

GOVERNMENT COLLEGE FOR WOMEN (AUTONOMOUS)

KUMBAKONAM

(Curriculum - M.Sc., APPLIED GEOGRAPHY -

2023 - 2024, 2024-2025)

Department : GEOGRAPHY

Programme Code:PSGE

Part	Course Type	Course Code	Title of the Course	Hrs/ Week	Credits	Exam. Hrs.	Marks		
							Int	Ext	Total
SEMESTER – I									
I	CC I	P23GC101	Principles of Cartography	6	5	3	25	75	100
I	CC II	P23GC102	Applied Geomorphology	6	5	3	25	75	100
I	CC III	P23GC103P	Techniques of Mapping and Map Analysis - Practical	6	4	3	40	60	100
I	EC I			5	3	3	25	75	100
I	EC II			5	3	3	25	75	100
II		P231SE1	Health and Well-being	2	2	2	25	75	100
Total				30	22				700
SEMESTER – II									
I	CC IV	P23GC204	Applied Climatology	6	5	3	25	75	100
I	CC V	P23GC205	Hydrology and Oceanography	6	5	3	25	75	100
I	CC VI	P23GC206P	Geospatial Lab - Practical	6	4	3	40	60	100
I	EC III			5	3	3	25	75	100
I	EC IV			5	3	3	25	75	100
II	SEC II	P23G2SE2	Remote Sensing and GIS	2	2	3	25	75	100
II	ECC I		Moocs/Swayam Courses		2/3				
			Internship / Industrial Activities*	-	-	-	-	-	-
Total				30	22				600

SEMESTER - III									
I	CC VII		Geographical Thought	6	5	3	25	75	100
I	CC VIII		Theoretical Economic Geography	6	5	3	25	75	100
I	CC IX		Geography of India	6	5	3			100
I	CC X		Terrain and Climatic data Analysis - Practical	6	4	3	40	60	100
I	EC V			4	3	3	25	75	100
II	SEC III		Environmental Geography	2	2	3	25	75	100
II	ECC II		Moocs/Swayam Courses	-	2/3	-	-	-	-
	ECC III		General Studies for Research Fellowship & Lecturership						
II	AEC I		Internship / Industrial Activities*	-	2	-	-	-	-
Total				30	26				600
SEMESTER - IV									
I	CC XI		Regional Planning	6	5	3	25	75	100
I	CC XII		Map and Image Interpretation - Practical	6	5	3	40	60	100
I	CC XIII		Project Work with Viva Voce	8	5	-	-	-	100
I	EC VI			5	3	3	25	75	100
II	AEC II		Geography for Competitive Examination	5	2	3	-	-	-
II	EA		Extension Activity	-	2	-	-	-	-
Total				30	22				400

Department of Geography
PG-LIST OF Discipline Specific Electric Course

S.No.	Subject Code	Title of the Course	Credit
1	P23GDE1	Population and Settlement Geography	3
2	P23GDE2	Transportation Geography	3
3	P23GDE3	Principles of GIS	3
4	P23GDE4	Urban Geography	3
5	P23GDE6 5	Geo-spatial Statistics	3
6	P23GDE7 6	Remote sensing and GNSS	3
7	P23GDE8 7	Agricultural Geography	3
8	P23GDE9 8	Geography of India and Resources Development	3
9	P23GDE10 9	Political Geography	3
10	P23GDE11 10	Disaster Studies	3
11	P23GDE12 11	Geo Database Programming	3
12	P23GDE13 12	Social and Cultural Geography	3

COURSE STRUCTURE ABSTRACT FOR
M.Sc. PROGRAMME 2023-2024 ONWARDS

Part	Course	Total No Papers	Hours	Credit	Marks
I	Core Course (CC)	12	72	57	1200
I	Core Project	1	8	5	100
I	Elective Course (EC)	6	29	18	600
II	Skill Enhancement Course (SEC)	3	6	6	300
II	Extra Credit Course (ECC)	1	-	2	-
II	Ability Enhancement Course (AEC)	2	5	4	100
II	Extension Activity	1	-	2	-
Total		26	120	92 + 2	2300


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M.Sc. APPLIED GEOGRAPHY [2 YEARS]

PROGRAMME OBJECTIVES:

1. Orient the students towards identifying and analyzing different geographical processes and features.
2. Developing the students' ability to acquire basic skills for conducting field research.
3. Intended to help students in learning the science and art of collecting, processing, and interpreting data.
4. Analyze various problems and resolve them through proper management, planning, and sustainability
5. To expose the students to the new technologies of Remote Sensing, GNSS, Geographical Information System (GIS) and GIScience.

PROGRAMME OUTCOMES

PO1: Disciplinary knowledge: Ability to apply disciplinary knowledge and demonstrate comprehensive knowledge by understanding concepts and providing effective solutions.

PO2: Communication Skills: Enable the students to understand and transfer knowledge both orally and in writing.

PO3: Critical thinking, Problem-solving & Analytical reasoning: Capability to use analytical skills to analyze and evaluate evidence/arguments, claims, and beliefs based on empirical evidence; formulate coherent arguments; critically evaluate practices, policies, and theories; to solve different kinds of non-familiar problems and to apply one's learning to real-life situations; draw valid conclusions and support them with evidence and examples by following systematic approach.

PO4: Research-related skills: Ability to recognize & predict cause-and-effect relationships, formulate, test and establish hypotheses, analyse, interpret and draw conclusions from data; ability to plan, execute and report the results of an experiment or investigation.

PO5: Moral and ethical awareness/reasoning: Ability to embrace moral/ethical values, formulate a position/argument about an ethical issue from multiple perspectives, use ethical practices and avoid unethical behaviour. Ability to appreciate environmental and sustainability issues.

PO6: Team work & Leadership: Ability to emphasis on accomplishing tasks as a group, setting direction, building a team to achieve the vision and use management skills to guide people to the right destination, smoothly and efficiently.

PO7: Self-directed & Lifelong learning & digital literacy: Ability to acquire and enhance knowledge and skills using ICT through self-paced and self-

directed learning and lifelong learning

PROGRAMME SPECIFIC OUTCOMES:

1. Understand the major biophysical and social patterns in the planet, and the key drivers that give rise to those patterns.
2. Demonstrate profound knowledge of theories, concepts, techniques and technologies in human and physical geography and in geographic information science and technology using real-world applications at the local, regional, and global levels.
3. Apply systems thinking and critical thinking in socio-economic-ecological systems of the human-environment interface to analyze problems and potential solutions.
4. Practice to obtain, analyse, interpret complex geographic data and develop ethical aptitudes, dispositions necessary to acquire and hold leadership positions in industry, government, and professional organizations.
5. Capability to work with the latest geospatial technologies and handle modern instruments like drones, total stations, GPS and other field devices and also work effectively in interdisciplinary and multicultural real- world contexts to combine theory and practice in responding to local to global issues.



