U52

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**
ProgrammeCode: **Duration:**	**GEOG2023** **3Years**
Programme Objectives:	1. Toprovide students with a strong foundationin geographic knowledge.Thisincludesunderstandingphysicalgeography and the interconnectedness of these elements. 2. To cultivate critical thinking and problem-solving abilities in real-worldissuesrelatedtogeography,Suchasnaturalresource management, environmental conservation and urban development. 3. Todevelopresearchskills,includingdatacollection,statistical analysis, and the ability to present findings effectively. 4. Toexplore how geography intersects with other disciplines, suchaseconomics,sociologyandenvironmentalscienceetc. 5. To learn how to use Geo-informatic tools and software to collect,preparethematiclayers,analysegeo-spatialdata,and visualize geospatial data, which is valuable in various professional fields,includingurban planning, environmental management, and business.
Programme Outcomes:	1. Understandthescopeandevolutionofthediversedisciplineof Geography 2. Developethicalaptitudesanddispositionsnecessarytoacquire and hold leadership positions in industry, government, and professional organizations. 3. Recognize, synthesize and evaluate diverse sources of knowledge,argumentsandapproachespertinenttoexploring human-environment problems. 4. Developmentofknowledge,skillsandholisticunderstandingof the discipline among students. Encouragement of scientific modeofthinkingandscientificmethodofenquiryinstudents.

	5.Abilitytoundertakeresearchininterdisciplinarystudiesand problems or issues beyondtherealm of what strictly comes under the purview of geography.
Programme SpecificOutcomes:	1. Understandthemajorbiophysicalandsocialpatternsinthe world, and the key drivers that give rise to those patterns. 2. Demonstrate in-depth knowledge of theories, concepts, techniquesandtechnologiesinhumanandphysicalaspectsof 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 problemsandpotentialsolutionsinsocio-economic-ecological systems at the human environment interface. 4. Practiceobtaining,analysing,andinterpretingcomplex geographic data. 5. Work effectively in interdisciplinary and multicultural real-worldcontextstocombinetheoryandpracticeinrespondingto local to global issues for human and non-humans

PART	SUBJECT	PAPERS	CREDIT	TOTAL CREDITS	TOTALMARKS
PARTI	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
PARTV	ExtensionActivities	1	0	0	100
Total				**140**	**4500**

*Week–6Workingdayorder

COURSESTRUCTUREOFB.Sc.,GEOGRAP
HYPROGRAMME UG - SCHEME OF
EXAMINATIONS: CBCS PATTERN
(Forthestudentsadmitteddurингtheacademicyear2023–2024onwards)

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	CoreCourseVII: Population and Settlement Geography	5	25	75	100	5
III	4.4	Core Course VIII–GeographyofIndia	5	25	75	100	5
III	4.5	ElectiveGeneric/DisciplineSpecific– Elective IV– Practical – IV:MapProjection andSurveying Techniques	6	25	75	100	3
IV	4.6	SkillEnhancementCourse SEC–6 PoliticalGeography	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 – V Bio – Geography / Social and Cultural Geography	4	25	75	100	3
IV	5.6	Elective Generic / Discipline Specific Elective – VI Geography of Health / Land Use Survey & Techniques	4	25	75	100	3
IV	5.7	Value Education	2	25	75	100	2

IV	5.8	Industrial Training and Internship	0	25	75	100	2
			30				26

Part	Sub Code	Title of the Paper	Hrs (week)	Internal (CA) Marks	External Marks	Total Marks	Credits
III	6.1	CoreCourse–XIII Urban Geography	6	25	75	100	4
III	6.2	CoreCourse–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	ElectiveGeneric/DisciplineSpecificElective–VII AgriculturalGeography/TransportGeography	5	25	75	100	3
III	6.5	ElectiveGeneric/DisciplineSpecificElective – VIIIDisasterStudies / Resource Geography	5	25	75	100	3
IV	6.6	ExtensionActivity	-	25	75	100	1
IV	6.7	ProfessionalCompetencySkill	2	25	75	100	2
			30				21

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	**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 o**f Ocean Bottom relief. **Figure out** distribution and surface configuration of ocean floor https://www.pmfias.com/ocean-relief-major-minor-ocean-relief-features **PO1 PO2 PO4 PO5**	K1,K2,K3 K4,K5
2	**Understands t**he relief features of the major oceans, **Describes** the composition of sea water Students activity: Create model on ocean Ocean floor project model	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/lbdfvgAACAAJ?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 **B**ang 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	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/	K1K2K3K4 K5 K6
CO2	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 time**Critically evaluate PO - 3 causes of day and night,** recall and Understand **PO - 4**evaluate 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	K1K2K3K4K5
CO3	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/	K1K2K3K4K5
CO4	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 d**efine the regionalism and its concepts (Interactive session with questions) **https://www.yourarticlelibrary.com/geography/**	K1K2K3K4K6
CO5	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://makingscience.royalsociety.org/	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	PO 4	PO5	PO6	PO 7	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 Part -3**	**L**	**T**	**P**	**S**	**Credit**	**TOTAL HOURS**	**MARKS**		
								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: https://www.noaa.gov>weather-anNational 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-Indiahttps://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 esearch 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). *Cities, Urbanisation and Urban Systems(Settlement Geography).* 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	**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**	K1 K2 K3 K5 K6
CO 2	**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	K1 K2 K3 K4 K5
CO3	**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**	K1K2 K4K5 K6
CO4	**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**	K1K2 K3K4 K5
CO5	**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**	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:CCVII POPULATION AND SETTLEMENT GEOGRAPHY										
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,LawsofMigration.	
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, Materials.TypesofHousesinIndia- Typesofruralandurbanhouses inIndia.	

