PG DEPARTMENT OF GEOGRAPHY

Choice Based Credit System and Outcome Based Education

Course Structure and Course Work Manual

B.Sc., GEOGRAPHY

Curriculum Framed From Model Syllabus of

TAMILNADU STATE COUNCIL FOR HIGHER EDUCATION, CHENNAI – 600 005

Candidates Admitted Academic Year 2023-2024 Onwards

Kunthavai Naacchiyaar Government Arts College for Women (Autonomous)

Re-Accredited by NAAC with 'B' Grade

Thanjavur, Tamil Nadu, India - 613 007

Affiliated to Bharathidasan University, Tiruchirappalli

PG DEPARTMENT OF GEOGRAPHY

VISION

To Impart Quality Education in Geography to Rural and EconomicallyWeaker Students with Professional Competence and Confidence.

MISSION

- To provide excellent teaching-learning environment with its focus on progressing education using latest technology.
- To enhance students to acquire the core knowledge of the syllabus.
- To encourage students to develop analytical and logical thinking.
- To graduate qualified students with skills and employability.
- To inculcate ethical and moral values.

PO 1: Recognize the scope and evolution of the diverse discipline of Geography.

PO 2: Demonstrate the understanding of basic concepts and approaches in geography.

PO 3: Understand the relevance of geographical knowledge to everyday life.

PO 4: Display an ability to read and understand maps and topographic sheets to look at the various aspects on the space.

PO 5: Demonstrate the coherent and systematic knowledge in the discipline of Geography to deal with current issues and their solution.

PO 6: Recognize, synthesize and evaluate diverse sources of knowledge, arguments and approaches pertinent to exploring human–environment problems.

PO 7: Cultivate ability to evaluate critically the wider chain of network of spatial aspects from global to local level on various time scales as well.

PO 8: Acquire the attitude of examining the heterogeneous geographical aspect by generalization, classification and factorizing.

PO 9: Recognize the skill development in geographical studies programme as part of career avenues in various fields like teaching, research and administration.

PO 10:Examine geographical pattern, trend, factors and impacts over physical and social sphere of geography.

PO 11: Undertake research in interdisciplinary studies and problems or issues beyond the purview of geography.

PO 12: Apply spatial concepts, models, principles and techniques for decision making.

Kunthavai Naacchiyaar Government Arts College for Women (Autonomous) Thanjavur 613 007
Department of Geography - B.Sc Geography 2023-2024 (TANSCHE Based Curriculum)

Sem	Part	Course	Subject Code	Title of the Paper	Inst. Hrs.	Cre	Ex. Hrs.	Marks		Total
								Int.	Ext.	
1.1	I	Part I	23K1T1	Tamil	6	3	3	25	75	100
1.2	II	Part II	23K1E1	English	6	3	3	25	75	100
1.3	III	CC I	23K1G01	Fundamentals of Geomorphology	5	5	3	25	75	100
1.4	III	CC II (P)	23K1G02P	Lab I Mapping Techniques	3	3	3	40	60	100
1.5	III	ECI	23K1GECG1:1	Cartography	4	4	3	25	75	100
			23K1GECG1:2	Computer Assisted Cartography						
	III	EC2(P)		A.Lab I Representation of Relief Features	2					
1.6	IV	SEC1	23K1GSEC1	Geography for Non Geographers	2	2	3	25	75	100
1.7	IV	Foun.	23K1GFC	Earth and its Systems	2	2	3	25	75	100
					30	**22**				**600**
2.1	I	Part I	23K2T2	Tamil	6	3	3	25	75	100
2.2	II	Part II	23K2E2	English	6	3	3	25	75	100
2.3	III	CC III	23K2G03	Climatology	5	5	3	25	75	100
2.4	III	CC IV	23K2G04	Human Geography	3	3	3	25	75	100
2.5	III	EC II(P)	23K2GECG2P	A.Lab I Representation of Relief Features	2	2	3	40	60	100
2.6	III	EC III	23K2GECG3:1	Trends in Geography	4	3	3	25	75	100
			23K2GECG3:2	Geography for Competitive Examination I						
2.7	IV	SEC2	23K2GSEC2	Geography of Tourism	2	2	3	25	75	100
2.8	IV	SEC3	23K2GSEC3	Bio Geography	2	2	3	25	75	100
					30	**23**				**800**
3.1	I	Part I	23K3T3	Tamil	6	3	3	25	75	100
3.2	II	Part II	23K3T3	English	6	3	3	25	75	100
3.3	III	CC V	23K3G05	Oceanography	5	5	3	25	75	100
3.4	III	CC VI(P)	23K3G06P	Lab II Representation of Socio Economic and Climatic Data	3	3	3	40	60	100
3.5	III	EC IV	23K3GECS4:1	Research Analytical Techniques I	4	4	3	25	75	100
			23K3GECS4:2	Agricultural Geography						
	III	EC V (P)		A.Lab II Research Analytical Techniques II	2					
3.6	IV	SEC 4	23K3GSEC4	Geo Spatial Techniques *	1	1	3	25	75	100
3.7	IV	SEC5	23K3GSEC5	Economic Geography	2	2	3	25	75	100
	IV	EVS		Environmental Studies	**1**	**0**	-	-	-	-
		ECC1	23K3GECC1:1	Climate Change Vulnerability and Adaptation (Value Added)	**-**	**3**	3		100	100
			23K3GECC1:2	MOOC (Value Added)			-	-	-	-
		ECC2	23K3GECC2	Add on Course	-	**4**	-	-	-	-
					30	**21**				**700**

Sem	Part	Course	Subject Code	Title of the Paper	Inst. Hrs.	Cre	Ex. Hrs.	Marks		Total
								Int.	Ext.	
4.1	I	Part I	23K4T4	Tamil	6	3	3	25	75	100
4.2	II	Part II	23K4E4	English	6	3	3	25	75	100
4.3	III	CC VII	23K4G07	Geography of India	4	4	3	25	75	100
4.4	III	CC VIII	23K4G08	Population and Settlement Geography	3	3	3	25	75	100
4.5	III	EC V (P)	23K4GECS5P	Research Analytical Techniques II	2	2	3	40	60	100
4.6	III	EC VI	23K4GECS6:1	Statistical Applications for Geography	4	3	3	25	75	100
			23K4GECS6:2	Image Processing						
4.7	IV	SEC6	23K4GSEC6	Geography of Health	2	2	3	25	75	100
4.8	IV	SEC7	23K4GSEC7	Regional Planning	2	2	3	25	75	100
4.9	IV	EVS	23K4EVS	Environmental Studies	1	2	3	25	75	100
		ECC 3	23K4GECC3:1	Geography of Tourism and Pilgrimage (Value Added)	-	3	3		100	100
			23K4GECC3:2	MOOC (Value Added)			-	-	-	-
					30	**24**				**900**
5.1	III	CC IX	23K5G09	World Regional Geography	6	5	3	25	75	100
5.2	III	CC X	23K5G10	Geography of Tamilnadu with Special Reference to Specific Region	6	5	3	25	75	100
5.3	III	CC XI	23K5G11	Basics of GIS	6	5	3	25	75	100
5.4	III	CC XII(P)	23K5G12P	Lab III Surveying and Projections for Geography	6	4	3	40	60	100
5.5	III	EC VII	23K5GECG7:1	Research Methodology	4	3	3	25	75	100
			23K5GECG7:2	Cadastral Survey and LIS						
5.6	IV	VE	23K5VE	Value Education	2	2	3	25	75	100
5.7	IV	Intern	23K5I	Internship /Industrial Visit / Field Visit		2	-	-	-	-
					30	26				600
6.1	III	CC XIII	23K6G13	Remote sensing and GNSS	7	6	3	25	75	100
6.2	III	CC XIV	23K6G14	Social and Cultural Geography	7	6	3	25	75	100
6.3	III	CC XV(P)	23K6G15P	Lab IV Appreciation and Interpretation of Maps & Images	7	6	3	40	60	100
6.4	III	EC VIII	23K6GECG8:1	Political Geography	7	3	3	25	75	100
			23K6GECG8:2	Transport Geography						
6.5	IV	PCS SEC8	23K6GSEC8	Geospatial Applications In Geography *	2	2		25	75	100
6.6	V	EA	23K6EA	Extension Activity	0	1	-	-	-	-
					30	**24**				**500**
					180	**140**				**4100**

* Entrepreneurial skill

SEMESTER-I	
CC I FUNDAMENTALS OF GEOMORPHOLOGY	
Course Code: 23K1G01	
Hours : 5	**Credits: 5**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand scope and content of Geomorphology; and explains the Rocks and types of rocks.
CO2	To Explains the continental drift theory, classify Endogenic and Exogenic forces. Discuss the fold, fault and volcano types.
CO3	To illustrate the factors affecting weathering and its types
CO4	To compare and classify Glacier and its types and types of landforms
CO5	To explain the work of wind waves

I	Geomorphology – Meaning – Scope and Content (Structure of the earth) – Rocks- Rocks types (Igneous Rock, Metamorphic Rock, and Sedimentary Rock)
II	Wegner's continental drift theory – Sea floor spreading – Plate tectonics- Earth movements (Endogenic and Exogenic) - Fold and its types – Fault and its types - Earthquake and its types - Types of Volcanoes.
III	Weathering: Factors affecting Weathering-Types of Weathering Mass Wasting and its types- Agents of Gradation – Normal Cycle of Erosion – Davis cycle (structure, stage, process) Work of Rivers- Erosion –Transportation- Deposition – Erosional Landforms -Depositional Landforms.
IV	Work of Glaciers– Types of Glaciers – Glacial Landforms- Erosional Landforms Underground Water – Water Table – Aquifer- Spring and its types – Karst Landforms – Erosional Landforms and Depositional Landforms
V	Work of Wind- Erosional Landforms and Depositional Landforms. Work of waves- Erosional landforms- Depositional landforms of Sea waves and Types of coasts.

1.3

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

SEMESTER-I	
CC II (LAB I) MAPPING TECHNIQUES	
	Course Code: 23K1G02P
Hours : 3	**Credits: 3**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the components of Maps and Scale Measurements
CO2	To illustrate and examine the Representation of the direction on Maps
CO3	To elaborate on the need for conventional signs and symbols in Maps
CO4	To enhance techniques applied in the Representation of relief on maps.
CO5	To introduce the mapping techniques applied to interpret contours

I	EX 1.1 Representation of scales: RF and Statement EX 1.2 Construction of Plain scale EX 1.3 Construction of Comparative scale EX 1.4 Construction of Diagonal scale
II	EX 2.1 Bearings – True bearing and magnetic bearing EX 2.2 Latitude and Longitude, International dateline EX 2.3 International Time Calculation EX 2.4 Map setting in the field – Map reading.
III	EX 3.1 Measurement of distance (Thread- Divider- Opisometer) EX 3.2 Measurement of area (Graph method) EX 3.3 Enlargement and Reduction of maps
IV	EX 4.1 Representation of relief - Layer shading- Hachuring, EX 4.2 Hill shading EX 4.3 Interpolation of contours.
V	EX 5.1 Contour section drawing- Uniform, Concave and Convex slopes EX 5.2 Contour section drawing- Hill, Plateau, Ridge, Escarpment,V-shaped Valley, Waterfalls and Sand dunes EX 5.3 Construction of Serial Profile EX 5.4 Construction of Superimposed Profile

TEXT BOOK:	
1	Saha, Pijushkanti (2010): Advanced Practical Geography. Books and Allied pvt Ltd.
2	BaguliaA.M (2006): Practical Geography, AnmolPyblishers.
3	Khan , M.D .Zulfequar Ahmed (1997) : Text book of Practical Geography. Concept Publishing Company , New Delhi.