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PGC101

SEMESTER I**CORE COURSE**

Course code:	CC1	PRINCIPLES OF CARTOGRAPHY
Core/Elective	Core - P23GC101	
Pre-requisite	Basic knowledge in Cartography	

Category	Hours			Credits	Marks		
	Lecture	Tutorial	Practical		CIA	External	Total
	3	-	-	5	25	75	100

COURSE OBJECTIVES:

- Exploring and defining principles of cartography, emerging trends in cartography and information age.
- Understanding the basics of geodesy and map projections
- Gaining skills in map symbols, cartographic design, representation and production of maps, and map composition.
- Critically assessing online resources, software and its uses for interactive mapping.

Assessing the importance of web mapping and geospatial data policy.

FUNDAMENTALS OF CARTOGRAPHY

History and future of cartography - Information age and mapping, Cartography as language and communication - visual thinking and visual communication-spatial information system.

UNIT II- MAP PROJECTIONS AND COORDINATE SYSTEMS

Geodesy, coordinate systems, and map projections- geographical data – spatial objects and attributes – map scale and accuracy.

UNIT III- MAP DESIGN AND LAYOUT

Map compilation - levels of data measurement, generalization, cartographic design principles- map symbolization- Qualitative and Quantitative symbols - graphic communication – map elements and layout.

UNIT IV- TERRAIN AND SURFACE ANALYSIS

Production and Map output - Typography & Labelling - Thematic Map Forms - Animation – Isarithmic, choropleth & Surface mapping-map reproduction, Publishing, & Sharing – cartographic products.

UNIT V- ONLINE MAPPING AND MAPPING ORGANIZATIONS

E- mapping, online map data sources - Geospatial web services- Dynamic/Interactive Mapping-cartography and survey of India NRSC, GSI, NATMO, NRSS & Iup. spatial information policy.

REFERENCE BOOKS

- Monkhouse, F.J. and Wilkinson, H.R. (1994) Maps and Diagrams, Methuen, London.

- Robinson, A.H. et al. (1995) Elements of Cartography, John Wiley & Sons, U.S.A
- Kraak M.J. (2010) Cartography: Visualization of Geospatial Data (3rd edition), Pearson Education Ltd, London.
- Jennings, Ken. (2011). Map head: Charting the Wide, Weird World of Geography Wonks. New York: Scribner
- Tyner, J.A. (2014) Principles of Map Design. New York, NY: Guilford Press.
- Geovisualization (3rd edition), Pearson New International Edition (eBook).
- Robinson, A.H., J.L.Morrison, P.C., Muehrcke, A.J.Kimerling and S.C.Guptill (1995). Elements of Cartography, 6th Edition. New York. John Wiley & Sons. USA.
- <http://www.fes.uwaterloo.ca/crs/geog165/cart.htm>.
- http://www.colorado.edu/geography/gcraft/notes/cartocom/cartocom_ftoc.html#3.0
- <http://www.earthensing.com/cart/resources/carthelp.html>

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1.	Understand the cartographic concepts, recent trends and the use of information technology	K1
CO2.	Explain the fundamental importance of map scale and benefits and limitations of map projections	K2
CO3.	Demonstrate cartographic techniques, generalisation regarding map design and layout, graphical and visual variables	K3
CO4.	Obtain the skills in creating reference and thematic maps using hard copies and web maps	K4
CO5.	Able to generate digital maps from open source data, analyse and interpret the interactive maps	K5 & K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2	3	2	1	3	4
CO2	44	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2
weighted							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong - 3, Medium - 2 and Low - 1)

QUESTION PATTERN

Section - A	Section - B		Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2=10)	One (A&B) question from each unit (5*5=25)	One question from each unit (3*10=30)

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SEMESTER I

ELECTIVE COURSE

Course code:	EC	AGRICULTURAL GEOGRAPHY
Core/Elective	Elective - P23GDE1:3	
Pre-requisite	Basic knowledge of agriculture	

Category	Hours			Credit	Marks		
	Lec	Tut	Prac		Cl	Exl	Total
	3	-	-	3	25	75	100

COURSE OBJECTIVES:

- To understand the different approaches in agricultural geography to study agricultural productivity, land use planning and agricultural systems
- To learn about factors, causes and problems of regionalization of agriculture.

UNIT I-INTRODUCTION TO AGRICULTURE

Nature, Scope and significance of agricultural geography – Approaches - Agricultural types and their Characteristics - Determinants of Agriculture – Physical, Economic, Social Institutional and technological factors – Green Revolution – First and Second - Implications.

STATISTICS AND SAMPLING USED TO AGRICULTURE

Agricultural Statistics and Sampling: Geographical, Agricultural, Land Crop, Irrigation, Indian and World Agricultural Statistics – Types and Methods of Sampling: Random, Purposive, Systematic, Stratified and Multistage

UNIT III-AGRICULTURAL PRODUCTIVITY

Agricultural productivity – Determinants - Measurements - Cropping Pattern – Crop combinational Analysis: Weaver's, Doi's and Rafiullah's Method. Crop diversification – Bhatia.

UNIT IV-AGRICULTURAL MODELS

Von Thunen's model - Modification and Application of Von Thunen's theory – Land use - Types – Land Evaluation and GIS Land use Planning - Land capability classification – Remote sensing in land use analysis.

UNIT V-AGRICULTURAL SYSTEMS

Agricultural systems of the World, India – Whittlessey's agricultural classification – Agro-Ecological Regions in India

REFERENCE BOOKS:

1. Hussain, M. (2004) – Agricultural Geography, Rawat Publications, New Delhi
2. Morgan, W.B & Muntan, R.J.C. – Agricultural Geography
3. Singh Jasbir, and Dhillon - Agricultural Atlas of India - A Geographical Analysis, Vista Publishers, Krukshetra.
4. Symons, I – Agricultural Geography, G. Bells & Sons, London.
5. Savindra Singh and Dhillon - Agricultural Geography.
6. Dr. Alka Gautam (2016) – Sharda Pustak Bhavan, Allahabad.