UNIT	COURSEOUTCOMES	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,BuildingmaterialsforHousetyp es – 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). *Cities, UrbanisationandUrbanSystems(Settlement Geography).* 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.*Rural Settlements*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	LEARNINGOBJECTIVES
LO1	TounderstandthePhysiographicofIndia.
LO2	Toillustrateand examinetheclimaticdataandDistributionofRainfall
LO3	ToelaborateontheGeographicalRequirementsofCrops.
LO4	ToenhanceMetallicandNonMetallicMinerals.
LO5	To introducetheDistributionDensityand growthPopulation.

UNIT	CONTENTS	NO.OF HOURS
I	Location – Frontiers- Neighbouring Countries- Physiography(Himalayas-Plateau -Western Ghats and Eastern Ghats - Rivers – Northern Rivers andSouthernRivers – EastCoastalPlain,Westcoastalplainand 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 TropicalForest,EvergreenForest,Mangrove,ThornyForest-Faunaanditstypes.	12
III	AgriculturalGeographicalRequirementsofCrops–Rice-WheatOilseeds –Sugarcane–Cotton-Jute-Tea–Coffee–Rubber–Livestock–Fisheries-AgriculturalProblems–Monsoonvagaries–Irrigation–Types–Multipurpose Projects	12
IV	Minerals–MetallicandNonMetallicMinerals-Iron–Manganese–Bauxite-Copper-Mica-Illuminate-Energy(Hydel,ThermalandAtomic)(Significanceofnon-conventionalenergysources)-Industries-Iron&Steel–Textiles – Paper — Ship building – Locomotives – Cement – Fertilizer-(MajorIndustrialregions ofIndia)	12
V	Population–Distribution-Densityandgrowth–PopulationProblems–Transport–Roadways–Railways–Waterways–Airways–Portsand Harbours-Trade–Exportand Import.	12

CO	COURSEOUTCOMES	K level
CO1	**Recall**theGeographiclocationandComparetheneighbouringcountriesanditsstrategic importance.**Classifying**thenatureandextentof Himalayanranges,**identifying**theresourcesofvariouselevation.OutlinetheWesternGhatsandeasternGhatsandPlateaus.**Comparethe**northernperennialandsouthernnonperennial rivers and assess the coastal stretch and its importance of Coastal plains,**Estimate**Islandresources.(**Studentsareallowedtoestimatethewaterandland resources[PO3])(Interactivesessionwith questions)[PO2]Courtesy:https://www.jagranjosh.com/general-knowledge/summary-on-the-physiography-of-india**	K1 K2 K3 K4 K5 K6
CO2	**Distinguish** the concept of climate and weather; **explain** the intensity of IndianMonsoon,**Evaluate**theamountandpatternofrainfall, **Summarise**thedistributionof various soils over the region. **Critically evaluate** Natural vegetation especiallythetypes offorests(**PO3PO4**).Recalltheanimalresources, **(Interactivesession withquestions)[PO2] Courtesy:https://www.futurelearn.com/info/blog/cyclones-in-india-weather-preparation-recovery**	K1 K2 K3 K4 K5
CO3	**Define**theagricultural regions,**Classifying**thefoodcropsandnonfoodcropsofIndia,**Identifying**thecropping patternanditsdistribution,**assess**theproductionbasedonrainfall**(PO4)Explain**thetype sofirrigation,**assess**thehydroelectricpower generation, **PO -3** summarize the various purpose of the project(**Interactive sessionwithquestions)[PO2] Courtesy:** http://www.un-csam.org/	K1 K2 K3 K4 K5
CO4	**Classifying** the minerals. Distinguish metallic and non metallic, **estimate** theHydel power generation **PO - 4** Assess the thermal power and atomic powergeneration **PO - 4**, **Analyse**the major Industrial regions and its importance ineconomicgrowth**PO– 4.Discussthegrowth ofiron steelindustriesofIndia (Interactivesessionwithquestions)[PO2]**	K1 K2 K3 K5 K6