1.4

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SEMESTER-I	
EC I CARTOGRAPHY	
	Course Code: 23K1GECG1:1
Hours :4	**Credits: 4**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the development and history of Cartography, with the types of maps.
CO2	To illustrate and examine the components of Maps
CO3	To elaborate on the representation of mapping techniques
CO4	To enrich the development of remote sensing in the cartography
CO5	To summarize the recent technologies in digital Cartography

I	Definition - History and Development of Cartography - Maps - Types of Maps - Relief and Thematic Maps, Introducing SOI toposheets - Geodesy - latitudes and longitudes - co-ordinate system-globular and UTM system.
II	Components of Maps - Scale - Direction – Projection; Properties and choice of projection. - Conventional Signs and Symbols - Lettering, Symbolization. Qualitative and Quantitative uses of Maps in Geography
III	Techniques of Map Representation - Isopleth - Mapping of Physical features - Interpolation of Contours - Mapping of Socio-Economic Data - Dot Maps – Located maps - Choropleth - Choro schematic - Choro Chromatic Maps – Levels of measurement.
IV	Map reproduction Techniques: Printing, Photographic and digital Technology offset, Photostat, laser, plotter, 3D print – Analogue and digital map options - Map portals.
V	Recent Technologies in Cartography - CAD- GIS – GNNS - Advantage of Digital Maps over Conventional Maps

1.5 (1)

UNIT	LEARNING OUTCOMES
I	**Understanding** the basic concepts of cartography, scope of the study, its history and development in Geography. It is important to **explore studen**t's knowledge in maps and its types. **Explore** the Purposes in creation of thematic maps, weather maps, special purpose maps and Topographic maps. **Acquire** the knowe through shape and size of the earth. **To develop** the skills to work on cartographic process and analyse the concept of earth as a cartographic problem to construction
II	**Appreciate** the goals of map design. Construct the elements of map design like scale and its types, direction, **understanding** True north, Grid, magnetic north, and legend. **Develop** the in depth knowledge of geographic co ordinate system.
III	**Understanding** of facts and ideas of representation of physical data through contour diagram, making profiles and block diagrams to get idea of topographical structure**. Define** the techniques of thematic mapping, and its types of simple,complex and semi) **explains and explore** the Mapping of terrain (contouring, layer tinting, hill shading, Hachures)
IV	**Understands** the role of cartography in the development of remote sensing techniques, learns to interpret aerial photograph, satellite imagery and differentiate the digital cartography and traditional cartography.
V	Learns the recent technologies in Cartography
VI	Assessment Unit
TEXT BOOK:	
1	Judith A.Tyner (2010):Principles of Map Design, The Guilford press, New York , London.
2	Misra,P. and A. Ramesh.(2006).*Fundamentals of Cartography.* McMillan Co. Publishing, New Delhi.
3	Misra, R.P. and Ramesh A. (2002) :Fundamentals of Cartography, concept publishing company
4	Robinson, H. (1995). *Elements of Cartography.* (6th Edition). John Wiley and Sons, New York
5	Tyner,Judith.(1992).*Introduction to thematic Cartography.* Prentice Hall, New Jersey. Border, D. (1990).*Cartography : Thematic map design.* WCB WMC Brocan Pub
WEB SOURCE:	
1	http://en.wikipedia.org/wiki/carography
2	http://www.geography.wisc.edu/histcart
3	http://www.map-symbol.com/sym_lib.htm.

SEMESTER-I	
EC I COMPUTER ASSISTED CARTOGRAPHY	
	Course Code: 23K1GECG1:2
HOURS : 4	**Credits: 4**
UNIT	**LEARNING OBJECTIVES**
CO1	To comment on the development digital cartography, geospatial data , ethics and policy.
CO2	To explain the spatial entities, its geometry and concept of terrain modeling.
CO3	To describe various data models of digital mapping, methods of generation and nature.
CO4	To analyse the visual perception, data classification and digital cartographic principles.
CO5	To appraise commercial mapping, various applications and industrial scope.
I	**Unit I**: History and development of computer assisted cartography - Sources of Geospatial Data - Organizations of Map making and dissemination - User ethics and policy.
II	**Unit II:** Characteristics of basic spatial entities: Point, line, polygon and TIN - Attributes – Terrain Modeling: Meaning, sources and applications.
III	**Unit III:** Generation ofvector and raster maps: scanning, digitization, mapping by digital survey and remote sensing - Cartographic significance of vector and raster models.
IV	**Unit IV:** Theory of visual perception – Data classification and intervals: Nominal, ordinal, Interval, ratio, statistical and standardized classifications. Techniques of digital mapping: Standards of digital lettering, fonts, symbol, colour and pattern pellets.
V	**Unit V:** Commercial Mapping, Google maps, location and navigation based services - web mapping – Mapping Industries.

1.5 (2)

UNIT	LEARNING OUTCOMES
I	Comment on the development digital cartography, geospatial data , ethics and policy.
II	Explain the spatial entities, its geometry and concept of terrain modeling.
III	Describe various data models of digital mapping, methods of generation and nature.
IV	Analyse the visual perception, data classification and digital cartographic principles.
V	Appraise commercial mapping, various applications and industrial scope.
TEXT BOOK:	
1	Khullar, D. (2019). *Essentials of Practical Geography*. Jalandhar: New Academic Publishing Co.
2	Menno, J.K.h&Ormeling, F. (2010).*Cartography Visualisation of Geo spatial Data*,England
3	Mishra. R.P. (2014). *Fundamentals of Cartography.* England: Concept Pulication.
4	Monkhouse, F., & Wilkinson, H. (1963). *Maps and Diagrams: Their Compilation and Construction.* London: Methuen and Co Pearsen Education Limited,
5	Robinson A. H., (2009). *Elements of Cartography*, John Wiley and Sons.
WEB SOURCE:	
1	http://en.wikipedia.org/wiki/carography
2	http://www.geography.wisc.edu/histcart
3	http://www.map-symbol.com/sym_lib.htm.

SEMESTER-I	
SEC I GEOGRAPHY FOR NON GEOGRAPHERS	
	Course Code: 23K1GSEC1
HOURS :2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To enrich the basic knowledge of the Earth, and its composition, enhance the knowledge of the structure of the atmosphere.
CO2	To explore the different the zones of Ocean with varying water depths, acquire knowledge on the deposits of Ocean
CO3	To illustrate the Natural regions of the world
CO4	To elaborate the Evolution of humans and races
CO5	To understand the distribution and patterns of Population

I	Earth – Origin, Interior, Age, size, shape of the Earth- Rocks and its Types - Atmosphere: Origin and nature, Composition and Structure of the atmosphere.
II	Continental Shelf, Continental Slope, Continental Rise and Trenches - Bottom relief of Ocean – Distribution of Salinity – Ocean Currents – Ocean Deposits- Tides
III	Regions- Natural regions of the world- Equatorial, Tropical and temperate grasslands, tropical and temperate deserts, Tundra regions
IV	Evolution of humans – Determinism and Possibilism – Major races of the world- Major religions of the world – Major Languages of the world – Major Tribes of India with Special Reference to Tamilnadu
V	Population Distribution - Density and growth –Population Problems – Migration and its types

1.6

UNIT	LEARNING OUTCOMES
I	Analyse the changes over the universe periodically ,distinguish the earth rotation and revolution and its causes explain how day and night cause, **Recall** Climatic elements **explain** the composition and Structure of the Atmosphere **define** Insolation **examine** the Heat Balance **compares** Horizontal and Vertical Distribution of Temperature.
II	**explains** distribution of Land and Sea **describes the structure and composition of** the Ocean floor the oceanic crust, Group Activity **makes a model o**f Ocean Bottom relief.
III	**Develop** the in depth knowledge of natural resource and its importance. **classify** the resources and human intervention and development **Applying acquired knowledge** marking the region in the map
IV	**Recall** the Natureand Scope of Human geography, compare with the other branch of Geography , **Understand** the significance of Human geography, **analyse** the Man and environment relationship**, examine** the population data
V	**Understanding the** basic concepts and significance of population geography, scope of the study, its history and development in Geography. It **is important to explore student's knowledge in** world population distribution
TEXT BOOK:	
1	Thornbury, W. D. (I960): Principles of Geomorphology, John Wiley and Sons, New York.
2	Savindra Singh (2002): Physical Geography, PrayagPustakBhawan, Allahabad.
3	D. S. Lal: Climatology. ShardaPustakBhawan
4	D. S. Lal: Climatology. ShardaPustakBhawan ,11 , University road Allahabad-211002 Edition 2003.
WEB SOURCE:	
1	https://letstalkscience.ca/educational-resources/stem-in-context/processes-shape-landforms
2	**https://www.universetoday.com/**
3	**https://www.yourarticlelibrary.com/population/theories-of-population-malthus-theory-marxs-theory-and-theory-of-demographic-transition/31397**

SEMESTER-I	
Foundation Course: EARTH AND ITS SYSTEMS	
	Course Code: 23K1GFC
HOURS : 2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the basic concept of Universe and its origin and the theories of Evolution : Nebula, Kant and Big Bang Theory
CO2	To understand Earth and Universe- Solar systems , Milky way Galaxy and Black hole theory and Meteorites
CO3	To explain the Earth Internal Structure the Core, Mantle, Crust and also the Earth's Magnetism
CO4	To illustrate about the Earth's Size, Rotation and Revolution, causes for Seasons, Eclipses and Solstice
CO5	To explain the latitude and longitude, Cardinal points, Greenwich Meridian and Indian Standard Time. To given an understanding on the Time calculation
I	The Universe and its Origin- Theories of Evolution: Nebula, Kant, and Big Bang Theory
II	Earth and Universe - Solar system- Galaxy (Milky way) – Cosmobody - Black hole – Meteorites
III	Earth's internal structure – Earth's crust, mantle, and core – Discontinuity- Isostasy – Earth's magnetism
IV	Earth and its Size -Earth Rotation and Revolution – Inclination Causes – (Seasons Day and Night) – Summer and Winter Solstice - Eclipses
V	Latitudes and Longitudes– Cardinal Points - Greenwich Meridian – Indian Standard time- Time Calculation

1.7

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

SEMESTER-II	
CC III CLIMATOLOGY	
	Course Code: 23K2G03
HOURS : 5	**Credits: 5**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the basic concepts and scope of climate and differentiate the weather and climate and assess the composition of atmosphere.
CO2	To classify the Atmospheric Pressure and Winds
CO3	To illustrate the types of air masses and fronts
CO4	To elaborate the Atmospheric Moisture and climatic regions
CO5	To understand the basic concepts of Cyclone and its mechanism
I	Scope and Content – Weather and Climate – Climatic Elements- Atmospheric Composition and Structure– Insolation and Temperature: Factors and Distribution, Heat Budget, Temperature Inversion.
II	Atmospheric Pressure and Winds: Planetary Winds, Forces affecting Winds, General Circulation of Air, Jet Streams.
III	Air Masses- Classification of Air Masses- Fronts- Classification of Fronts.
IV	Atmospheric Moisture: Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions.
V	Cyclones: Tropical Cyclones, Temperate Cyclones, Monsoon - Origin and Mechanism, El Nino – LA Nina.