Expected Course Outcomes:

CO1	Remember the basics of Approaches, Agricultural types and their Characteristics	K1
CO2	Understand the determinants of agriculture and agricultural productivity.	K2
CO3	Assess the Measurements - Cropping Pattern – Crop combinational Analysis	K3
CO4	Analyze Modification and Application of Von Thunen's theory – Land use - Types – Land Evaluation and GIS Land use Planning	K4
CO5	Evaluate the role of Agricultural systems of the World and India	K5&K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	3	3	3	3	2	4
CO2	2	3	2	3	4	3	3
CO3	3	3	3	1	3	1	3
CO4	3	4	4	3	1	3	2
CO5	2	3	2	3	3	3	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)							

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B) question from each unit(5*5=25) One question from each unit(3*10=30)

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SEMESTER I

CORE COURSE

Course code:	CC2	APPLIED GEOMORPHOLOGY
Core/Elective	Core - P23GC102	
Pre-requisite	Basic knowledge in Physical Geography	

Category	Hours			Credits	Marks		
	Lect	Tuto	Pract		CI A	Ex ter na	To tal
	3	-	-	5	25	75	100

COURSE OBJECTIVE:

- To introduce the concepts in Geomorphology in adequate manner, many facets of surface relief features and to understand various aspects of their growth and evolution on the Earth.
- To understand landscape evolution through time and space
- To understand the processes that shapes the landforms around us.
- To apply geomorphologic concepts to identify and analyze the environmental and resources issues for sustainable development
- To suggest the tools for reading in the landscape the signs of geomorphologic hazards and risks, human interference and geomorphologic resources.

UNIT-I SCOPE OF APPLIED GEOMORPHOLOGY

Definition - Nature and scope of applied geomorphology - Fundamental concepts in geomorphology - Geosynclines and mountain building process - Geological Time Scale - Geomorphic ideas of Davis, Penck and King

UNIT-II ENERGY FLOW IN GEOMORPHIC SYSTEM

System concepts in geomorphologic studies - Structure and composition of earth - Theories of Continental Drift - Plate Tectonics and Volcanism- climatic and tectonic changes and impacts

UNIT-III WEATHERING, MASS WASTING AND DEVELOPMENT OF HILL SLOPES

Weathering : Mechanical, Chemical and Biological weathering- structure, process and time in weathering- Soil: Soil formation - Mass wasting : causes and types of mass wasting - Planning and control measures

UNIT-IV PROCESS GEOMORPHOLOGY

Drainage: Drainage Basin - Basin morphometry - Fluvial system : erosion, sedimentation and structural adjustments in the fluvial system; Waves : Waves dynamics - evolution of shores and construction and destruction of coastal region; Arid landforms and its evolution- Karst and topography; Glacial process, erosion and depositional landforms.

UNIT-V APPLICATIONS OF GEOMORPHOLOGY

Mapping and statistical analysis : Landscape and land evaluation - Hazard analysis - application of geo-informatics in geomorphological mapping and modelling - Geomorphology and its applications in Agriculture, Water resources, hazard, urban and mineral exploration.

REFERENCE BOOKS

- Sharma, H.S. (1990) Indian Geomorphology. Concept Publication Company.
- Mc Geary, D. and Plummer, C. C., (1994) Earth Revealed, W. C. B. Publishers.
- Huggett, R.J. (2007) Fundamentals of Geomorphology, Routledge.
- Waugh D. (2005) Geography: An Integrated Approach, Nelson Thornes.
- Robert, S.A. and Suzanne, P.A., (2010) Geomorphology - The mechanics and chemistry of landscapes. Cambridge University Press.
- Richard John Huggett (2011), "Fundamentals of Geomorphology", Routledge, Taylor & Francis, London.
- Christopherson, R. W. and Birkeland, G. H., (2012) Geosystems: An Introduction to Physical Geography (8th edition), Pearson Education.
- Bierman, P.R. and Montgomery, D.R., (2014) Key concepts in geomorphology, Freeman and Company Publishers.
- Kale, V. and Gupta, A. (2018) Introduction to Geomorphology, Orient Black Swan
- Thornbury, W.D. (2019) Principles of Geomorphology, Third Edition, New Age International Publishers.
- Paul R. Bierman, David R. Montgomery (2020), "Key concepts in Geomorphology", Macmillan Publications, New York.
- <https://earthsurface.readthedocs.io/en/latest/> <https://ocw.mit.edu/courses/earth-atmospheric-and-planetary-sciences/12-163-surface-processes-and-landscape-evolution-fall-2004/lecture-notes/>

Expected Course Outcomes:

CO1	Recall the key concepts of geomorphology and dynamic aspects of landform development	K1
CO2	Understand the relationship between geomorphologic processes, natural resources and environmental impacts	K2
CO3	Ability to analyze the geomorphologic hazards and risks associated to geomorphic processes	K3
CO4	Learn the various tools and techniques relevant to the applied aspects of Geomorphology in various fields.	K4
CO5	Evaluate the landscape development and skill on the use of geomorphic process, features and event in resources and environmental planning and management	K5&K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO 7
CO1	4	3	3	3	3	2	3
CO2	3	3	2	3	4	3	3
CO3	3	3	3	2	3	1	3
CO4	3	3	3	3	3	3	3
CO5	3	3	2	3	3	3	4
Weighted % of course							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong - 3, Medium - 2 and Low - 1)

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QUESTION PATTERN

Section - A		Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25)	One question from each unit(3*10=30)


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SEMESTER I

CORECOURSE

Coursecode:	CC3	PRACTICAL I: TECHNIQUES OF MAPPING AND MAP ANALYSIS
Core/Elective	Core-P23GC103P	
Pre-requisite	Basic knowledge for mapping and interpretation	

Category	Hours			Credits	Marks		
	Lecture	Tutorial	Practical		CIA	External	Total
	-	-	6	4	40	60	100

COURSE OUTCOMES:

To introduce the concepts practically in mapping and map analysis

To understand the various aspects of map reading, interpretation and representation of various data through maps.

To provide a basic understanding in the field of interpretation and interpolation.

To understand the theoretical and practical methods pertaining to map making.

To understand the concepts and importance of various analysis used in mapping.

UNIT I MAP AND INTERPRETATION

Map appreciation and interpretation: thematic, topographic sheets and atlas maps- mapping and analysis: Relative relief and slope maps; height and hypsometric curves; stream Analysis.