	Courtesy:http://studymaterial.unipune.ac.in	
CO5	**Explain**theDemographyofIndia,EstimatingthePopulationdistribution,Density andGrowth**PO-3**,**Discuss**thePopulation**problems**,**Compare**themeansof transport,**Understand**thestrategicimportanceofSearoutesandAirports.**PO-7,Evaluate**theimportsandexports**PO-3,Rememberthemajorandminor PortsandimportancePO7 (Interactivesessionwithquestions)[PO2]** Courtesy:https://www.theigc.org/ Courtesy:http://egyankosh.ac.in/	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	Toappreciatethechoiceofprojectionfor variouspurpose.
LO2	Todeveloptheskillsonvarioussurveyingtechniques.
LO3	Toupdatethe knowledgeonthe usageofGPS.
LO4	TogetdepthknowledgetoconstructinternationalprojectionandChoiceofProjection.
LO5	To acquirethe basicknowledge ofsurveytechniques

UNIT	CONTENTS	NO.OF HOURS
I	Mapprojection-Construction–Propertiesandutilities-ConicalProjection– OnestandardProjection-TwostandardparallelProjection–Bonne's projectionandPolyconicprojection.	
II	ConstructionofCylindricalProjection-EqualareaProjection–EquidistantProjection-Mercator'sProjection.	
III	ZenithalProjection(Polarcase)Gnomonic,Stereographic–Orthomorphicworld projection–Molleweide–Sinusoidal-Internationalprojection-Choiceofprojection.	
IV	Simplemethodsofsurveying–Chain(openandclosed)–Prismaticcompass (openand closed).	
V	PlanetablesurveyOpenandClosedTravers–Clinometer-Dumpylevel– GPS,SurveywithGPS.	

CO	COURSEOUTCOMES	K level
CO1	Recalls the uniqueness of each projection and significance of each projection-lists out types of projections -ableto constructConicalOne standardProjection and Two standard parallel Projection - the properties and uses ofeachprojection-differentiateBonne'sprojectionandPolyconicprojectiontheirconstruction,properties anduses.PO4 PO7PO9PO10 https://www.geographyrealm.com/types-map-projections/http://geokov.com/education/map-projection.aspx	K1 K2 K3 K4

CO2	**Understands**theconceptofCylindricalProjection– **ableto construct**EqualareaProjection, Equidistant Projection andMercator's Projection-**distinguishes**between the three types, their properties and uses**PO4 PO7PO9 PO10**http://www.radicalcartography.net/index.html?projectionref http://mathworld.wolfram.com/topics/MapProjections.html	K1 K2 K3 K5
CO3	**Appreciates**theconceptofZenithalProjection,(Polarcase)**able to construct**Gnomonic, StereographicandOrthomorphicprojections-**Recognizes** theimportance of world projectionable to **construct** Molleweide, Sinusoidal andInternational projection-**Analyze** and evaluateChoice of projection **PO4 PO7PO9PO10** http://www.csiss.org/map-projections/https://www.e-education.psu.edu/geog486/node/677 https://www.gistda.or.th/main/en/node/955	K1 K2 K3 K4 K6
CO4	**Briefs** about Simple methods of surveyingIndividual candidate is **able todo**Chain(openandclosed)andPrismaticcompass (openandclosed).**PO4PO5PO7PO9PO10** **Curtesy** https://www.youtube.com/watch?v=mnnQPTlyOIUhttps://civiljungle.com/chain-surveying/ https://www.civilknowledges.com/prismatic-compass-surveying-parts-uses/	K1 K2 K3 K5 K6
CO5	**Individual**candidateisabletodoPlanetablesurvey-OpenandClosedTravers,Clinometer - Dumpy levelandSurvey with GPS. **PO4 PO5 PO7PO9 PO10**https://civilseek.com/plane-table-surveying/http://www.fao.org/3/w8297e/w8297e05.htm https://www.icsm.gov.au/about	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.HOURS	MARKS		
								CIA	External	Total
	SEC-6	2				2	60	25	75	100

UNIT	LEARNINGOBJECTIVES
LO1	ToacquirebasicknowledgeonthePoliticalGeography
LO2	ToelaboratethespatialdistributionofCoreAreasofPoliticalGeography
LO3	TodiscusstheimportanceofBoundariesandFrontiers
LO4	ToelaborateonGeographyofElections
LO5	ToillustratethePoliticalGeographyofIndia

UNIT	CONTENTS	NO.OF HOURS	
I	PoliticalGeography:Definition,Scope,ContentandDevelopment–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	COURSEOUTCOMES	K level
1	**Broadens** theknowledgeoftheConceptsofPoliticalGeography**understands** Geopolitics	K1K2K3 K4
2	**Enhances**the knowledgeabouttheCoreAreasofPoliticalGeography, **differentiates**Capitalstypes	K1 K2 K3K4 K5
3	**Enriches**theknowledgeabouttheimportanceofBoundariesandFrontiers.**List** out theClassificationofBoundariesand**identifies**theBorderdisputes	K1,K2 K3,K5
4	**Obtain**theknowledge onGeographyofElections,Votingpatterns.**Analyse**the ElectionCommission.	K1,K2, K4 K5,K6
5	**Acquires**theinformationabout theindicators–PoliticalGeographyofIndia.**List** outtheSAARCcountriesand**discuss**theirPolices	K1,K2 K3,K5 K6

TEXTBOOK:	
1	Dwivedi,R.L.(2014).*FundamentalsofPoliticalGeography*.ChaitanyaPublishingHouse,Allahabad.
2	Adhikari,Sudeepta.(2009).*PoliticalGeographyofIndia-AContemporaryPerspective*.SharadaPustak Bhavan,Allahabad.
3	SudeepthaAdhikari,(2004),PoliticalGeography,Rawat publications,NewDelhi.