2.3

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

SEMESTER-II	
CC IV HUMAN GEOGRAPHY	
	Course Code: 23K2G04
HOURS :3	**Credits: 3**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the basic concepts of Human Geography and assess the relationship between Man and Environment.
CO2	To elaborate the school of thoughts
CO3	To discuss the distribution of Major Human Races in World
CO4	To illustrate the World Major Religions
CO5	To compare and distinguish the World Major Languages and Language groups
I	Human Geography – Nature, Scope and Significance of Human Geography – Man and Environment Relationship.
II	Schools of Thoughts: Determinism, Neo Determinism ,Possibilism - French – German – British – UK – Humanism – Behaviorism.
III	Major Human Races in World – Classification of Major Races – Caucasoid - Mongoloid – Negroid – Racial Parameters and indices.
IV	World Major Religions: Religion distribution – Hinduism - Buddhism – Jainism - Christianity- Islam- Religions in India.
V	World Major Languages and Language groups – Tamil, Chinese, English – Hindi - Arabic – German- French and Portuguese.

2.4

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

SEMESTER- I &II	
EC II (LAB I) REPRESENTATION OF RELIEF FEATURES	
	Course Code: 23K2GECG2P
HOURS :4	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To compare maps and different relief features from contour
CO2	To Illustrate profiles of the terrain
CO3	To Indentify gradient, slope and terrain characteristics.
CO4	To Utilize topographic sheet
CO5	To Examine the relief andlanduse associations.

Unit I: 1.1. Maps and Classification

1.2. Relief features from contour

1.3 Interpolation of contours

Unit II: 2.1 Drawing Serial Profiles

2.2 Drawing Super-imposed Profiles

2.3 Drawing Projected Profiles

Unit III: 3.1 Measuring Gradient

3. 2 Relative Relief Analysis (G.H.Smith)

3. 3 Stream divides and hydrologic unit

Unit IV: 4.1 Numbering System of SOI Topo Sheet.

4. 2 Physical information from conventional signs / symbols.

4. 3 Appreciation of SOI Topographic Sheet

Unit V: 5. 1 Interpretation of Physical Features Using SOI and OSM

5. 2 Interpretation of Cultural Features from SOI and OSM

5. 3 .Weather Map Interpretation

Sl.No. 2.5

UNIT	LEARNING OUTCOMES
I	Compare maps and different relief features from contour
II	Illustrate profiles of the terrain
III	Indentify gradient, slope and terrain characteristics.
IV	Utilize topographic sheet
V	Examine the relief andlanduse associations.
TEXT BOOK:	
1	Charlton, R. (2008): Fundamentals of Fluvial Geomorphology, Routledge, Oxon.
2	Kondolf, G. M. and Piegay, H. (2003): Tools in Fluvial Geomorphology, Wiley, Chichester.
3	Robert, A. (2003): River Processes - An Introduction to Fluvial Dynamics, Arnold, London
4	Schumm, S. A. (1977): Fluvial Systems, Wiley, New York
WEB SOURCE:	
1	agilemodeling.com/artifacts/physicalDataModel.htm
2	https://en.wikipedia.org/wiki/Morphometrics
3	https://www.wou.edu/las/physci/taylor/g322/drainage_anal.pdf
4	

SEMESTER-II	
EC III TRENDS IN GEOGRAPHY	
Course Code: 23K2GECG3:1	
HOURS : 4	**Credits: 3**
UNIT	**LEARNING OBJECTIVES**
CO1	To enhance the students in gaining knowledge of concepts and components using Remote Sensing
CO2	To get an idea of Aerial Photographs and their uses in topographical mapping in planning and execution
CO3	To enhances the quality of data collection and avoid the possibility of error at the point of field data collection
CO4	To display the new technology used and analyze spatial data, it combines the advantages of both the Internet and GIS
CO5	To enrich the knowledge about the data acquired and study of major Satellite Systems in world
I	Remote Sensing: Components of Remote Sensing – Electromagnetic Spectrum - Energy Interaction with Atmosphere and Earth - Resolutions (Spectral, Spatial, Temporal, & Radiometric) - Optical Remote Sensing: Basic Concepts - Optical Sensors and Scanners.
II	Aerial Photography: Types of Aerial Photography and Uses - Stereoscopic Parallax - Aerial Triangulation – Ground Control for Aerial Photography - Digital Photogrammetry - Planning and Execution.
III	Digital Data: Basic Characteristics of Digital Image - Data Type and File Format - Data Acquisition and Interpretation - Use of Multiple Images - Multi-Station - Multi-Band - Multi-Stage - Multi-Polarization - Multi-Spectral - Digital Image Processing.
IV	Web GIS: Components of Web GIS - Concept of Maps and Software - Open Source Software - GRASS - ILWIS - OpenStreetMap - QGIS - SagaGIS - MapWindow - Cloud GIS.
V	Thermal Remote Sensing & Microwave Remote Sensing - Data Formats and Systems - Major Satellite Systems: Sensors and Data Products of IRS, LANDSAT, SPOT, ERS, IKONOS, QuickBird, ORBVIEW, ASTER, MODIS, WorldView, AVIRIS, CASI, MODIS, and Hyperion.

2.6 (1)

UNIT	LEARNING OUTCOMES
I	**Defines** remote sensing, **lists** the types of remote sensing, **summarize** development of Space Programs **explores** Organizations Associated with Remote Sensing in India and in other Countries.**Lists**the Sources of Energy, **defines** Electromagnetic Radiations (EMR), **Categorize** Electromagnetic Spectrum, **identifies** Atmospheric Windows, **explains** Energy Interaction with Atmosphere and Earth.
II	**Lists** the Components of Aerial Camera, **differentiates t**ypes of Aerial Photographs, **examines**Marginal Information of Aerial Photographs, **summarizes**Elements of Photo Interpretation. **Activity Each student Prepare five questions for a quiz related to the above sub topics**.
III	**Define** the components of Slope, Aspects, overlay operations and statistical analysis. **Understands** Vector data – topological and non-topological vector data, **Identifies** map scale, spatial resolution, spatial data accuracy, **Explains and Examines** the vector data sources. **Distinguish and Compare** between raster and vector data.
IV	**Recalls and Understands** GNSS and GIS Integration: **Identifies** Integration techniques - **Distinguishes** Data focused integration, position focused and technology focused integration; **Explains** Technology convergence for data use; Hardware and software platforms; GPS, GIS.
V	Board
TEXT BOOK:	
1	Schowengerdt, R. A., Remote sensing - Models and methods for image processing. Academic press. London.1997.
2	Richards,J.A, Remote Sensing Digital Image Analysis., Springer-Verlag, London 1986.
WEB SOURCE:	
1	www.gdmc.nl/oosterom/PoGISHyperlinked.pdf
2	gisgeography.com › GIS Analysis
3	www.gisresources.com
4	www.researchgate.net

SEMESTER-II	
EC III GEOGRAPHY FOR COMPETITIVE EXAMINATION I	
	Course Code: 23K2GECG3:2
HOURS : 4	**Credits: 3**
UNIT	**LEARNING OBJECTIVES**
CO1	To Understand basic geography concepts of latitude, longitude, time zone, solar system and planets
CO2	To Discover earth's internal and external forces and identify the landform Features.
CO3	To Interpret the elements of climatic studies – Temperature, Pressure, Wind, Humidity, Air mass, Front, Cyclones.
CO4	To Discover the secrets of oceans – Bottom Topography, Temperature, Salinity, Currents, Tides, Coral reefs, Ocean deposits.
CO5	To Manipulate elements of biogeography-Environment, Habitat, Plants and animals
I	**Unit I:** General Geography: Geographical locations – Latitude – Longitude - Time Zone - Solar system -Planets.
II	**Unit II:** Landforms: Major Relief features, Earth's External and Internal forces - Landform Features formed by River, Wind, and Waves.
III	**Unit III**: Climatology**:** Layers of atmosphere- Insolation - Temperature – Pressure – Wind – Humidity – Forms of Condensation and Precipitation – Types of rainfall - Air mass – Front - Cyclones.
IV	**Unit IV:** Oceanography: Land and Sea distribution – Bottom Topography of Oceans – Temperature - Salinity – Currents - Tides – Coral reefs – Ocean deposits.
V	**Unit V:** Biogeography: Elements and significance -Evolution of life on Earth throughout the geological times – Trophic level and food chain - Biome, Eco tone and Community.
	Current Contour (Not for the Examination): Environmental Programmes and Policies -Major Global Environmental Problems- International Co-operation.

2.6 (2)

UNIT	LEARNING OUTCOMES
I	Understand basic geography concepts of latitude, longitude, time zone, solar system and planets
II	Discover earth's internal and external forces and identify the landform Features.
III	Interpret the elements of climatic studies – Temperature, Pressure, Wind, Humidity, Air mass, Front, Cyclones.
IV	Discover the secrets of oceans – Bottom Topography, Temperature, Salinity, Currents, Tides, Coral reefs, Ocean deposits.
V	Manipulate elements of biogeography-Environment, Habitat, Plants and animals
TEXT BOOK:	
1	Chandna, R. (2002). Environmental Geography. Ludhiana: Kalyani.
2	Dayal,P.(1996).Textbook of Geomorphology. Patna: Shukla Book Depot.
3	Lal, D.(1989). Climatology. Allahabad: Chaitanya Publisher's House.
4	Savindra, Singh. (2002). Physical Geography. Allahabad: PrayagPustakBavan.
5	Sivamoorthy, A.(1964). Geomorphology (Tamil Edition).Chennai: Tamil Nadu Text Book Society.