UNIT II CLIMATE AND HYDROLOGY

Climate and Hydrology: climograph and climatograph; rainfall variability, intensity maps temperature and rainfall profiles; deviation and dispersion graph; aridity and water balance graphs.

UNIT III POPULATION AND ECONOMIC DATA MAPPING

Population and economic data mapping: dot maps, density maps - colour and grey scale patterns; index of concentration and diversification; crop combination technique, spatial interaction, measures of transport network analysis.

UNIT IV QUANTITATIVE SYMBOLISATION AND LOCATION MAP

Quantitative symbolisation and location Maps: located representation of tourism and facilities; point and line pattern analysis; cartograms and 3Dmaps.

UNIT V MAPPING AND INTERPOLATION

Choropleth and isorhythm maps - class interval selection methods.

REFERENCE BOOKS:

- Lawrence, G.R.P. (1971). Cartographic Methods, Methuen & Co., Canada
- Tamaskar, B. G., Deshmukh, V. M. (1974): Geographical Interpretation Topographical

- Maps, Orient Longman Ltd., Bombay.
- Monkhouse, F.J., and Wilkinson, H.R. (1976): Maps and Diagrams, Methuen & Co., London.
- Chrisman, N. (1997): Exploring Geographic Information systems, John Wiley & Sons., New York
- Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.
- Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. 2011. Map Use: Reading, Analysis, Interpretation, 7th ed, Esri Press.
- Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
- www.sevenoaks.wa.edu.au/linkpage/geog/copy.html
- <http://www.esri.com/>
- www.gisdevelopment.net/books/mapping/bmap0010.html

Expected Course Outcomes:

CO1	Remember the importance of various mapping techniques in geographical study	K1
CO2	Understand the procedures and steps involved in the interpretation of thematic, topographic and atlas maps etc.	K2
CO3	Applying the quantitative applications involved in mapping and interpolation.	K3
CO4	Ability to analyze and perform analysis like network analysis, stream analysis, point and line pattern analysis.	K4
CO5	Capable of creating maps based on appropriate cartographic knowledge.	K5& K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	3	3	3	3	2	4
CO2	2	3	2	3	4	3	3
CO3	3	3	3	1	3	1	3
CO4	3	4	4	3	1	3	2
CO5	2	3	2	3	3	3	3
Weighted % of course contribution to each pso							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)

QUESTION PATTERN

Section - A
One question from each unit(4*15=60)

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கும்பகோணம் - 612 002.

SEMESTER I

ELECTIVE COURSE

UNIT V MORPHOLOGY OF URBAN SETTLEMENTS

Course code:		EC	POPULATION AND SETTLEMENT GEOGRAPHY					
Core/Elective		Elective - P23GDE1:1						
Pre-requisite		Basic knowledge in population and settlement geography						
Cat ego ry	Hours			Credit s	Marks			
	Lec	Tut	Prac		CI	Ext	Total	
	3	-	-	3	25	75	100	

Urban Settlements: Origin of Cities – Stages of Urban Growth - Site, Situation and Types – Urban Morphology - Urbanization.

REFERENCE BOOKS:

- Clark J.I (1965). Population Geography, Permagon Press, New York, 1965.
- Gosh, B.N (1987)– Population Geography, Streling Publications.
- Beaujeu-Garnier, J. (1966). Geography of Population (Translated by Beaver, S.H.) Longmans, London.
- Singh, R.Y. (2002). Geography of Settlements. Rawat Publication, New Delhi.
- Chandna, R.C (2012)-Geography of Population, Kalyani Publishers, Ludhiana
- Maurya, S.D. (2012). Human Geography. Prayag Publications, Allahabad.
- Debjani Roy (2015)-Population Geography, Books and Allied Private Limited, Kolkata.
- Mohammad Izhar Hassan (2020). Population Geography: A Systematic Exposition, Routledge, India.
- <https://ncert.nic.in/ncerts/l/legv201.pdf>
- <https://www.amyglenn.com/geog-regional/geog1303population.htm>
- https://www.bdu.ac.in/cde/slm/slm_sample/msc-geography.pdf
- <https://mu.ac.in/wp-content/uploads/2021/04/t.v.b.a-paper-7-population-and-economic-geography-e.pdf>
- <https://ncert.nic.in/ncerts/l/legv201.pdf>

COURSE OBJECTIVES:

- understanding of nature, scope and evolution of population geography through spatial and temporal
- It also helpful in knowing various kinds of demographic problems.
- Study of population is an essential component in planning of various human related issues.
- To explain the arguments and assumptions of dominant theories of population change in time and space.
- Population Geography also deals in population policies in developed & developing countries

UNIT I SCOPE OF POPULATION GEOGRAPHY

Scope of population geography, Sources of population data (census, sample surveys and vital statistics, data reliability and errors). World Population Distribution (measures, patterns and determinants), World Population Growth (prehistoric to modern period). Demographic Transition, Theories of Population Growth (Malthus, and Ricardo).

UNIT II WORLD DISTRIBUTION OF POPULATION

World distribution of population – over population, under population and optimum population- growth of population – migration: Internal and international.

UNIT III POPULATION COMPOSITION AND CHARACTERISTICS

Fertility and Mortality Analysis (indices, determinants and world patterns). Migration (types, causes and consequences), Population Composition and Characteristics (age, sex, rural-urban, occupational structure and educational levels), Population Policies in Developed and Developing Countries.

UNIT IV MORPHOLOGY OF RURAL SETTLEMENTS

Nature, scope and development of settlement geography – site, situation, types, size, spacing and internal morphology of rural settlements

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Recall population policies & its importance. Population distribution and its problems.	K1
CO2	Understanding the vital statistics of population data	K2
CO3	Apply and interweave theoretical foundation for addressing research issues related to population dynamics in the real world	K3
CO4	Acquiring, handling and analysing population data both at the grassroots level and secondary sources	K4
CO5	Create the morphology and patterns of urban and rural settlement	K5 & K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*							
CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	3	3	3	3	2	4
CO2	3	3	2	3	4	3	3
CO3	3	3	3	1	3	1	3
CO4	3	4	4	3	2	3	3
CO5	3	3	2	3	3	3	4
Weighted % of course contribution to each PSO							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong - 3, Medium - 2 and Low - 1)							

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QUESTION PATTERN

Section - A		Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25)	One question from each unit(3*10=30)


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SEMESTER I

ELECTIVE COURSE

Course code:		EC	TRANSPORTATION GEOGRAPHY				
Core/Elective		Elective - P23GDE1:2					
Pre-requisite		Basic knowledge in geography					
Category	Hours			Credit	Marks		
	Lec	Tut	Prac		CI	Exe	Total
	3	-	-	3	25	75	100

COURSE OBJECTIVES:

- Understand the purpose and importance of Transportation Geography
- Explain the spatial organization of transport systems
- Examine the role of transportation system in energy, environment and economy
- Discuss the modes of transportation and trade and urban transportation
- Apply and evaluate the concepts in planning and policy for sustainable development

UNIT I INTRODUCTION

Scope and significance of Transportation Geography- basic concepts- Physical Environment and Transportation - The Emergence of Mechanized Transportation Systems- Setting of Global Transportation Systems.