REFERENCEBOOKS:	
1	Dikshit,R.D.(1982).PoliticalGeography:Acontemporaryperspective,McGrawHillPublishing co., NewDelhi.
2	Dr.MonikaKannan(2018).PoliticalGeography:
3	PeterJ.Taylor(1985)PoliticalGeography:World-Economy,Nation,StateandLocality

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 PART -3**	**L**	**T**	**P**	**S**	**Credits**	**TOTAL HOURS**	**MARKS**		
								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. *Remote Sensing and Geographic Information System*. Narosa Publishing House (2016).
2	Bhatta, Basudeb, *Remote sensing and GIS*, NewDelhi. Oxford University Press /Radha press (2011).
3	Siddique, Dr. M.A. *Introduction to Geographic Information Systems.* Allahabad. ShardaPustakBhawan, (2006).
4	Clarke. *Getting started with Geographical Information systems.* 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

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,Wareing.J (1992) Economic and Social Geography,Butterworth –Heinemann limited

WEB RESOURCES:	
1	joeg.oxford journals.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**

S- STRONG-3, MEDIUM-2, LOW-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	**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/**	K1 K2 K3 K4 K5
CO2	**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**	K1,K2 K3,K4 K5,K6
CO3	**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**	K1 K2 K3 K4 K5
CO4	**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.tnenvis.nic.in/Content/MineralResourcesofTamilNadu_1207.aspx?format=Print**	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 discus 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**	**PO 7**	**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

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 dev**elop 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** A**ctivity 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-guidePO4 PO5 PO7 PO10	K4
2	**Define** -Biodiversity , Meaning, **explain** Elements and Types of Biodiversity **explain** and **draw the map** Biodiversity Hot Spots a**ppreciate** 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 PART -3	L	T	P	S	Credit	TOTAL HOURS	MARKS		
								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 recallLand use survey – to analyse the importance of Land use – locational knowledge –to identify the types of landforms.	K1, K2 ,K3,K4
2.	To ExplainProximate Sensing technique- Listmaps, diagrams, Sketch maps. Layout plans and route maps.UnderstandTechniques of preparing base maps	K1, K2,K4
3.	ListLand use types and Explain and ClassifyResidential, Commercial, Recreational, Institutional, Open Space, Mixed, and other land use.	K1, K2, K4,K5
4.	DefineFieldwork and collection of data-Catergoise primary and secondary data – DiscussField survey – Interview methods, questionnaire method, schedules.	K1,K2,K4. K5
5.	EnrichFieldwork 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 Landuse 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, ChaukhambaAuriyantaliya, 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://planning tank.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

THIRDYEAR–SEMESTERVI

Coursecode:	EASC011	URBANGEOGRAPHY	L	T	P	C
Core/Elective		Core	3	1	0	4
Pre-requisite		NopriorknowledgeinCartography				

CourseObjectives:

1. TounderstandtheNatureandScopeofUrbanGeography-Urbangrowthandrelatedtheories.
2. Tolearnthe conceptofurbangrowthandtheories, organizationofUrbanspace
3. Toanalyse andidentifythe urbanissues.
4. Tostudythepolicesandplanning.
5. ToleanGISandRemotesensingapplicationforurbanstudies

Unit- 1	NatureandScopeofUrbanstudies

Urban Geography - Definition, nature and scope; Origin and growth of urban places; classificationof urbansettlements,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, UrbanPolicyand programmesin India. cityplanning, greenbelts, gardencities - urbanpolicy; contemporary issues in urban planning - globalization and urban planning in theThird World.

ExpectedCourseOutcomes:		
Onthesuccessful completionofthecourse,studentwillbeableto:		
1	Understand the urban places origin and growth from Ancient to Modern period,the basesand processin urbanization &urbantheories, current issues in urbanization and polices.	**K1,K2**
2	UnderstandtheurbanplacesoriginandgrowthfromAncienttoModern period,thebasesandprocessinurbanization&urbantheories.	**K2,K3**
3	Employing theknowledgeofurbangrowthandrelatedtheoriesin analysingtheurban landscape,issues anddevelopmentorreshapingtowns	**K3,K6**
4	Understandingthebasicconceptsapproachestourbanplanningandurban 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		

TextBook(s)	
1	Chorley,R.J.andHaggett,P.(1966):ModelsinGeography,Methuen,London.
2	Dickinson,R.E.(1964):CityandRegion,Routledge,London.
3	Dwyer, D.J. (1971): TheCityasaCentre ofChangeinAsia,UniversityofHongKong Press, Hongkong.
4	HallP. (1992):UrbanandRegionalPlanning,Routledge,London.
5	Hauser,P.M.andSchnoreL.F.(ed.)(1965):TheStudyofUrbanisation,Wiley,NewYork.
6	James,P.E.andJonesC.F.(ed.)(1954): AmericanGeography: InventoryandProspect, Syracuse University Press, Syracuse.