SEMESTER –II	
SEC 2 GEOGRAPHY OF TOURISM	
Course Code: 23K2GSEC2	
HOURS :2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To elaborate the Concept of Leisure and Tourism
CO2	To discuss the history of tourism and discuss on the Determinants and Motivation of Tourism.
CO3	To elaborate on Elements of Tourism
CO4	To illustrate the Role of Transport in Tourism Development
CO5	To discuss the importance of Tourist Organization of India
I	Concept of Leisure and Tourism – Principles and Purpose – Types of Tourism– Significance of Tourism development in Modern society – Tourism development in the World - Tourism development in India.
II	History of Tourism – Ancient, Medieval and Modern periods – Determinants and Motivation of Tourism
III	Elements of Tourism – Attraction, Accessibility and Amenities – Classification of Tourist spots - Accommodation – Primary and Supplementary Accommodation– Hotels, Inns and Motels.
IV	Role of Transport in Tourism Development – Travel Formalities – Tour Itinerary– Travel Agency – Travel Restriction – Passport, Visa and Bank restriction - Traveler's cheques – Credit and Debit cards – Tourism and Environment – Eco Tourism.
V	Tourist Organization – WTO – ITDC and subsidiaries – Tourism promotion – Advertisement – Tourism planning and development –Tourist spots in India – Potential of Tourism in India – Problems of Tourism development – Field Trip

2.7

UNIT	LEARNING OUTCOMES
I	Elaborate the Concept of Leisure and Tourism
II	Discuss the history of tourism and discuss on the Determinants and Motivation of Tourism.
III	Elaborate on Elements of Tourism
IV	Illustrate the Role of Transport in Tourism Development
V	Discuss the importance of Tourist Organization of India
TEXT BOOK:	
1	A.K.Bhatia(2015), Sterling Publishers (P) Ltd. Sterling Publishers, New Delhi.
2	Girish, Revathy(2010): Tourism Product II, Wisdom Press, Daryagang, New Delhi
3	R.E.Sinha 1996 'Tourism Strategies, Planning and Development', Common Wealth Publishers.
WEB SOURCE:	
1	https://en.wikipedia.org/wiki/Hospitality_management_studies
2	study.com/directory/category/Business/Hospitality_Management.html
3	http://www.wisegeek.org/

SEMESTER-II	
SEC 3 BIO GEOGRAPHY	
Course Code: 23K2GSEC3	
HOURS :2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the content of Bio-Geography and components of biosphere.
CO2	To identify elements and types of biodiversity
CO3	To illustrate the different types of Biomes of India
CO4	To understand the ecosystem balance and biosphere reserves
CO5	To elucidate the association between biodiversity and sustainable development.
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.
II	Biodiversity – Meaning – Definition – Elements and Types of Biodiversity – Biodiversity- Hot Spots – Value and Importance of Biodiversity – Biodiversity
III	Biomes of India – Terrestrial Biomes, Freshwater Biomes, Marine biomes– Biosphere Reserves of India. Anthropogenic Biome.
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
V	Bio diversity and Sustainable Development -Global Environmental Policies – EIA - Environmental Education and Legislation- Treaties and laws to protect endangered species, SDG- 17 Goals.

2.8

UNIT	LEARNING OUTCOMES
I	**Define** Biogeography the content and scope of bio geography a**ppreciate** evolution of fauna and flora **Recall** components of biosphere -**explain**Structure, Functions, Units and Types of Ecosystems **Differentiate** ecosystem, ecology and environment Group activity based on this web reference
II	**Lists** Factors influencing the distribution of flora and fauna-**compares**the factors and their influence on flora Physiographic factors (Topography, waterbodies, sunlight, salinity)-Climatic factors (Temperature, Rainfall, Wind, Humidity)-Edaphic factors (soil air, soil moisture, soil texture, soil Ph) – Bio factors (competition, predation, diseases, humans)
III	**Define**Biogeographical Regions of Plants and Animals - **appreciates**Biogeographic realms of the world - Nearctic, Palearctic, Afrotropic, Indomalaya, Australasia, Neotropic, Oceania and Antarctic-**understands** WWF classification of Biomes-Terrestrial, freshwater and marine biomes- **compares**Biogeochemical cycles **Group Activity** -model making for biomes.
IV	**Lists**Influence of Man on Environment –**defines and lists** the types of Ecological Succession**realizes** the impact of influence **analyze**Ecological change and Imbalances – (Pollution, soil degradation, deforestation, desertification, acid rain, ozone depletion)**Discuss** on Environmental Degradation and Environmental Management. **Activity** Debate
V	**Analyzing and interpret** National and International Policies and programmer on Animal Conservation (Biosphere Programmer 1971, Environmental Education Conference EEC 1975, UNESCO, The Earth Summit – Rio-de Jineiro, 1992, UNESCO, Project Elephant, 1992, Project Tiger, Conservation of Rhinos in Assam, 1987) –**develop** India Wild life Protection Acts- Bio Diversity Bill.
TEXT BOOK:	
1	S.P. Mishra and S,P. Pandey : Essential Environmental Studies; Ane Books Pvt. Ltd, 2010
2	George Simonds Bougler (2009):The Science Teaching of Forestry
3	Savindrasingh (2008):Environmental Geography
4	Bhattacharyya N.N (2003): Bio Geography, Rajesh Publication New Delhi.
WEB SOURCE:	
1	www.botany.wisc.edu/
2	www.biogeography.com

SEMESTER-III	
CC V OCEANOGRAPHY	
Course Code: 23K3G05	
HOURS : 5	**Credits: 5**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the basic concept and configuration of the Ocean floor
CO2	To understand and illustrate on bottom relief of major oceans and about Composition of sea water.
CO3	To illustrate the distribution and factors affecting Salinity and temperature
CO4	To describe the Circulation of Ocean Movements
CO5	To explain the distribution of Ocean deposits and resources

Unit	Content
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.
II	Bottom Relief of the Pacific, Atlantic and Indian Oceans, Sea water – Composition of sea water.
III	Ocean Temperature and Salinity: Distribution and factors – Horizontal and vertical - Factors affecting temperature and salinity distribution.
IV	Ocean Water Movement – Waves – Tides: Types - Ocean Currents: Types - Currents of Pacific, Atlantic and Indian Oceans.
V	Ocean Deposits: Types - Coral Reefs: Formation and types - Ocean resources and need for conservation - National Institute of Ocean Technology (NIOT).

TEXT BOOK:	
1	Savindra Singh, (2008), Oceanography, PrayagPushtak Bhawan, Allahabad.
2	Siddartha. K., (2005). Oceanography – A brief Introduction, Kisalaya Publications Pvt. Ltd., New Delhi.
3	Gupta, A and Kapoor A. N., (2001), Principles of Physical Geography, S.Chand& Company Ltd., New Delhi.
4	Lal D.S., (1990) Oceanography, Chatianya Publishing House, Allahabad
WEB SOURCE:	
1	books.google.com>science>earth sciences>geography
2	**https://www.nios.ac.in/media/documents/316courseE/ch11.pdf**

3.3

UNIT	LEARNING OUTCOMES
I	**Define** oceanography**, explains** distribution of Land and Sea **describes the structure**.
II	**Understands composition of** the Ocean floor the oceanic crust, Group Activity **makes a model o**f Ocean Bottom relief
III	**Describes** the composition of sea water **list out** the factors Governing Sea Temperature, **illustrate the variation** in Temperature distribution (Horizontal and Vertical Distribution)
IV	Distribution **distinguishes** the types of waves Waves – (Deep water waves – Long waves – Seismic Sea waves – Tide waves – Transitional waves) **differentiate** Tides – (High tide and Low tide – Neap Tide – Spring tide), **draw map for** Circulation of Ocean Currents and the distribution Discuss **and debate** on ElNino – LaNina
V	Analyses the different Ocean Deposits and identifies the Types of Coral Reefs-Formation and types describes the need for Ocean resources and need for conservation

SEMESTER –III	
CC VI (LAB II) REPRESENTATION OF SOCIO ECONOMIC AND CLIMATIC DATA	
Course Code: 23K3G06P	
HOURS : 3	**Credits: 3**
	LEARNING OBJECTIVES
	To understand the representation of Climatic Data
	To illustrate symbols to interpret the weather phenomenon and statistical data.
	To differentiate the Socio-economic data using the different techniques.
	To elaborate on the different methods and techniques of map representation.
	To summarize diagrammatic representation of mapping techniques using computer
UNITS	
I	1.1. Climatic graph 1.2. Taylor's Climograph 1.3. Hythergraph 1.4. Co-efficient of variation
II	2.1 Wind Roses - Simple, Octagonal 2.2 Isopleth - Temperature, Pressure 2.3 Two Dimensional - Square,Circle 2.4 Three Dimensional - Sphere - Block Pile
III	3.1 Simple Pyramid 3.2 Mono Dot 3.3 Lorenz curve 3.4 Gini coefficient
IV	4.1 Flow diagram 4.2 Choropleth 4.3 Choro-schematic 4.4 Choro-chromatic maps
V	Diagrammatic representation using computer: 5.1Bar diagram (Vertical, Compound) 5.2 Graphs (simple and poly graph) 5.3 Pie 5.4 Pictorial

3.4

UNIT	LEARNING OUTCOMES
I	**Define** the climatic data and its representation in geography. **List out** importance of climatic data in Geography and to **explore their knowledge** to plot graphical **representation .**
II	**Understand** the **w**eather elements, o**utline** the wind, temperature & pressure distribution, i**llustrate** the variations in distribution of rainfall .
III	**Understand** facts of population, socio economic details to represent in proper diagrammatic distribution.
IV	**Develop** the skills to find an apt method for the given data.
V	**Represent** the statistical data using computer.
TEXT BOOK:	
1	Saha Pijushkanti (2010): Advanced Practical Geography, Books and Allied pvt Ltd.
2	Bagulia A.M (2006):Practical Geography, Anmol Publishers.
3	Zulfequar Ahmed Khan M.D (1997): Text book of Practical Geography, Concept Publishing Company , New Delhi.
WEB SOURCE:	
1	http://youtu.be/2hxUKRo1qQU
2	https://youtu.be/gmTXQFxwuLE

SEM III	EC IV	AGRICULTURAL GEOGRAPHY	23K3GECS4:2	Hrs. 4	Credit 4

Course Objectives:
To give the students an overall knowledge of the development of agricultural geography
To understand characteristics of the agricultural geography in Indian context.

Course Outcomes: After the completion of this course, students will be able to

COs	STATEMENTS
CO1	Synthesise approaches in agricultural geography.
CO2	Understand Physical and socio-economic factors of agricultural activity.
CO3	Explain agricultural systems of the world.
CO4	Apply Land capability and land suitability classification.
CO5	Infer the Importance of green revolution.

Unit I: Agricultural Geography: Nature, Scope and Development - Approaches: Inductive and
Detective - Major Gene Centres - Domestication of Animals - Diffusion of Crops.

Unit II: Major Determining Factors: Physical Factors: Temperature, Rainfall, Terrain and Soil - Socio-economic Factors: Land Tenancy, Size of Land Holdings and Fragmentation, Operational Efficiency, Labour, Capital, Transport and Market.

Unit III: Agricultural Systems of the World: Intensive Subsistence Agriculture - Extensive Farming - Shifting Cultivation - Mixed Farming - Dairy Farming - Horticulture - Collective Farms and State Farms.

Unit IV: Land Classification: Land Classification System - Land Inventory - Land Use Survey - Land Capability - Land Irrigability - land Suitability Classification.