UNIT II TRANSPORTATION, ENERGY, ENVIRONMENT, ECONOMY AND SOCIETY

Transportation and Economic Development- Transportation and Energy- Environment and Environmental justice- Sustainability and Decarbonization - Environment and Society- Transport Costs- Demand of Transportation Services.

TRANSPORTATION MODES AND TRADE

Road, Rail and Pipelines, Maritime and Air Transport-Intermodal Transportation and Containerization-Transport Terminals and Hinterlands- Port, Rail and Airport Terminals- Trans-border and Cross-border Transportation- Globalization and International Trade- Freight Transportation and Value Chains- Transport hubs.

UNIT IV URBAN LAND USE, TRANSPORTATION AND PLANNING

Urban Land Use and Transportation- Urban Mobility- Urban Transport Challenges-Transport Policy-Transport Planning and Governance- Transport Safety and Security- Transportation Disruptions and Resilience- Geospatial technology and spatial transport planning.

UNIT V URBAN LAND USE, TRANSPORTATION AND PLANNING

Urban Land Use and Transportation- Urban Mobility- Urban Transport Challenges-Transport Policy-Transport Planning and Governance- Transport Safety and Security- Transportation Disruptions and Resilience- Geospatial technology and spatial transport planning.

REFERENCE BOOKS:

1. Eliot Hust M.E. (1974) Transportation Geography, McGrawhill.
2. Garrison W. Berry BJL, et al (1959) Studies of Highway, Development and Geographic Change, University of Washington, Seattle.
3. Grossman W.L. (1959) Fundamentals of Transportation, New York.
4. Ullman, E.L. (1980) Geography as Spatial Interaction, University of Washington Press, Seattle.
5. Taaffe, E.J., H.L. Gauthier and M.E. O'Kelly (1996) Geography of Transportation, 2nd Edition, Prentice Hall, New Jersey.
6. Haggett, P. (2001) Geography: A Modern Synthesis, 4th Edition, New York: Prentice Hall.
7. Black, W. (2003) Transportation: A Geographical Analysis. New York: Guilford
8. Rodrigue, J.P., Claude C. and Brian S. (2006) The Geography of Transport Systems, Routledge, New York.
9. Newman, M. (2010) Networks: An Introduction. Oxford University Press, Oxford.
10. Tapas Pal (2015) Industrial Geography an Indian Perspective, Bridge Centre, Buzau.
11. <https://transportgeography.org/>
12. https://cbpbu.ac.in/userfiles/file/2020/STUDY_MAT/GEO/null.pdf
13. <https://unece.org/transport>

Expected Course Outcomes:

CO1	Remember the basics of spatial structure of transportation network	K1
CO2	Understand the transport systems and problem from a spatial perspective.	K2
CO3	Assess the environment, energy and other socio-economic dimensions with reference to transportation development	K3
CO4	Analyze different modes of transportation and trade for sustainable developmental activities	K4
CO5	Evaluate the role of transportation in affecting current patterns of economic development and spatial planning	K5&K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	3	3	3	3	2	4
CO2	2	3	2	3	4	3	3
CO3	3	3	3	1	3	1	3
CO4	3	4	4	3	1	3	2
CO5	2	3	2	3	3	3	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)							


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QUESTION PATTERN

Section - A		Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25)	One question from each unit(3*10=30)


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SEMESTER I**CORE COURSE**

Course code:	SEC 1	HEALTH AND WELL BEING
SEC	Skill Enhancement Course - P23G1SE1	
Pre-requisite	Basic knowledge in health for human	

Crt ego ry	Hours			Credit s	Marks		
	L e c	T u t	P r a c		C I A	E x	T o t a l
	2	-	-	2	25	75	100

COURSE OBJECTIVES:

- The social, built and natural environments affect our health and well-being in ways that are directly relevant to health policy. Geography and Health are intrinsically linked.
- The application of spatial aspects to health related data will help students to understand the environmental risks as well as many other health effects in an effective way.

UNIT I- PERSPECTIVES ON HEALTH

Perspectives on Health - Linkages with Environment - Development and Health - Human Activities and Environmental Pressure - Food Production and Nutrition

UNIT II-DYNAMICS OF HEALTH

Driving Forces in Health and Environment: Population Dynamics, Urbanization, Poverty and Inequality

UNIT III-EXPOSURE AND HEALTH RISKS

Exposure and Health Risks: Air Pollution - Household Waste - Water Pollution - Housing and Workplace

UNIT IV-DISEASES AND THEIR REGIONAL PATTERN

Types of Diseases and their Regional Pattern - Health and Disease Pattern in India (Communicable and Lifestyle related diseases) - Biological Disease Agents

UNIT V-CLIMATE CHANGE TO HUMAN HEALTH

Climate Change and Human Health: Changes in Climate System - Problems in Heat and Cold Areas - Micro-climate changes and health

REFERENCE BOOKS

1. Akhtar Rais (Ed.), 1990: Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi.
2. Phillips, D. and Verhasselt, Y., 1994 Health and Development, Routledge, London.
3. Christaler George and Hristopoles Dionissios, 1998: Spatio Temporal Environment Health Modelling, Boston Kluwer Academic

Press.