ReferenceBook(s)	
1.	GISfortheUrbanEnvironmentbyJulianaMaantay,JohnZiegler,ESRIpress,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).TheStudyofUrbanGeography,EdwardArnoldPublishers,London.
4.	Chorley,R.J.O., HaggettP.(ed.)(1966).ModelsinGeography,Methuen,London.

5.	GibbsJ.P.(1961).UrbanResearchMethodsD.VanNostrandCo.Inc.Princeton,NewJersey.
6.	HallP. (1992).UrbanandRegionalPlanning,Routledge,London.
7.	Kundu,A. (1992). UrbanDevelopmentandUrbanResearchinIndia,KhannaPublication.
8.	Meyor, H.M. KohnC.F. (eds.)(1955).ReadingsinUrbanGeography, UniversityofChicago Press, Chicago.

RelatedOnlineContents[MOOC,SWAYAM,NPTEL,Websitesetc.]	
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

MappingwithProgrammeOutcomes(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**CourseOutcomes(CO)**foreachCoursewith**ProgrammeSpecificOutcomes(PSO)**inthe3-Pointscaleof**1,2,3(Strong,MediumandLow)**

THIRDYEAR–SEMESTER-VI

COURSE:CCXIV-REMOTESENSINGANDGNSS										
COURSE CODE	C Part-3	L	T	P	S	Credits	TOTAL HOURS	MARKS		
								CIA	External	Total
23UG	CCXIV	6			VI	5	60	25	75	100
UNIT	LEARNINGOBJECTIVES									
LO1	TohavebasicknowledgeonbasicsofRemotesensing									
LO2	ToelaborateonthefundamentalsandsignificanceofAerialphotographsandsatellitetypes									
LO3	TohavethedeepknowledgeonthetypesofresolutionandmarginalinformationofAerial photosandsatelliteimages									
LO4	ToexploretheapplicationofRemotesensing									
LO5	TohavewideunderstandingonGNSS,SegmentsandSatellitetracking									

UNIT	CONTENTS	NO.OF HOURS
I	RemoteSensing–Definitionandtypes-HistoryofRemoteSensingin India–RemoteSensingProcesses– ElectromagneticSpectrum, Atmospheric Window – Platforms and its types.	12
II	Fundamentals of Aerial and Satellite Remote Sensing- Aerial Photography and Scale of Aerial Photographs and itstypes – types of Satellites.	12
III	Resolution:Spectral,Spatial,RadiometricandTemporal-Marginal Information of Aerial Photographs and Satellite Images.	12
IV	Applicationof RemoteSensing;Landuse/Landcover/Urbansprawl Agriculture and environment.	12
V	Global Navigation Satellite System: Segments: space segment - GPS Satellite systems – New programmes– IRNSS - Control segment - Satellite tracking-Usersegment–Modernsurveyinstruments–Errorsources– Satelliteaugmentedsystems-DGPS-GNSSApplications.	12

UNIT	COURSEOUTCOMES	Klevel
1	**Illustrate**remotesensingsystemanditscomponents**list**theplatforms anditstypes	K1,K2,K3,K4
2	**Elaborate**onaerialphotographsandittypes.**Understands**thescaleof AerialphotoDifferentiatetypesofsatellitesusedfor collectionofdata.	K1,K2,K4
3	**Distinguishes**betweenthetypesofresolution.**interpret**available marginal information on aerial photographs and satellite imagery	K1,K2,K4, K5
4	**Explores**theapplicationofremotesensinginvariousfields.	K1,K2,K4.K5
5	**Recognizes**theconnectivitythroughGNSS,GPS,**understands**the segments of GPS, **Analyse** the application of GNSS. Student'sactivity:LocatepointsinyourlocalityandsurveyusingGPS.	K2,K4

TEXTBOOKS	
1	SiddiqueM.A.(2006):IntroductiontoGeographicInformationSystems,ShardaPustak Bhawan,Allahabad.
2	Chandra A.M&S.M.Ghosh,(2006)RemotesensingandGeographicalInformationSystem, Alpha Science Int'l limited, New Delhi.
3	PandaB.C(2005):Remotesensingprinciplesandapplications,Vivabooksprivatelimited.