Unit V: Green Revolution in India: Significance - Positive and Negative Impacts - Second Green Revolution and its Features - Socio-economic Constraints - Merits and Demerits of Green
Revolution.

Current Contour (Not for Examination): *Precision Agriculture, the gamble of monsoon - Kuruvai (short term Paddy) cultivation at peril in Tamil Nadu- Choice of crops – Minimum Support Price for various crops.*

References

1. Alka Gautam (2016): Agricultural Geography, Sharda Pustak Bhawan, Allahabad.
2. Majid Husain, (1999): Systematic Agricultural Geography, Rawat Publications.
3. Sing J and Dhillon S.S., (1994): Agricultural Geography, Tata McGraw-Hill Pub. Co., New Delhi.
4. Singh J and Dhillon S.S., (2006): Agricultural Geography, Tata McGraw Hill Publication Company, New Delhi.

3.5 (2)

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SEMESTER -III	
SEC 4 GEOSPATIAL TECHNIQUES*	
Course Code: 23K3GSEC4	
HOURS : 1	**Credits: 1**
UNIT	**LEARNING OBJECTIVES**
CO1	To acquire basic knowledge and Scope of Geoinformatics
CO2	To elaborate the sources of Spatial database.
CO3	To acquaint with software Sources and user interfaces.
CO4	To enlighten with the spatial process and map outputs.
CO5	To illustrate the Application of Geo spatial data.

Unit	Content
I	Meaning and Scope of Geoinformatics – Science and Technologies involved in producing Maps – Computer Assisted Cartography.
II	Spatial database: Survey of India – NRSC - BHUVAN - NATMO – Geological Survey of India - Census of India.
III	Software Sources and methods of acquiring Geo data - User interfaces - Application programs - Operating systems - Network computing.
IV	Spatial Process: Maps as output – Thematic Maps - Non-Cartographic outputs.
V	Application of Geo spatial data: Agriculture, Forestry, Soil Studies, Military.

TEXT BOOK:	
1	Ian Heywood, Sarah Cornelivs and Steve Carver, An Introduction to Geographical Information System, Pearson Education Pvt .Ltd., New Delhi, 2007.
2	Lillesand M. Thomas and Ralph W.Kiefer, Remote Sensing and Image Interpretation, John Wiley & Sons, New York, 2007.
3	LO. C.P., and Albert K.W.Yeung, Concepts and Techniques of Geographic Information Systems, Prentice-Hall of India, New Delhi, 2006.
4	Geographic Information Systems and Science. Second Edition. John Wiley, Chichester, 2005.
WEB SOURCE:	
1	www.slideshare.net/parabprathamesh/primary-sec
2	http://youtu.be/zxHP2Qhw5vl
3	http://youtu.be/Se28XHI2_xE

3.6

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SEMESTER-III	
SEC 5 ECONOMIC GEOGRAPHY	
	Course Code: 23K3GSEC5
HOURS : 2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To recall the Scope and content of Economic Geography and observe the Resource classification
CO2	To examine the factors of agriculture and to describe the distribution of Crops
CO3	To differentiate and classify the Mineral Resources and distribution of Power Resources
CO4	To Compare and distinguish the Industries and Industrial Regions
CO5	To infer and integrate the transport and major importing and exporting trade
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
II	Agriculture – Factors affecting Agriculture –Agriculture Region - Food crops and Non -food crops – Distribution and Production of Rice, Wheat, Sugarcane, Pulses - Horticultural crops - Fiber crops (Cotton and Jute)- Beverage crops(coffee, tea, cocoa) spices.
III	Mineral Resources- Types of Minerals – Metallic Minerals, Non-Metallic Minerals-Fuel Distribution of minerals Iron ore, copper, Manganese, aluminum, Mica, Gypsum, Limestone Coal, Petroleum, Natural gas Power resources – Hydel power, Thermal, Atomic power, Geothermal energy.
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.
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.

3.7

UNIT	LEARNING OUTCOMES
I	**Recall** the concepts of Economic Geography with its **definite** scope and content outline the significance of Economic Geography , Infer the importance of resources and its **Classification** in India and at global level. **Extend the explanation** of renewable and non- renewable resources. **Contrast** the Conventional and Non-conventional- Exhaustible and Inexhaustible resources
II	Understands 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.
III	**Recall** the Mineral Resources and **classify** the Types of Minerals Categorize the Metallic Minerals, Non Metallic Minerals.- **list out** the Distribution of minerals Iron ore, copper, Manganese, aluminum, Mica, Gypsum, Limestone Coal, Petroleum , Natural gas Power resources. Hydel power, Thermal, Atomic power, Geothermal energy at national level
IV	Industries,Localization. **Outline** the factors for Industries Agro based – (Textile Industry, Cotton, Jute) **– List out** the Mineral Based industries(Iron and Steel and Engineering Industries). **Compare** the Shipbuilding, Automobile- Chemicals Industries – Fertilizer Industry.
V	**Recall** and relate the Transport and Trade: Transport . **Compare 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 countries of the world.
TEXT BOOK:	
1	Sharma, Siya Ram (2008) :Economic Geography ,Murari Lal Publications.
2	Hussain, Ahmad (2006) : Economic Geography, Vishvabharthi Publications.
3	Singh.I (2006) :Economic Geography, Alfa publications.
WEB SOURCE:	
1	www.wikipedia.org/wiki/ Economic Geography
2	joeg.oxford journals.org/

SEMESTER-III
ECC1 Climate Change Vulnerability and Adaptation
Course Code: 23K3GECC1:1
Credits: 3

Course Objectives*:*
To equip the students work independently and to identify resources required for the course work.
To understand, assess, adopt, mitigate and act towards reducing the impacts of climate change.

Unit I: Climate Change: Understanding Climate Change - Greenhouse Gases and Global Warming - Global Climatic Assessment- IPCC

Unit II: Climate Change and Vulnerability: Physical Vulnerability; Economic Vulnerability and Social Vulnerability

Unit III: Impact of Climate Change: Agriculture, Water; Flora, Fauna and Human Health.

Unit IV: Adaptation and Mitigation: Global Initiatives with special reference to South Asia.

Unit V: National Action Plan on Climate Change - Local Institutions: Urban Local Bodies and Panchayats.

References

1. Climate Change (2007): Impacts, Adaptation and Vulnerability: Working Group II contribution to the Fourth Assessment Report of the IPCC .
2. Climate Change (2014): Impacts, Adaptation and Vulnerability: Part B: Regional Aspects: Volume 2, Regional Aspects: Working Group II Contribution to the IPCC Fifth Assessment Report
3. Ghosh Roy M.K., (2016): Global Warming and Climate Change, Scientific International Pvt. Ltd., New Delhi.
4. John T Houghton, (1997): Global Warming, Cambridge University Press.
5. Khan M.Z.A and Sonal Gangawala, (2011): Global Climate Change – Causes and Consequences,
   Rawat Publication, Jaipur.
6. William James Burroughs, (2001): Climate Change: A Multidisciplinary Approach.

SEMESTER-III
ECC2 Add On Course
Course Code: 23K3GECC2
Credits: 4

SEMESTER – IV	
CC VII GEOGRAPHY OF INDIA	
HOURS : 4	**Credits: 4**
UNIT	**LEARNING OBJECTIVES**
CO1	To elaborate on the Location and Physiography of India
CO2	To understand the climate and soil distribution of India
CO3	To illustrate the agricultural distribution of India and the need for geographical factors for crop production.
CO4	To distinguish the metallic and non metallic minerals, and understand the distribution of Indian Industries.
CO5	To elaborate the distribution of population and transport in India

UNIT	DETAILS
I	Location - Frontiers - Neighbouring Countries - Physiography - Himalayas, Western Ghats, and the Eastern Ghats - Plateau - East Coastal Plain, West Coastal Plain, and Islands - Rivers: Perennial and Non-perennial.
II	Climate - Seasons, Monsoons, Rainfall Pattern, and Distribution of Rainfall. Soil - Types of Soil - Natural Vegetation - Tropical Forest, Subtropical Forest, Evergreen Forest, Mangrove, Thorny Forest.
III	Agriculture – Geographical Requirements of Crops – Rice - Wheat – Oilseeds – Sugarcane – Cotton - Jute - Tea – Coffee – Rubber - Livestock – Fisheries- Irrigation – Types – Multipurpose Projects.
IV	Minerals - Metallic and Non-Metallic Minerals - Iron - Manganese - Bauxite - Copper - Mica - Illuminate - Energy (Hydel, Thermal, and Atomic) - Industries - Iron & Steel - Textiles - Paper - Shipbuilding - Locomotives - Cement - Fertilizer - Major Industrial Regions of India.
V	Population - Distribution - Density and Growth - Population Problems – Transport: Roadways - Railways - Waterways - Airways - Ports and Harbors - Trade - Export and Import.

TEXT BOOK:	
1	Khullar, D.R. (2014): India a Comprehensive Geography, Kalyani Publishers, Edition 03.
2	Umesh Kumar (2012): Geography of India,Global Vision pub.
3	Chandra Vijay Purty (2011) :Geography of India, ABD Publishers.
4	Rupali Chatterjee (2010): Geography of India, Global Vision publishers
WEB SOURCE:	
1	https://www.mapsofindia.com/geography
2	www.indianmirror.com/geography/geography.html

4.3

UNIT	LEARNING OUTCOMES
I	**Recall** the geographic location and compare the neighbouring countries and compare its strategic importance, **classifying** the nature and extent of Himalayan rages, **identifying** the resource of various elevation, **compare the** northern perennial and southern non perennial rivers, assess the coastal stretch and its importance, estimate island resource Indian seas and oceans
II	**Distinguish** the concept of climate and weather **, explain** the intensity of Indian Monsoon , **Evaluate** the amount and pattern of rainfall, analyse the tropical cyclones over Indian coasts,
III	the agricultural regions, **classifying** the food crops and non food crops of India, **identifying** the cropping pattern and its distribution, **assess** the production based on rainfall **explain** the types of irrigation, **assess** the hydro electric power generation,
IV	**classifying** the minerals- metallic and non metalic, **estimates** the hydel power generation Assess the thermal power and atomic power generation **, Analyse** the major industrial regions and its importance in economic growth
V	Identifies the demography of India, estimate the amount and pattern of rainfall in India **, discuss the problems** of urbanization, **compare** the means of transport, **understand** the strategic importance of sea routes **evaluate** the imports and exports
VI	Assessment Unit

SEMESTER – IV	
CC VIII POPULATION AND SETTLEMENT GEOGRAPHY	
	Course Code: 23K4G08
HOURS : 3	**Credits: 3**
UNIT	**LEARNING OBJECTIVES**
	To Enrich the knowledge on scope and significance of Population Geography
	To illustrate on the components of Demography and population distribution.
	To elaborate on Rural and Urban Settlements
	To understand the functional classification of towns and villages
	To acquire knowledge on housing and house Types, factors influencing house types.