4. Gatrell, A., and Loytonen, 1998: GIS and Health, Taylor and Francis Ltd, London.
5. Avon Joan L. and Jonathan A Patzed. 2001: Ecosystem Changes and Public Health, Baltimin, John Hopling Unit Press(ed)

Expected Course Outcomes:

CO1	Extract the studying the course, the student will generate awareness about the driving forces of health and wellbeing	K1
CO2	Driving forces in health and environment	K2
CO3	Students will be able to explain the relationships among housing, lifestyle, occupation, environment and health	K3
CO4	Students will become competitive to identify linkages between global environmental change, micro climate, heat and cold wave and human health	K4
CO5	Create the Climate Change and Human Health	K5&K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	3	3	3	3	2	4
CO2	2	3	2	2	4	3	3
CO3	3	3	3	1	3	1	3
CO4	3	4	4	3	1	3	2
CO5	2	3	2	3	3	3	3
Weighted % of course contribution to each pso							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong - 3, Medium - 2 and Low - 1

QUESTION PATTERN

Section - A
One question from each unit(5*15=75)

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SEMESTER II

CORE COURSE

Course code:		CC4	APPLIED CLIMATOLOGY				
Core/Elective		Core - P23GC204					
Pre-requisite		Basic knowledge in Physical Geography					
Category	Hours			Credit	Marks		
	Lec	Tut	Prac		CIA	Ex	Total
	6	-	-	5	25	75	100

COURSE OBJECTIVES:

- Gaining basic knowledge about weather elements
- Learning patterns of global wind circulation
- Understanding world climatic classification, climate change and global warming
- Acquiring skills in micro level climate, weather forecasting methods and weather measurement technique
- Demonstrate applicable solutions for climate change.

UNIT I NATURE AND SCOPE OF APPLIED CLIMATOLOGY

Nature and scope of applied Climatology- the development of applied climatology Atmosphere: Its composition (gaseous) and structure; Insolation and Radiation, heating of land and water; temperature and pressure: variations in temperature and pressure; temperature zones, heat balance, and pressure belts.

UNIT II GLOBAL WIND SYSTEMS

Global wind circulation: Tricellular meridional circulation; trade winds, easterlies and westerlies and polar winds; Air masses: continental and maritime; fronts and their types; clouds; precipitation: thunderstorms, cyclones (tropical and temperate) and anti-cyclones

UNIT III CLIMATE CHANGE AND GLOBAL WARMING

Climatic classifications; micro climates, agro-climates and urban climates; urban air pollution problems- global climate change; global warming and their likely impacts on human life- El Nino, La Nino.

UNIT IV URBAN CLIMATE

Urban climate - global warming- heat island - health hazards.

UNIT V WEATHER FORECASTING

Weather forecasting: short range and long-range forecasting - weather satellites and sensors - sounding techniques - weather maps - field instruments in forecasts.

REFERENCE BOOKS:

1. Mather, J. R. (1974): Climatology: Fundamentals and Applications, Mc Graw Hill, New York
2. Howard J. Critch field (1995); General Climatology; Prentice, Hall of India Pvt. Ltd., New Delh.
3. Thompson, R. D. and Allen, P. (1997): Applied Climatology: Principles and Practice, Routledge, London and New York
4. Perry, Allen, and Russell Thompson. Applied climatology: principles and practice. Routledge, 2013. Thompson, R. (1997). Applied climatology: principles and practice. Psychology Press.
5. Kelkar, R. R. (2007). Satellite meteorology. BS Publications
6. Ahrens, C. D. (2011). Essentials of meteorology: an invitation to the atmosphere. Cengage Learning
7. Ahrens, C. D. (2012). Meteorology today: an introduction to weather, climate, and the environment. Cengage Learning.
8. Hartmann, D. L. (2015). Global physical climatology (Vol. 103). Newnes
9. Hobbs, John E. Applied climatology: a study of atmospheric resources. Elsevier, 2016
10. Rohli, Robert V., and Anthony J. Vega. Climatology. Jones & Bartlett Learning, 2017.
11. Khan, A., Chatterjee, S., & Wang, Y. (2020). Urban Heat Island Modeling for Tropical Climates. Elsevier.
12. <https://public.wmo.int/en/resources/training>
13. https://metnet.imd.gov.in/phps/indweb_imdnews.php
14. <https://www.un.org/en/climatechange/speeches>
15. <https://www.ipcc.ch/data/>
16. https://mausam.imd.gov.in/imd_latest/contents/satellite.php

Expected Course Outcomes:

CO1	To recall weather elements and its importance	K1, K2
CO2	Discuss various wind around the world	K5, K3
CO3	To compare climatic classification for global and regional level	K3, K4
CO4	Apply global warming- heat island - health hazards.	K4, K5
CO5	Analyzing the Characteristics of Urban Heat Island	K5, K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	3	3	3	3	2	4
CO2	2	3	2	2	4	3	3
CO3	3	3	3	1	3	1	3
CO4	3	4	4	3	1	3	2
CO5	2	3	2	3	3	3	3
Weighted % of course contribution to each PSO							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong - 3, Medium - 2 and Low - 1)

QUESTION PATTERN

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	One (A&B) question from each unit (5*5=25)	One question from each unit (3*10=30)

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PGC205

SEMESTER II**CORE COURSE**

Course code:	CC5	HYDROLOGY AND OCEANOGRAPHY
Core/Elective	Core - P23GC205	
Pre-requisite	Basic knowledge in Physical Geography	

Category	Hours			Credits	Marks		
	Lec	Tut	Prac		Class	Ex	Total
	6	-	-	5	25	75	100

- To Understand the stages of Hydrological cycle
- To introduce a sound scientific knowledge of how water cycles through the Earth's atmosphere, surface and groundwater systems.
- To Understand Significance of oceanography and hydrology in earth and atmospheric science, Configuration of the ocean floor and variation of temperature and salinity of oceans and seas.

UNIT I- HYDROLOGIC CYCLE

Hydrological cycle and its sub-cycle; Man's interference on hydrological cycle - elements of hydrological cycle: precipitation - intensity and duration; evaporation and urban flooding

UNIT II-CHARACTERISTICS AND FUNCTIONS OF FLUVIAL MORPHOLOGY

Drainage basin characteristics: human impact on hydrological system - morphometric analysis - fluvial process and analysis

UNIT III AQUIFERS AND GROUNDWATER

Ground water - occurrence and types: movement - its relevance in crop geography; water pollution, need for water management.

UNIT IV-MORPHOLOGY OF OCEAN FLOOR

Relevance of oceanography in earth and atmospheric sciences: Surface configuration of the ocean floor, continental shelf, continental slope, abyssal plain, mid-oceanic and oceanic trenches - relief of Atlantic, Pacific and Indian oceans - distribution of temperature and salinity of oceans and seas

UNIT V MOVEMENT OF OCEAN WATER

Circulation of oceanic waters: waves, tides and currents; currents of the Atlantic, Pacific and Indian oceans. Marine deposits and coral reefs; coastal environment - Oceans as storehouse of resources for the future.