REFERENCEBOOKS	
1	AnjiReddy.M.(2001):RemotesensingandGeographicalinformationsystem,BS publication, Hyderabad
2	BurroughP.A & McDonnell (1998):PrinciplesofGeographicInformation System,Oxford University Press.
3	Clarke(2001):GettingstartedwithGeographicalInformationsystems,PrenticeHall, NewJersey

WEBRESOURCES:	
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–VIAPPLICATIONSOFREMOTESENSINGANDGIS 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	LEARNINGOBJECTIVES
LO1	Thispaperhelpstoacquiremoreknowledgeaboutaerialphotographsandsatellite imageries.
LO2	Traininggiventothestudentsabout stereoscope,howtoviewtheimagesthrough stereoscope, marking principal point, identification of flight direction.
LO3	Satelliteimageriesaredigitizedthroughtheimageclassification.

UNIT	CONTENTS	NO.OF HOURS
I	Interpretation of Satellite Imageries-Interpretation Keys- Annotation - Interpretation-InterpretationofRadarimagefromIMDwebsite–Cyclonic tracking	
II	Handsonprocessingofdigitaldata–Dataformatsandstorageofdigital data(BIP,BIL,BSQ)–GreyScale–Intensityprofile–Histogram-supervised and unsupervised classification.	
III	Databasecreation(SpatialandNonSpatialdata-tourist)DataBase Manipulation (Data conversion into percentage , Ratio, Average, Deviation) Data Analysis-growth rate,.	
IV	VectordataAnalysis–CreationofPoint,LineandArealayers,	
V	CreationofThematiclayers–thematiclayersanditstypes–Buffer analysis – Overlay analysis.	

CO	COURSEOUTCOMES	Klevel
CO1	**Recalls** Aerial Photographs, Orientation and Stereoscope Viewing of Photographs,**Identifies** ofFlightDirectionand Flight route deflection, **PO1 PO2calculates**Scale,andareameasurementinAerialPhoto,**PO3PO4PO5 PO6Execute** Distanceand area measurement with Google map for their local area**, PO7 interpretates** by Comparative study of Aerial Photograph, with Toposheet and imagery **PO8 PO9 PO10** 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	K1K2K3 K4 K5

	https://www.makeuseof.com/tag/measure-area-distance-google-maps-earth/#	
CO2	**Recalls** Elements of Aerial photo Interpretation, **Identify analyse andjudge** the Relief, River features, Drainage pattern Land use, **Builtup**Structure and Transportation lines **https://www.geographynotes.com/topography/aerial-photography/aerial-photography-meaning-and-interpretation-geography/5964** **PO1PO2PO4PO5PO7PO8PO9PO10**	K1K3K3 K4 K5
CO3	**Recalls** Interpretation Keys and Annotation (2 exercise), **PO1 PO2 PO3 PO4Interpretatesfeaturesin**truecolourandfalsecolourcomposite**,PO5 PO7PO8P09**InterpretationofRadarimagefromIMDwebsite–Cyclonic tracking **PO10** **https://earthobservatory.nasa.gov/features/ColorImage** **https://mausam.imd.gov.in/imd_latest/contents/cyclone.php**	K1K4K5
CO4	**recognizes** the Data formats and storage of digital data (BIP,BIL,BSQ) **PO1 PO2applies**theconceptofGreyScale**PO3understands**Intensityprofileand Histogram as a pre-processing and enhancement technique for image interpretation, **differentiates** between supervised and unsupervised classification.**PO4PO5PO7PO8Po9PO10**	K1K2K4 K5
CO5	**Develops**theskillofhandlingGPS.**PO1PO2identifies**theLatitude and Longitude of a place – **calculates** the Track length **PO3PO4PO5PO7PO8Doessurvey**forOpenandClosedtrackto**draw the plan for the area, measures** the Height ofa place using GPS **https://www.techwalla.com/articles/how-to-use-gps-to-survey-land**	K1K2K3 K6

REFERENCEBOOK	
1	Bhatta,Basudeb.(2011).*RemotesensingandGIS*.OxfordUniversityPress,India
2	ParthaBasu,PijushkantiSaha(2010).*AdvancedPracticalGeography.*'BooksandAlliedLimited
3	Khan,M.Z.A(1998).*TextbookofPracticalGeography*.ConceptpublishingCompany,NewDelhi
4	Khullar,Dr.(1997).*King'sPracticalGeography*.EducationalPublishers, Delhi.
5	Negi,BalbirSingh(1995).*Practical Geography*.(3rdedition).KedarNathandRamNath,Meerut,Delhi
6	AslamMohammed1977'StatisticalMethodsinGeographicalstudies',RajeshPublications.
7	ColeandKing1989'QuantitativeGeography–TechniquesandTheoriesinGeography',JohnWiley andSonsLtd.,London.
8	K.Briggs.B.A.1976'IntroducingTransportationNetwork',UniversityofLondonPressLtd. 4.Monk HouseF.J1984'MapsandDiagrams',MethuenandCo.Ltd.,London.
9	'ScienceinGeographySeries',1994,OxfordUniversityPress.
10	TaffyE.J.andGauthierJr. H.L.1973'GeographyofTransportation',PrenticeHall, EnglewoodCliffs, NewJersey.