UNITS	
I	Nature, Scope and Significance of Population Geography –Theories of Population Growth – Malthus theory, Optimum theory, theory of Demographic Transition.
II	Components of Demography: Fertility, Mortality, Sex ratio - World Trend of Population Growth - World Population Distribution - Density Patterns.
III	Rural and Urban Settlements: Site – Situation – Pattern – Forms and Functions. Planned Settlement – Rank Size rule. Migration: Causes of Migration, Emigration versus Immigration, Laws of Migration.
IV	Functional classification of towns and villages: Size of village, Size and distribution of hamlets, Character of villages and village sites; Functional classification of urban centers, Functional structure of cities, Mega cities and Megapolis in India.
V	Housing and House Types, Factors influencing house type – Relief, Climate, Socio economic and other factors, building materials for house types – walls, roofing, materials. Types of houses in India-Types of rural and urban houses in India.

4.4

TEXT BOOK:	
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.
4	Mandal, R.B.(2001).*Introduction to Rural Settlements*. Concept Publishing House, NewDelhi.
WEB SOURCE:	
1	https://www.e-education.psu.edu/geog597i_02/node/814

SEMESTER- IV	
SEC 6 GEOGRAPHY OF HEALTH	
Course Code: 23K4GSEC6	
HOURS : 2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To understand the relationship between health and geography and the driving force of health and environment.
CO2	To recall the history of disease and elaborate on the agents of disease
CO3	To illustrate the components of the influencing environment on health.
CO4	To differentiate the types of diseases like communicable and non-communicable diseases.
CO5	To elaborate on the health care planning and management of the World and India.
I	Geography of Health – Definition – perspectives and Bio-Medical Approach – Psychological – Sociological – Economic – Geographic Approach - Driving Forces in Health and Environment.
II	Concept of Diseases – History of Diseases – Agents of diseases – Control of Diseases, Transmission Triad and mode.
III	Health and Diseases – Control of Diseases in Environmental context with special reference to India – types of Diseases and their regional Pattern – Communicableand Non-communicable diseases .
IV	Environment and Health – Three components of the environment – Physical, Biological, and Social, Occupational Health, Mental health, Health Information, and Basic Medical Statistics – Mapping of Diseases.
V	Health Care Planning and Management– Health Organization – Hierarchy of Public Health Care System in India, health planning in India– Health Policies and Schemesin India – International health -WHO, UNICEF, UNDP.

4.7

UNIT	LEARNING OUTCOMES
I	**Recalls** the importance of health., **Understands** the relationship between. Health and environment., **Define** health. **Distinguish**.-Development and health. **Realises**population dynamics with health
II	**Understands** the impact of Environmental Quality and health., **Analyses** the impact of human activities and environmental pressures., **Compare** the reasons and influence level of climatic change and human health.
III	**Learns** the disease patterns, **understand** the context of disease pattern with Indian setup**. Compare** the types of disease and **analyse**the types of disease with regional concepts. **Differentiate** the communicable and non-communicable diseases.**Summarises**the biological agents in the spread of diseases.
IV	Understands the relationship between the Environment and Health and also assess the influence of the various components of environments on health.
V	**Categorises,** the various healthcare planning. **Examines** the role of WHO show in the healthcare planning. **Understands**- healthcare centres in India. **Classifies** the importance of voluntary health agencies. **Evaluate** the need for the family and community healthcare planning. **Understands** and list the various health schemes of India.
TEXT BOOK:	
1	K.Park XX edition, 2009Park's Textbook of Preventive and Social Medicine.M/s Banarisdas.Bhanot Publishers, India
2	Avon Joan L. and Jonathan A Patzed.2001: Ecosystem Changes and Public Health,Baltimin,JohnHopling UNIT Press(ed).
3	Christaler George and HristopolesDionissios, 1998: Spatio Temporal Environment Health Modelling, Boston Kluwer Academic Press.
4	Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
WEB SOURCE:	
1	https://jhpn.biomedcentral.com/
2	https://www.researchgate.net/
3	https://www.healthgeography/

SEMESTER – IV	
SEC 7 REGIONAL PLANNING	
Course Code: 23K4GSEC7	
Hours : 2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To acquire the conceptual and theoretical framework of Region
CO2	To Distinguish between the Physical regions, resource regions
CO3	To assess the approaches to delineation of different types of regions and their utility in planning
CO4	To illustrate the Regional development strategies
CO5	To differentiate the Concept of Multi-level planning
CO6	Assessment Unit

UNIT	DETAILS
I	Regional concept in geography - conceptual and theoretical framework, Types of regions: Formal and functional - uniform and nodal - single purpose and composite region in the context of planning- regional hierarchy
II	Physical regions, resource regions, regional divisions according to variations in levels of socio-economic development- special purpose regions – river valley regions, metropolitan regions, problem regions – hilly regions, tribal regions, regions of drought and floods.
III	Approaches to delineation of different types of regions and their utility in planning. Planning process – sectoral, temporal and spatial dimensions- short-term and long term perspectives of planning.
IV	Regional development strategies – concentration vs. dispersal, case studies for plans of developed and developing countries, Regional plans of India.
V	Concept of Multi-level planning- decentralised planning- peoples participation in the planning process- Panchayati Raj system- role and relationship of Panchayati Raj Institutions (Village, Block and District)/ Regional development in India- Problems and prospects.

4.8

UNIT	LEARNING OUTCOMES
I	**Recalls** and memorize the framework of Regional planning, its concepts and principles in geographical perspective., it is important to **explore** their knowledge in changing concept of development which gives the real indication of economic, social, and environmental aspects
II	**Understands** the facts and ideas of regions and regionalism. **Compare** the various classification of regions and its hierarchy. Applying acquired knowledge of various resources and delineation of planning regions
III	**Acquire** through knowledge on regional planning in India. **Activity** given to list out the important development aspects in five-year plans and annual plans
IV	**Understands** the regional population analysis and population projection. Learn the impact of population on regional planning; learn the principles of location analysis
V	**Acquire** through knowledge on regional planning in India. **Activity** given to list out the important development aspects in five-year plans and annual plans. **Understands** the Concept of block level and district level planning in Tamil Nadu, infer the important ideology of panchayat raj and planning program to improve developing regions.
VI	Assessment Unit
TEXT BOOK:	
1	Bhat, L.S. et al. Micro-Level Planning: A Case Study of Karnal Area, Haryana. K.B. Publications, New Delhi, 1976.
2	Abler, R., et al. Spatial Organization: The Geographer's View of the World. Prentice Hall, Englewood Cliffs, N.J., 1971.
3	Chorley, R.J. and Hagget, P. Models in Geography, Methuen, London, 1967.
4	Christaller, W. Central Places in Southern Germany. Translated by C.W.Baskin, Prentice Hall, Englewood Cliffs, New Jersey, 1966.
WEB SOURCE:	
1	https://en.wikipedia.org/wiki/Regional_planning
2	https://en.wikipedia.org/wiki/regionalism_(international_relation)
3	www.tn.gov.in/tcp/activities.htm
4	www.slideshare.net/charujaiswal/planning-regions-of-india

SEMESTER-IV	
Geography of Tourism and Pilgrimage	
	Course Code: 23K4GECC3:1
ECC3	**Credits: 3**

***Course Objectives**:*
To equip the students work independently and to identify resources required for the course work.
To have a sound knowledge on geo-environmental, socio-cultural aspects of tourism Industry in India

Unit I: Scope and Nature: Concepts and Issues, Tourism, Recreation and Leisure, Inter-Relations: Geographical Parameters of Tourism by Robinson.

Unit II: Trends and Patterns: Nature Tourism, Cultural Tourism, Medical Tourism, Pilgrimage and Geo-tourism.

Unit III: Recent Trends of Tourism: International and Regional - Domestic (India)- Eco-Tourism, Sustainable Tourism - Meetings, Incentives, Conventions and Exhibitions.

Unit IV: Impact of Tourism: Economy, Environment and Society

Unit V: Tourism in India: Tourism Infrastructure: Case Studies of Himalaya, Desert and Coastal Areas - India's World Heritage Sites and National Geological Monuments - National Tourism Policy

References

1. Alan, A. Lew, (2017): *New Research Paradigms in Tourism Geography*, Routledge,.
2. Dhar, P.N., (2006): *International Tourism: Emerging Challenges and Future Prospects*,Kanishka, New Delhi.
3. Hall, M., and Stephen, P., (2006): *Geography of Tourism and Recreation – Environment, Place and Space*, Routledge, London.
4. Kamra, K. K., and Chand, M., (2007): *Basics of Tourism: Theory, Operation and Practise*, Kanishka Publishers, Pune.
5. Milton, D.,(1993): *Geography of World Tourism*, Prentice. Hall, New York,.
6. Nelson, V., (2017): *An Introduction to the Geography of Tourism*, Rowman & Littlefield,.

SEMESTER-IV
ECC3 MOOC
Course Code: 23K4GECC3:2
Credits: 3

SEMESTER V	
CC IX WORLD REGIONAL GEOGRAPHY	
	Course Code: 23K5G09
HOURS : 6	**Credits 5**
UNIT	**LEARNING OBJECTIVES**
CO1	To have wide knowledge on the physical and political divisions of North America and South America
CO2	To have broad regional knowledge of Africa and its Cultural Aspects
CO3	To have depth regional knowledge of Australia and its Cultural Aspects
CO4	To acquire regional knowledge of Physical and political features of Europe
CO5	To acquire the regional knowledge of Asia and its Cultural Aspects
CO6	Assessment Unit
I	North America and South America: Political Divisions - Physical - Drainage - Soil - Agricultural - Natural Vegetation - Animal Life - Transport and Trade - Cultural Aspects.
II	Africa: Political Divisions - Physical - Drainage - Soil - Agricultural - Natural Vegetation - Animal Life - Transport and Trade - Cultural Aspects.
III	Australia: Political Divisions - Physical - Drainage - Soil - Agricultural - Natural Vegetation - Animal Life - Transport and Trade - Cultural Aspects.
IV	Europe: Political Divisions - Physical - Drainage - Soil - Agricultural - Natural Vegetation - Animal Life - Transport and Trade - Cultural Aspects.
V	Asia: Political Divisions - Physical - Drainage - Soil - Agricultural - Natural Vegetation - Animal Life - Transport and Trade - Cultural Aspects. Top of Form

TEXT BOOK:	
1	Majid Hussain (2012): World geography, Rawat Publications, 4th Edition.
2	Majid Hussain (2011): Concise Geography, Tata Mc Graw Hill Education Private limited, NewDelhi.
3	Alka Gautam (2007) :World geography, first edition, Sharda pustakbhawan, Allahabad.
4	Gochenleong(2001): Certificate Physical and Human Geography, Oxford university press, New Delhi.
WEB SOURCE:	
1	World Regional Geography, Global pattern, local lives Third Edition,LydiaMihelic Publisherwww.whfreeman.com/catalog/pulsipher3e.
2	*examrace.com/.../Geography/.../Regional_Geography/Geography_Na..*

5.1

UNIT	LEARNING OUTCOMES
I	**Appreciate the knowledge** on political division of North America and South America,explain the soil resource and drainage of the region **understand** the flora and fauna over this latitudes **. Develop** the in depth knowledge of natural resource and its importance.
II	**Explore** the basic facts on African continent of facts and **explain** the political division and strategy location of the continent **classify** the resource over the region. **Elaborate** the drainage pattern and its importance of the continent
III	Understands the basic facts on Australian continent, **explain** the (political division, Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects) strategy location of the continent **classify** the resource over the region.
IV	**Appreciate the knowledge** on political division of Europe , explain the geographical knowledge such as physical, Drainage soil resource and agricultural aspects of the region **understand** the flora and fauna over this latitudes
V	**Define** the concepts of political region and **Examine** the subjective aspects of Asia physiographic divisions
VI	Assessment Unit

SEMESTER V	
CC X GEOGRAPHY OF TAMILNADU WITH SPECIAL REFERENCE TO SPECIFIC REGION	
Course Code: 23K5G10	
HOURS : 6 **Credits: 5**	
UNIT	**LEARNING OBJECTIVES**
	To enrich wide knowledge on political background and physiography of Tamil Nadu
	To elaborate the soil profile, natural vegetation and wild life distribution.
	To elucidate the distribution of crops, livestock rearing and fisheries.
	To explore the availability of minerals and industries.
	To identify the distribution of population and its problems.

