi
2	A.K. Srivastava (2021) Disaster Management, Scientific Publishers (India), Jodhpur
3	Jagbir Singh (2021) Disaster Management, I.K. International Publishing House Pvt. Ltd, New Delhi

WEB RESOURCES:

1	https://www.drishtias.com/to-the-points/paper3/disaster-management-i
2	https://www.era.tn.gov.in/disaster.php
3	https://nidm.gov.in/

CO/PO/PSO	PO									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	3	1	1	1		1	1	1	1	1
CO2	3	1	1	1	2	1	1	1	1	1
CO3	3	2	2	2	2	1	1	1	1	1
CO4	3	2	1	2	2	1	1	1	1	1
CO5	3	2	2	2	1	1	1	1	1	1
CO-PO_Total	15	8	7	8	7	5	5	5	5	5
Weightage	3	2	1	2	1	1	1	1	1	1

S-STRONG-3,MEDIUM-2,LOW-1

Year	Sem.	SubjectCode	Titleofthepaper	Hours/ Week
	VI		ELECTIVE–VIII:RESOURCE GEOGRAPHY	5

COURSELEVELOUTCOMES:

Onthesuccessfulcompletionofthecourse, studentswillbeableto:

1. Explainnaturalresources.
2. Examinethesignificanceagriculturalresourcesineconomicactivities.
3. Analyzethefishingandmajorfishinggroundsintheworld.
4. Distinguishthedifferenttypeofpowerresourcesanddistribution.
5. Evaluatethedistributionofmineralresourcesintheworld.
6. Interprettheindustrialresourcesaroundtheworld.
7. Analyzethedifferentmodesoftransportationsystemoftheworld.
8. Discussthetradeorganizations.

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Natural Resources:Resources- Definition, Nature, Scope and Significance –Need for ConservationandSustainableDevelopment - Classificationandtypes -SectorsofEconomy: Primary,Secondary,TertiaryandQuaternary -SoilResources:ClassificationandDistribution and Soil Conservation - Forest Resources: Types, Distribution and Forest Products.

UNITII

Agricultural Resources:Types, Geographical Distribution of Rice, Wheat, Tea, Coffee, Cotton and Sugarcane - Animal Resources: Dairy Farming - Fishing and Major Fishing Grounds.

UNITIII

MineralResources:Types, SignificanceandDistributionofIronore,Bauxite,Copper,Gold and Manganese - Power Resources: Distribution and Production of Coal, Petroleum, and Natural Gas, Hydal, Nuclear, Solar, Wind and Tidal Energy.

UNITIV

Industries:Locational FactorsandDistributionofIndustries– IronandSteel, ShipBuilding, Automobile, Textiles, Sugar, Chemical, Paper and Pulp -Major Industrial Regions of the World.

UNITY

Transport System: Road, Rail, Air and Waterways –Inland Waterwaysand Ocean Routes - Trade: Composition ofInternational Trade, Pattern, BalanceofTrade, Agreements oftrade – WTO – GATT.

PEDAGOGY STRATEGIES:

- Board and Chalk lecture PowerPoint slide presentations Seminar
- Assignments
- Online and Offline Class Practicals Quizzes
- Group discussion
-
-
-

REFERENCES:

1. Alka Goutham (2013). Geography of Resources, Exploration, Conservation and Management, Sharada Pusthak Bhavan, New Delhi.
2. Khanna, K.K. and Gupta, V.K., (2004). Economic and Commercial geography, Sultan Chand and sons, New Delhi.
3. Roy Prithwish, (2001). Economic Geography: A Study of Resources, New Central Book Agency Pvt. Ltd. New Delhi.
4. Siddhartha, K. (2004). Economic Geography, Kisa Lay Publications Pvt. Ltd. New Delhi.

FURTHER READING:

1. Alexander, J.W., (1963). Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Alexander, J.W., (2006). Economic Geography – Prentice Hall of India Pvt. Ltd. New Delhi.
3. Bagchi-Sen, S. and Smith, H. L., (2006). Economic Geography: Past, Present and Future, Taylor and Francis, London.
4. Coe, N.M., Kelly P.F. and Yeung H. W., (2007). Economic Geography: A Contemporary Introduction, Wiley-Blackwell, New Jersey.
5. Combes, P., Mayer T. and Thisse J. F., (2008). Economic Geography: The Integration of Regions and Nations, Princeton University Press, New Jersey.
6. Goh Cheng Leong, (1987). Human & Economic Geography, Oxford University Press, New York.
7. Hodder, B.W. and Lee, R., (1974). Economic Geography, Taylor and Francis, London.
8. Thomas R.S, (1968), Geography of Economic Activity, McGraw Hill Book Company, New Delhi.
9. Wheeler, J.O., (1998). Economic Geography, Wiley, New Jersey.
10. Willington, D.E., (2008). Economic Geography, Husband Press, London.

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- <http://geog.ufl.edu/files/Economic-Geography-3.pdf><https://freeupscmaterials.org/pmfias-economic-geography-pdf/><https://onlyias.com/human-economic-geography/>
- <https://www.clearias.com/geography/><https://library.oapen.org/bitstream/id/ecf6e3e2-91ba-4cf4-952d-c04d4bbe4704/1005865.pdf>
- <https://london.ac.uk/sites/default/files/uploads/gy2164-economic-geography-study-guide.pdf>

COURSELEVELMAPPINGOFPROGRAMLEVELOUTCOMES.

			CourseLevelOutcomes(CLO)							
			1	2	3	4	5	6	7	8
ProgramLevelOutcomes(PLO)	1	Disciplinary Knowledge	✓		✓		✓			✓
	2	Communication skills	✓			✓			✓	
	3	Critical thinking		✓	✓				✓	
	4	Research relatedskills		✓		✓	✓	✓		✓
	5	Analytical reasoning	✓		✓				✓	✓
	6	Problem solving		✓		✓	✓	✓		✓
	7	Moraland ethical awareness	✓	✓	✓			✓		
	8	Multicultural competence		✓	✓			✓		