WEBRESOURCES	
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 knowledgeandskills	**2Skilledcommunicators**	**3criticalthinkerand problem solver**	**4 Senseofinquiry**	**5Teamplayer/worker**	**6Skilledproject managers**	**7Digitally efficient**	**8Ethicalawareness/ reasoning**	**9Nationaland International perspective**	**10Lifelonglearners**
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	Tointroducesalltherelevantaspectsofagricultureinasystematic manner.
LO3	Tofamiliarizesthestudentswiththeapplicationofvarioustheories,modelsand Classificationschemesandfoodsecurity.

UNIT	CONTENTS	NO.OFHOURS
I	Nature, scope, significance and development of agricultural geography. Approachestothestudyofagriculturalgeography:Commodity,systematic and regional and systems.	6
II	Determinants ofagricultural land use - Physical, economic and social systems, - cropping pattern, crop concentration, intensity of cropping, diversification and specialzation, efficiency and productivity, crop combinationregionsandagriculturaldevelopment-greenrevolution-its impactandconsequences.	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 deficitandfoodsurplusregions;nutritionalindex-specificproblemsin Indianagriculture	6
V	Land use studies, Land capability classification and Land Use Planning, CroppingPattern, Role of Remote Sensing in Land Use Studies, Agricultural regions of India and Tamil Nadu.	6

COURSEOUTCOMES

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

Agriculturalgeographyseekstodescribeandexplainspatialvariationsin agricultural activity over the earth's surface.

Thiscourseintroducesalltherelevantaspectsofagricultureinasystematicmanner.

Thecoursefamiliarizesthestudentswiththeapplicationofvarioustheories,models and classification schemes and food security.

REFERENCEBOOKS	
1	Dr.AlagurajaPalanichamy(2016)RainfallandGroundwaterReliabilityforcroppingusing GeospatialTechniques"Publisher:Archers&ElevatorsPublishingHouse,Bangalore,India
2	Hussain,M.(2014)SystematicAgriculturalGeography,RawatPublications,Jaipur.
3	Shafi,M.(2006)AgriculturalGeography,DoringKindersleyIndiaPvt.Ltd.,NewDelhi.
4	Venugopal,S(2014)AgriculturalGeography,ArisePublicationandDistribution,New Delhi.
5	Sivasubramaniyan,K (2014) Irrigated agriculture in Tamilnadu,Simres Publications,Chennai, Bangalore.

Third Year
Semester–VI

COURSENAME:ElectiveVII: TRANSPORTGEOGRAPHY										
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	ToacquirebasicknowledgeandScopeofTransportGeography
LO2	ToelaboratetheTypesofTransportation
LO3	TodiscusstheimportanceofNetworkCharacteristicsoftransport
LO4	ToelaborateonTheoriesrelatedto freightratestructure
LO5	ToillustratetheTransport systeminIndia

UNIT	**CONTENTS**	**NO.OF HOURS**
I	NatureandScopeofTransportGeography -ImportanceofTransport - DevelopmentofTransportGeography–Associatedfactors-Transport Development - Physical, Economic, Technology.	6
II	TypesofTransport–Railways,Roads,AirwaysandWaterways,Pipelines	6
III	NetworkCharacteristics–Topology-GraphTheory-BinaryMatrix-MeasuresOfConnectivityandAccessibility.	6
IV	Theories related tofreightratestructure-Basesof Spatialinteraction–Complementarily - Intervening Opportunity and Transferability.	6
V	Transport systemin India -Role ofTransport in Regional development In India - RoleofTransportinRegionaldevelopmentInIndia-UrbanandRural TransportationPlanningandManagement.	6

CO	**COURSEOUTCOMES**	**Klevel**
CO1	**Recall**Nature and Scope of Transport Geography.**Discuss**Importance of Transport. Outline the Development of Transport Geography.**Analyse**the Associated factors. **Explore**theTransportDevelopment. **Classify**thePhysical, Economic, Technology of Transport (PO1,PO3,PO4,PO5) StudentsActivity:PresentPPTforFactorsand DevelopmentofTransportGeography	K1 K2 K3 K4 K5
CO2	**List** theTypesofTransport. **ClassifyandContrast** Railways, Roads, Airways and Waterways, Pipelines(PO4,PO6) Courtesy:https://www.Sciencedirect.com Courtesyhttps://transportgeography.org>	K1 K2 K3 K4 K5

CO3	**Trace and recall** the Network Characteristics. **Outline** the Topology Discuss theGraphTheoryandBinaryMatrix.**Analyze**and**Examine**theMeasurements Of Connectivity and Accessibility. StudentsActivity:Studentswillcalculateandmapthetopologyoftransport network	K1 K2 K5 K6
CO4	**Outline** the theories related to freight rate structure**. Discuss** the Bases of Spatial interaction. Comment on Complementarily, Intervening Opportunityand Transferability.	K1 K2 K3
CO5	**Summarize** the transport systemin India. **Discuss** the Role of Transport in Regional development In India. **Examine** the role of Transport in Regional developmentInIndia.**Conclude**theUrbanandRuralTransportationPlanning and Management. Studentswillpreparereportontheroleofruralandurbantransportplanning andManagement	K1 K2 K3 K4 K5 K6