REFERENCE BOOKS:

1. Addison, H. (1961). Land Water and Flood, Chapman and Hall, London.
2. Sharma, R.C. Vatel M (1970). Oceanography for Geographers, Chetnya Publishing House, Allahabad
3. Cracknell, A. P. (1981). Remote sensing in meteorology, oceanography and hydrology.

4. Diaz, H. F. (2000). El Niño and the Southern Oscillation: multiscale variability and global and regional impacts. Cambridge University Press
5. Lal, D.S., (2005) Oceanography, Sharda Pustak Bhawan, Allahabad.
6. Lutgens, F.K., Tarbuck E.J. and Tasa D., (2009) The Atmosphere: An Introduction to Meteorology, 11th Edition, Prentice Hall.
7. Stewart, R. (2009) Introduction to Physical Oceanography, Orange Grove Books
8. Talley, L. D. (2011). Descriptive physical oceanography: an introduction. Academic press.
9. Christopherson, R. W. and Birkeland, G. H., (2012) Geosystems: An Introduction to Physical Geography (8th edition), Pearson Education, New Jersey.
10. Pinet P.R. (2012) Invitation to Oceanography, 6th Edition, Jones & Bartlett Learning
11. Park, S. K., & Xu, L. (Eds.). (2013). Data Assimilation for Atmospheric, Oceanic and Hydrologic Applications (Vol. II) (Vol. 2). Springer Science & Business Media.
12. Thurman, H. V. (2019). Essentials of oceanography.
13. <https://online-learning.tudelft.nl/courses/introduction-to-water-and-climate/>
14. <https://www.mooc-list.com/tags/hydrology>
15. <https://www.usgs.gov/special-topic/water-science-school/science/what-hydrology>
16. <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/hydrology>

Expected Course Outcomes:

CO1	Recall hydrological cycle, surface runoff and urban flooding	K1
CO2	Knowledge on fluvial process and morphometry of drainage basin	K2
CO3	Explain groundwater occurrence, types, movement, pollution and need for water management	K3
CO4	Analyzing ocean waters movements, ocean deposits, coastal environment and coral reefs and discuss the global warming and Sea level rising	K4
CO5	Create the Circulation of oceanic waters: waves, tides and currents	K5 & K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
C01	3	2	3	3	3	2	4
C02	2	1	2	2	4	3	2
C03	4	3	2	2	3	1	3
C04	3	4	4	3	1	3	2
C05	3	3	2	3	3	2	4
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong-3, Medium-2 and Low-1)							

QUESTION PATTERN

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B) question from each unit(5*5=25) One question from each unit(3*10=30)

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சென்னை பல்கலைக்கழகம்

SEMESTER II

CORE COURSE

Course code:	CC 6	PRACTICAL- II: GEOSPATIAL LAB
Core/Elective	Core - P23GC206P	
Pre-requisite	Prior knowledge in Geography	

Category	Hours			Credit	Marks		
	Lec	Tut	Prac		CIA	Ex	Total
	6	-	-	4	40	60	100

COURSE OBJECTIVES:

- To introduce the concepts of Geographic Information Systems practically and to understand the various aspects of map reading, design and evaluation of digital maps
- To understand the theoretical and practical concepts pertaining to map making.
- To obtain a comprehensive understanding of the spatial models, applications and tools currently available in the field of GIS.
- To apply the GIS concepts to create, analyse and interpret the spatial maps in the field of geospatial technology.
- To suggest tools and techniques for execution of spatial operations.

UNIT I FUNDAMENTALS OF MAPPING AND EXPLORATION

Map exploration - Georeferencing - map projection and transformation

- spatial entity creation - digitization - symbolization - attribute data editing - labelling and annotation - map design and layout - editing.

UNIT II SPATIAL DATA EDITING AND ANALYSIS

Attribute data management and thematic mapping: quantitative and qualitative mapping, dot map, located pie chart and bar chart - overlay analysis.

UNIT III SPATIAL ANALYSIS

Spatial statistics: measurement- mean center, median center, standard distance

UNIT IV TERRAIN AND SURFACE ANALYSIS

Surface analysis and Interpolation techniques: creation of contours, slope, aspect, DEM, analysis.

UNIT V SPATIAL APPLICATIONS

GPS with field data attributes - geotagged photographs

REFERENCE BOOKS:

- Bernhardsen, T. (2002). Geographic information systems: an introduction. John Wiley & Sons
- Kang-tsung Chang (2002). Introduction to Geographical Information Systems, Tata McGraw-Hill Publishing Company Limited, New Delhi.
- Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2005). Geographic information systems and science. John Wiley & Sons.
- Whyatt, D., Clark, G., & Davies, G. (2011). Teaching geographical information systems in geography degrees: A critical reassessment of vocationalism. Journal of Geography in Higher Education, 35(2), 233-244.
- Zhu, X. (2016). GIS for environmental applications: a practical approach. Routledge.
- Whyatt, D., Clark, G., & Davies, G. (2011). Teaching geographical information systems in geography degrees: A critical reassessment of vocationalism. Journal of Geography in Higher Education, 35(2), 233-

244

- Zhu, X. (2016). GIS for environmental applications: a practical approach. Routledge.
- Ballas, D., Clarke, G., Franklin, R. S., & Newing, A. (2017). GIS and the social sciences: Theory and applications. Routledge.
- Gould, M. (2018). Tailoring GIS courses for employment. In GIS (pp. 189-195). CRC Press
- www.ncgia.ucsb.edu/education/curricula/giscc
- http://www.esri.com/
- https://www.le.ac.uk/ar/arccgis

Expected Course Outcomes:							
CO1	A clear understanding in key concepts of cartography, GIS and the aspects in reading, designing, and evaluating digital cartographic maps						K1
CO2	Understand the relationship between map projections, coordinate systems and geospatial layers including map algebra and spatial statistics.						K2
CO3	Learn the skills in data collection, storage, analysis and interpretation of spatial data in GIS interface.						K3
CO4	Ability to analyse and evaluate the maps and perform spatial operations .						K4
CO5	Create tools for developing and solving complex geospatial problems in GIS						K5& K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create							
Mapping with Programme Outcomes (MPO)*							
CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	1	2	3	3	3	2	3
CO2	2	1	2	1	4	3	2
CO3	4	3	2	2	3	1	3
CO4	3	4	4	3	1	3	2
CO5	3	3	2	4	3	2	4
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4,Strong -3, Medium-2 and Low-1)							
QUESTION PATTERN							
Section - A							
One question from each unit(4*15=60)							