UNITS	Content
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.
II	Soils – Types of Soil - Natural Vegetation- Forest and its types- Flora and Fauna - Wild life sanctuaries - Bird sanctuaries - Botanical gardens.
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).
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.
V	Population : Distribution – Growth – Density - Population Problems – Transportation: Roadways- Railways- Airports- Ports. Trade (Import and Export)- Special Economic Zones.

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.
4	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

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SEMESTER V	
CC XI BASICS OF GIS	
	Course Code: 23K5G11
Hours : 6	**Credits 5**
UNIT	**LEARNING OBJECTIVES**
CO1	To acquire the knowledge on the development of GIS
CO2	To distinguish between the significance of Spatial and non-spatial data
CO3	To understand the importance of DBMS
CO4	To update the recent trends on GIS analysis
CO5	To explore the application of GIS and its softwares
CO6	Assessment Unit

UNIT	DETAILS
I	Geographical Information System: Definition –Historical development - Components of GIS- data storage and manipulation – data transformation – data output devices.
II	Spatial and Non- spatial Data, Raster and Vector Data Structure. Comparison of raster and vector data.Geographical coordinate systems of earth: UTM.
III	DBMS – components - query - digitization – editing – topology – layout preparation.
IV	GIS analysis: Single layer analysis: buffer – interpolation, multilayer analysis: overlay analysis, network analysis - Basics of Web GIS.
V	Application of GIS and GIS Softwares; Land use/ Land cover/ Urban sprawl /Agriculture and environment. Disaster; Arc view, Arc GIS, ILWIS, GRASS, QGIS, ENVIS.

TEXT BOOK:	
1	Chandra A.M&Ghosh.S.K. (2016).*Remote Sensing and Geographic Information System*.Narosa Publishing House
2	Bhatta,Basudeb(2011). *Remote sensing and GIS*, Oxford University Press/ Radha press NewDelhi
3	Siddique,Dr. M.A.(2006).*Introduction to Geographic Information Systems*.ShardaPustakBhawan, Allahabad
4	Anand,Dr. P.H. and V. Rajesh Kumar (2003). *Principles of Remote Sensing and GIS.* Sri Venkateswara Publications, Kumbakkonam.
WEB SOURCE:	
1	www.gdmc.nl/oosterom/PoGISHyperlinked.pdf
2	gisgeography.com › GIS Analysis
3	www.gisresources.com
4	www.researchgate.net

5.3

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SEMESTER - V	
CC XII (LAB III) SURVEYING AND PROJECTIONS FOR GEOGRAPHY	
Course Code: 23K5G12P	
HOURS : 6	**Credits: 4**
UNIT	**LEARNING OBJECTIVES**
CO1	To acquire the knowledge of Cylindrical Projection
CO2	To get the knowledge of properties of Conical projection
CO3	Construct Zenithal projection
CO4	Create projections for entire world
CO5	To get the knowledge develop Skill to do surveying

UNIT	DETAILS
I	1.1 Projection Principles and Classification 1.2 Cylindrical Equi -distant Projection 1.3 Cylindrical Equal Areal Projection 1.4 Mercator and UTM Projection.
II	2.1 Conical Projection (One standard parallel) 2.2 Conical Projection (Two standard parallel) 2.3 Bonne's Projection 2.4 Polyconic Projection
III	3.1 Zenithal Equi -distant Projection 3.2 Zenithal Equal Areal Projection 3.3 Gnomonic Zenithal Projection 3.4 Stereographic Zenithal Projection
IV	4.1 Orthomorphic Projection 4.2 Sinusoidal Projection 4.3 Molleweide Projection 4.4 Interrupted Molleweide and Sinusoidal Projection
V	5.1 Chain (open and closed) and Plane Table Survey 5.2 Prismatic Compass Survey and Dumpy level 5.3 Indian Clinometerand Abney Level 5.4 GPS Travers

TEXT BOOK:	
1	Saha, Pijushkanti (2010)"Advanced Practical Geography, Books and Allied pvt Ltd.
2	Bagulia A.M (2006) : Practical Geography , Anmol Publishers.
3	Khan, Zulfequar Ahmed M.D (1997):Text book of Practical Geography, Concept Publishing Company , New Delhi.

5.4

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SEMESTER - V	
EC VII RESEARCH METHODOLOGY	
Course Code: 23K5GECG7:1	
HOURS :4	**Credits: 3**
UNIT	**LEARNING OBJECTIVES**
CO1	To elaborate the need for research and its types
CO2	To elucidate the different types of data collection in the field of Geography
CO3	To have empirical knowledge on hypothesis testing
CO4	To assess the need for quantitative techniques in Geographical Research
CO5	To design the research proposal and methodological procedures to conduct the research

UNIT	DETAILS
I	Definition of Research - Aims and Objective of Research - Types of Research - Qualitative, Quantitative, Descriptive, Analytical, Applied, Fundamental, Conceptual, Empirical – Scientific method - Multi disciplinary and inter disciplinary approach.
II	Data Collection: Primary and Secondary data - Field work - Aerial Photograph, Census data and satellite imageries as data sources - Sampling and sample survey - Designing Questionnaires and schedules.
III	Hypothesis testing - formulation of Hypothesis - its importance - Scientific Hypothesis- Null Hypothesis - Alternative Hypothesis - Hypothesis Testing - X^2 Test, ‘t ‘Test, ‘F’ Test.
IV	Need for Quantitative Techniques - Measurement of Quantitative data - levels of measurement - Nominal, Interval, Ordinal and Ratio scales - Data transformation -Measures of central tendency and dispersion Correlation.
V	Selection of a Problem - Design of Project – Research proposal - Scientific Writing - Methodological frame work - Chapter organization – Appendix- Bibliography.

TEXT BOOK:	
1	Newman, Lawrence. (2015). Social Research Methods: Qualitative and Quantitative Approaches. Pearson
2	Kothari.C.R& Gaurav Garg. (2012). Research Methodology Methods and Techniques. New Age International Publishers
3	Johnn, Best.W&James.V(2006). Research in Education. Pearson
4	Cole and King (1989). Quantitative Geography Techniques and Theories in Geography. John Wiley and sons Ltd., London.
WEB SOURCE:	
1	www.fao.org/.../the...census...censuses...surveys/...survey-design/en/
2	www.researchconnections.org
3	http://www.scribbr.com
4	http://www.projectmanager.com

5.5 (1)

UNIT	COURSE OUTCOMES
I	To gain a basic understanding about research and its types.
II	To know about the data collection methods and techniques in research
III	To get knowledge on Testing of Hypothesis and its importance in research.
IV	To enrich with Quantitative Techniques in research.
V	To acquaint with Methodological frame work in research.

SEM V	EC 7	CADASTRAL SURVEY AND LIS	23K5GECG7:2	Hrs. 4	Credit 3

Course Outcomes: After the completion of this course, students will be able to

COs	STATEMENTS
CO1	Comprehend the importance and development of cadastral survey
CO2	Know various registers related to land administration
CO3	Be familiar with the cadastral systems practiced in India and the World
CO4	Understand e-governance and Land Information System
CO5	Apply the knowledge of cadastral survey in real world challenges

UNIT I: Introduction to Cadastral Survey: Definition, Importance, Development of cadastral survey in India: ROR (Records of Rights), RSR (Re-Settlement Register) and UDR (Updated Registry) - Village and Municipal Cadastral Systems.

UNIT II: Land Administration: Land Records: 'A' Register, Adangal, Chitta, Village Map, D-Sketch, FMB (Field Measurement Book), Stone Register - Land Records and Title Registration - Mutation - Boundary demarcation and Dispute Redressal System - 3D and 4D Cadastre.

UNIT III: Cadastral Systems in India and the World: The National Land Records Modernization Programme (NLRMP): Case Studies of Delhi, Chennai, Mumbai & Ahmedabad - Cadastral Systems in Developed Countries – SVAMITVA scheme.

UNIT IV: Land Management and Land Information System (LIS): Concepts of Land Reforms, Land Consolidation, Automated Title Registration, e-Governance and LIS.

UNIT V: Applications of Cadastral Survey: Role of Cadastral survey in Disaster Management, Coastal Zone Land Management and Town planning: Infrastructure Development and Maintenance, Environmental Protection and Resource Management.

Current contour (Not for Examination): Geotagging – Visiting nearby VAO/Taluk office to get first-hand information on land records.

References

1. Dale, P., & Mclaughlin, J. (2000). Land Administration. New York: Oxford University Press.
2. Larsson, G. (1991). Land Registration and Cadastral Systems. Addison-Wesley.
3. Meyer, N. V. (2004). GIS and Land Records. U.S.: ESRI.
4. Cole, G. M., & Wilson, D. A. (2016). Land Tenure, Boundary Surveys, and Cadastral Systems. London: CRC Press.
5. Stoter, J. E., & Oosterom, P. (2006). 3D Cadastre in an International Context: Legal, Organizational, and Technological Aspects. London: CRC Press.

5.5 (2)

SEMESTER - V
INTERNSHIP/ INDUSTRIAL VISIT/ FIELD VISIT
Course Code: 23K5I
Credits: 2
It can be undertaken during the summer vacation of the IV semester.