TEXTBOOKS	
1	PeterHaggett(2001)Geography:AmodernSynthesis,4th edition,Newyork,PrenticeHall
2	H.MSaxena(2022)TransportGeography,RawatPublications
3	Dwivedi,R.L.(2014).'*TransportGeography*'.ChaitanyaPublishingHouse,Allahabad

REFERENCEBOOKS	
1	TransportfortheSpaceEconomy:AGeographicalStudy-Hay,A,Macmillan,1973
2	WhiteH.P.andSenior1983'*TransportGeography*',Longman,London
3	Transport and Developing Countries - Hillings, H., Routledge, 1996 GeographyofTransportation,NareshKumar,ConceptPublication,1991

WEBRESOURCES	
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	PO 7	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		
								CIA	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, DistributionanddiscussitsPatterns(Ethnicwaste–mandestruction–leakageof Toxic waste – fire and Stampede. **Activity:GroupDiscussiononthedistributionpatternofdifferentManmade disasters**	K1 K2 K3 K4
CO4	**List out** Disaster management and Mitigation. **Organize** the Stages of Mitigation–Discussplanning(Awareness–Preparedness-Forecast–warning-prevention and Precautionary measures) **Identify and rectify** Reconstruction and Rehabilitation. **Activity:GroupDiscussiontheReconstructionandrehabilitation programs(PO5)**Courtesy**:www.globalissues.com**	K1 K2 K4 K5
CO5	**Identify**Disaster AssessmentPlanningandManagement–**Discussandlistout** the Role ofGovernment and Non Government Agencies and **List** the agencies involved in the mitigation processes of disaster management. **Seminar:** on the Resultsand**Conclude**theirriskandvulnerableanalysisanddamageassessment	K1 K2 K3 K4

TEXTBOOK:	
1	Harsh,K.Gupta,(2004):DisasterManagement,UniversityPress.
2	Husain,Ahmad(2006):NaturaldisasterManagement,AavishkarPublicationJaipur,India.
3	SCSharma,(May2023):DisasterManagementSecondEdition AICTEbySCSharma,Khanna Publishers,ISBN9780727765086

REFERENCEBOOKS	
1	D.R.KhullarandJACSRao(2021),Environment&DisasterManagement:Ecology,Climatic Change&Biodiversity,McGrawHillEducation,IndiaPrivateLimited,NewDelhi
2	A.K.Srivastava(2021)DisasterManagement,ScientificPublishers(India),Jodhpur
3	JagbirSingh(2021)DisasterManagement,I.K.InternationalPublishingHousePvt.Ltd,NewDelhi

WEBRESOURCES:	
1	https://www.drishtiias.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	PO 7	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.

UNITI

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.

UNITV

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

DAGOGYSTRATEGIES:

- Board and Chalk lecture PowerPoint slide
- presentations Seminar
- Assignments
- OnlineandOfflineClassPracticals Quizes
- Groupdiscussion

REFERENCES:

1. AlkaGoutham (2013). Geography of Resources, Exploration, Conservation andManagement,SharadaPusthakBhavan, New Delhi.
2. Khanna,K.K.andGupta,V.K., (2004). Economic andCommercial geography,SultanChand and sons, New Delhi.
3. RoyPrithwish, (2001). EconomicGeography: A Study ofResources, New Central BookAgency Pvt. Ltd. New Delhi.
4. Siddhartha,K(2004).EconomicGeography,KisalayapublicationsPvt.Ltd.New Delhi.

FURTHERREADING:

1. Alexander,J.W., (1963). EconomicGeography,Prentice-HallInc., EnglewoodCliffs,New Jersey.
2. Alexander,J.W.,(2006).EconomicGeography–PrenticeHallofIndia Pvt.Ltd.NewDelhi.
3. Bagchi-Sen,S.andSmith,H. L.,(2006).EconomicGeography:Past, Present and Future,Taylor and Francis, London.
4. Coe,N.M.,KellyP.F.andYeungH.W.,(2007).Economic Geography:AContemporaryIntroduction,Wiley-Blackwell,NewJersey.
5. Combes, P., Mayer T. and Thisse J. F., (2008). Economic Geography: TheIntegration ofRegionsandNations,PrincetonUniversityPress,New Jersey.
6. GohCheng Leong, (1987). Human&Economic Geography, Oxford UniversityPress,New York.
7. Hodder,B.W.andLee,R.,(1974).EconomicGeography,TaylorandFrancis, London.
8. ThomasR.S, (1968), Geographyof EconomicActivity, McGraw Hill BookCompany,New Delhi.
9. Wheeler,J.O.,(1998).EconomicGeography,Wiley,NewJersey.
10. Willington,D.E.,(2008).EconomicGeography,HusbandPress,London.

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Website(s):

- http://geog.ufl.edu/files/Economic-Geography-3.pdfhttps://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**		✓	✓			✓		