5.7

SEMESTER - VI	
CC XIII REMOTE SENSING AND GNSS	
Course Code: 23K6G13	
HOURS : 7	**Credits: 6**
UNIT	**LEARNING OBJECTIVES**
CO1	To have basic knowledge on basics of Remote sensing
CO2	To elaborate on the fundamentals and significance of Aerial photographs and satellite types
CO3	To have the deep knowledge on the types of resolution and marginal information of Aerial photos and satellite images
CO4	To explore the application of Remote sensing
CO5	To have wide understanding on GNSS, Segments and Satellite tracking

UNIT	DETAILS
I	Remote Sensing – Definition and types- History of Remote Sensing in India – Remote Sensing Processes – Electromagnetic Spectrum, Atmospheric Window – Plat Forms and its types.
II	Fundamentals of Aerial and Satellite Remote Sensing- Aerial Photography and Scale of Aerial Photographs and its types – types of Satellites.
III	Resolution: Spectral, Spatial, Radiometric and Temporal- Marginal Information of Aerial Photographs and Satellite Images.
IV	Application of Remote Sensing; Land use/ Land cover/ Urban sprawl Agriculture and environment.
V	Global Navigation Satellite System: Segments: space segment - GPS Satellite systems – New programmes – IRNSS - Control segment - Satellite tracking - User segment – Modern survey instruments – Error sources – Satellite augmented systems - DGPS - GNSS Applications.

TEXT BOOK:	
1	Siddique M.A.(2006): Introduction to Geographic Information Systems, Sharda Pustak Bhawan, Allahabad.
2	Chandra A.M &S.M.Ghosh, (2006) Remote sensing and Geographical Information System, Alpha Science Int'l limited, New Delhi.
3	Panda B.C(2005): Remote sensing principles and applications, Viva books private limited.
4	Anji Reddy. M. (2001): Remote sensing and Geographical information system, BS publication, Hyderabad.
WEB SOURCE:	
1	www.gdmc.nl/oosterom/PoGISHyperlinked.pdf
2	RSgeography.com › RS Analysis

UNIT	COURSE OUTCOMES
I	To gain an understanding about the basics of remote sensing.
II	To know detailed about the types of remote sensing.
III	To get knowledge on resolution types and to know about the features of remote sensing products.
IV	To acquaint with applications of Remote Sensing in various real world utilities.
V	To know about the Global Navigation Satellite System and its applications.

SEMESTER -VI	
CC XIV SOCIAL AND CULTURAL GEOGRAPHY	
Course Code: 23K6G14	
HOURS : 7	**Credits: 6**
UNIT	**LEARNING OBJECTIVES**
CO1	To acquire basic knowledge on the social structure and society
CO2	To elaborate the spatial distribution of Ethnicity, Language, Caste and Religion
CO3	To discuss the social welfare and well being
CO4	To distinguish on the races and cultural diffusion of the world
CO5	To assess the Human development indicators and its Index

UNIT	DETAILS
I	Introduction: Nature and Scope of Social Geography – Concepts of Social Geography -Social Structure (Family, Marriage, Kinship) and Processes - Rural and urban society.
II	Spatial distribution of Ethnicity, Tribe, Dialect, Language, Caste and Religion in the World with special reference to India.
III	Welfare and Social Well being : Quality of Life – Health- Education – Economic Status – Gender – Wellbeing of Women.
IV	Cultural geography :Concept of Culture, Evolution of Human beings – Major Races of the world- Culture Interaction and diffusion – Culture Exchange.
V	Measurement of Human Development – Social, Economic and Environmental Indicators –Human Development Index.

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TEXT BOOK:	
1	Jon Anderson, Taylor & Francis. (2021) Understanding Cultural Geography Places and Traces
2	S.D.Maurya (2016) Cultural Geography, Sharda pustak bhavan, Allahabad
3	G.S. Mohanty (2007) Social and Cultural Geography
4	Ajjazuddin Ahmad (2004) Social Geography, Rawat Publications, Jaipur
WEB SOURCE:	
1	https://en.wikipedia.org/wiki/Cultural_geography
2	https://en.wikipedia.org/wiki/Race_(human_categorization)
3	https://en.wikipedia.org/wiki/Clothing_in_the_ancient_world
4	https://books.google.co.in/books?isbn=8180690741

SEMESTER - VI	
CC XV (LAB IV) APPRECIATION AND INTERPRETATION OF MAPS & IMAGES	
Course Code: 23K6G15P	
HOURS : 7	**Credits: 6**
	LEARNING OBJECTIVES
	To understand the types of maps, uses and develop knowledge of cartography
	To appreciate the development and uses of aerial photos.
	To learn different techniques employed in enhancement of aerial photos.
	To identify features extraction techniques of satellite images
	To appreciate the details of satellite images.
UNITS	
I	1.1. Interpretation of Distribution Map 1.2. Interpretation of Thematic Map 1.3. Appreciation of NATMO Map 1.4. Appreciation of Census Map
II	2.1 Determination of Aerial Photo scale and height 2.2 Elements of visual interpretation 2.3 Recognizing Pattern, Shape, Texture 2.4 Recognizing Tone, Color and Association
III	3.1 Stereoscopic Vision Test 3.2 Marginal Information of Aerial Photographs 3.3 Interpretation of Physical details 3.4 Interpretation of Cultural details
IV	4.1 Sensor resolution specifications 4.2 Recognizing Pattern, Shape and Texture 4.3 Recognizing Tone,Color and Association 4.4 Image characterization
V	5.1 Marginal information of Satellite images 5.2 Visual interpretation of satellite images - Physical 5.3 Visual interpretation of satellite images- Cultural 5.4 Comparison of aerial photo and satellite images.
TEXT BOOK:	
1	Anji Reddy, M., (2004), Geoinformatics for Environmental Management, BS Publications, Hyderabad.
2	Lillesand T.M & R.W.Kifer (1986) Remote Sensing and Image Interpretation, John WileySons, New York.
3	Monkhouse & Wilkinson (1976) Maps and Diagrams Mathew London.

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SEMESTER -VI	
EC VIII POLITICAL GEOGRAPHY	
Course Code: 23K6GECG8:1	
HOURS : 7	**Credits: 6**
UNIT	**LEARNING OBJECTIVES**
CO1	To acquire basic knowledge on the Political Geography
CO2	To elaborate the spatial distribution of Core Areas of Political Geography
CO3	To discuss the importance of Boundaries and Frontiers
CO4	To elaborate on Geography of Elections
CO5	To illustrate the Political Geography of India
CO6	Assessment Unit

UNIT	DETAILS
I	Political Geography: Definition, Scope, Content, and Development - Geopolitics - State: Categories - Powers and Functions - Nations and Nationalism.
II	Core Areas: Types - Capitals: Types - Morphological Classification - Factors of Development, Federal Capitals - New and Neutral Capitals - Capitals in Post-1945 Federations.
III	Boundaries and Frontiers: Definition - Classification: Genetic and Functional - Morphological Classification (Buffer Zone - Landlocked Countries) - Border Disputes.
IV	Electoral Geography: Geography of Elections - Election Campaigning - Voting Patterns - Voters' Participation - Gerrymandering - Election Commission.
V	Political Geography of India: Integration of Indian States - Integration of Sikkim - India's Bilateral Relationship with Pakistan and Sri Lanka - SAARC Countries - India's Foreign Policies.

TEXT BOOK:	
1	Dwivedi, R.L. (2014). *Fundamentals of Political Geography*. Chaitanya Publishing House, Allahabad.
2	Adhikari, Sudeepta. (2009). *Political Geography of India- A Contemporary Perspective*. Sharada Pustak Bhavan, Allahabad.
3	Sudeeptha Adhikari, (2004), Political Geography, Rawat publications, New Delhi.
4	Dikshit, R.D. (1982). Political Geography: A contemporary perspective, McGraw Hill Publishing co., New Delhi.
WEB SOURCE:	
1	www.geography.about.com/od/politicalgeography
2	www.electoralgeography.com/new/en/category/countries/i/india
3	https://en.wikipedia.org/wiki/Political_geography

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SEMESTER – VI	
EC VIII TRANSPORT GEOGRAPHY	
Course Code: 23K6GECG8:2	
HOURS : 7	**Credits: 3**
	LEARNING OBJECTIVES
	To acquire basic knowledge and scope of Transport Geography.
	To elaborate the types of transport.
	To discuss the importance of network characteristics.
	To elaborate on theories related to freight rate structure.
	To illustrate the transport system in India.

UNIT	DETAILS
I	Nature and Scope of Transport Geography - Importance of Transport - Development of Transport Geography – Associated factors - Transport Development - Physical, Economic, Technology.
II	Types of Transport – Railways, Roads, Airways and Waterways, Pipelines.
III	Network Characteristics – Topology - Graph Theory - Binary Matrix - Measures of Connectivity and Accessibility.
IV	Theories related to freight rate structure - Bases of Spatial interaction – Complementarity - Intervening opportunity and Transferability.
V	Transport system in India - Role of Transport in Regional development in India - Problems and prospects of Role of Transport in Regional development in India - Urban and Rural Transportation Planning and Management.

TEXT BOOK:	
1	Transport and Developing Countries - Hillings, H., Routledge, 1996 Geography of Transportation, Naresh Kumar, Concept Publication, 1991.
2	White H.P. and Senior 1983 ‘Transport Geography’, Longman, London.
3	Transport for the Space Economy: A Geographical Study - Hay, A, Macmillan, 1973
4	Transportation Geography: Comments and Readings - Eliot Hurst, M.E.,1971
WEB SOURCE:	
1	https://transportgeography.org/?page_id=40,
2	https://www.e-education.psu.edu/geog597i_02/node/814

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SEMESTER -VI	
PCSSEC8 GEOSPATIAL APPLICATIONS IN GEOGRAPHY	
Course Code: 23K6GSEC8	
HOURS : 2	**Credits: 2**
UNIT	**LEARNING OBJECTIVES**
CO1	To develop the knowledge in Geoinformatics
CO2	To be acquaint with the recent sources of Spatial database
CO3	To discuss the importance of information technology in acquiring Geo data
CO4	To elaborate on GIS and Spatial Decision Support
CO5	To assess the Application of Geospatial techniques.

UNIT	DETAILS
I	Remote Sensing- Photogrammetry - Digital Image Processing- Geographical Information System- Global Navigational Satellite System
II	National Informatics Centre - Cadastral maps – Open Street map – Foreign sources of data - Physical surveying: GPS and Total station- GPR
III	Information Technology in Remote Sensing - Applications GIS and IT in Cartography - Applications of IT in Real Time GIS.
IV	Spatial Multimedia – GIS outputs delivery mechanism - GIS and Spatial Decision Support - Map as a decision tool.
V	Application of Geospatial technique: Meteorology, Transport, Rural Development, Geosciences, Environmental studies, Banking, Health and Civil Engineering.

TEXT BOOK:	
1	Ian Heywood, Sarah Cornelivs and Steve Carver, An Introduction to Geographical Information System, Pearson Education Pvt.Ltd., New Delhi, 2007.
2	Lillesand M. Thomas and Ralph W.Kiefer, Remote Sensing and Image Interpretation, John Wiley & Sons, New York, 2007.
3	LO. C.P., and Albert K.W.Yeung, Concepts and Techniques of Geographic Information Systems, Prentice-Hall of India, New Delhi, 2006.
4	Geographic Information Systems and Science. Second Edition. John Wiley, Chichester, 2005.
WEB SOURCE:	
1	www.slideshare.net/parabprathamesh/primary-sec
2	http://youtu.be/zxHP2Qhw5vl
3	http://youtu.be/Se28XHI2_xE

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