(Signature)

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SEMESTER II

ELECTIVE COURSE

Course code:	EC	GEOSPATIAL STATISTICS
Core/Elective	Elective - P23GDE2:1	
Pre-requisite	Prior knowledge in statistics	

Category	Hours			Credit	Marks		
	Lec	Tut	Prac		Class	Ex	Total
	5	-	-	3	25	75	100

COURSE OBJECTIVES:

- To introduce basic statistical procedures to the students
- To indicate the assumptions, limitations and interpretation of these procedures and results
- To train the students to handle these statistics towards analysing the geographical problems
- To understand the Statistical Techniques, Numerical data in Geography
- To familiarize about Probabilistic Treatment, Parametric Statistics and Regression Analysis

UNIT I- STATISTICS, GEOGRAPHY AND STATISTICS

Significance of Statistics in geographical studies; Types of Data; levels of data measurement. Sampling: basic concepts, sample UNITS and design, sampling frame and procedures, standard error and sample size, testing the adequacy of samples

UNIT II- MEASURES OF CENTRAL TENDENCY AND THEIR SIGNIFICANCE

Centro graphic techniques: mean centre, median centre and standard distance. Measures of dispersion and concentration: Range, quartile deviation, mean deviation, standard deviation; coefficient of variation, Lorenz Curve.

UNIT III-BIVARITE ANALYSIS

Forms of relation and measuring the strength of association and relation-construction and meanings of scatter diagram; Spearman's Rank Difference and Karl Pearson's Product Moment Correlation Coefficients.

UNIT IV-REGRESSION ANALYSIS

Regression equations, construction of regression line interpolation, prediction, explanation; residual-statistical tests of significance of the estimates; computation of residuals and mapping.

UNIT V-HYPOTHESIS TESTING

Needs and types of hypotheses-goodness of fit and significance and confidence levels-parametric and non-parametric procedures: contingency tables, Chi-square test, t-test, Analysis of Variance (ANOVA).

REFERENCE BOOKS:

- Hammond, R. and McCullagh, P.S. (1974), Quantitative Techniques in Geography: An Introduction, Clarendon Press, Oxford.
- David M. Smith (1975), Patterns in Human Geography, Penguin, Harmons worth
- David U (1981), Introductory Spatial Analysis, Methuen, London.
- Ebdon, D. (1983), Statistics in Geography: A Practical Approach, Blackwell, London.
- Mathews, J.A. (1987), Quantitative and Statistical Approaches to Geography
- Gupta, S.P. (2010), Statistical Methods, Sultan Chand and Sons, Latest Edition.
- Peter a. Rogerson (2015), statistical methods for geography: a student's guide, sagepublications ltd, London, United Kingdom.
- <https://swayam.gov.in/course/266-quantitative-methods>
- <http://www.sethspeelman.org/courses/geog5023/>
- https://www.colorado.edu/geography/class_homepages/geog_4023_s08/
- <http://www.oxfordbibliographies.com/view/document/obo-9780199874002/obo-9780199874002-0053.xml>
- <https://searchworks.stanford.edu/view/923805>

Expected Course Outcomes:		
CO1	Explain the role of quantitative information in geographic research and applications.	K1
CO2	Demonstrate an understanding of basic descriptive statistics and regression methods as they apply to problem solving in Geography.	K2
CO3	Evaluate the roles of probability theory and sampling distributions in drawing inferences about populations based on samples	K3
CO4	Perform basic data manipulation, statistical calculations and graphical presentation by hand, and using computer spreadsheets or statistical software (e.g., Excel, SPSS).	K4
CO5	Acquired skills to assemble, collect and manage big data resources so that they facilitate both statistical as well as geographical studies.	K4 & K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*							
CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2	3	3	3	2	4
CO2	2	1	2	1	4	3	2
CO3	4	3	2	2	3	1	4
CO4	3	4	4	3	1	3	2
CO5	3	3	2	3	3	2	4
Weighted % of course contribution to each pso							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)

Section - A		Section - B		Section - C	
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B) question from each unit(5*5=25)		One question from each unit(3*10=30)	

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Course code:	EC	GEOGRAPHY OF INDIA AND RESOURCES DEVELOPMENT
Core/Elective	Elective - P23GDE4:2	
Pre-requisite	Basic knowledge of India and Resources development	

Category	Hours			Credits	Marks		
	L	E	T		C	I	A
	5	-	-	3	25	75	100

Objective:

- The objective of this course is to give an overview of type and distribution of mineral resources, energy resources, industrial resources, trade and transportation at global level.
- The course will also provide a broader outlook about the availability of renewable and non-renewable resources to the students.

Unit I

Nature and Scope of Geography of Resources Classification Resource – Resources utilization – conservation of resources.

Unit II

Agriculture: Production and Distribution of Rice – Wheat – Cotton – Jute – Sugarcane – Tea – Coffee and Rubber – Life stock – Fishing and Types – Major fishing grounds.

Unit III

Mineral Resources – Iron ore, Bauxite, Gold and Manganese – Power Resources – Coal, Petroleum and Electricity – Non-Convectional energy resources.

Unit IV

Manufacturing Industries: Classification – Distribution of Iron and Steel Industries – Cotton Textiles – Sugar Industries – Chemical – Automobiles – Ship Building and IT Industries.

Unit V

Transportation: Surface – Air- Waterways and Pipelines – International Trade: Pattern of World Trade – Impact of Globalization on Trade.

References:

1. Coh Cheng Leong (1982) Economic and Human Geography, Oxford University Press, New Delhi.
2. Clawson Marion (Ed) (1964) Natural Resources and International development. New York.
3. S.K. Sadhukhan (1994) Economic and Geography an Appraisal of Resources, S.Chand & Co., Chennai.
4. K.Khanna & V.K. Gupta (1998) Economic and Commercial Geography Sultan Chand & Sons, New Delhi.
5. Alexander, J.W. (1964). Economic Geography. John Wiley & Sons Inc, New York.
6. Leong, C.H. and Morgan, G.C. (1982). Economic and Human Geography (2nd Edition). Oxford University Press, Kuala Lumpur.
7. Bengtson, N.A. and Royen, W.V. (1935). Fundamentals of Economic Geography. Prentice Hall Inc, New York.
8. Thomas, R.S. (1962). The Geography of Economic Activities. McGraw Hill, New York.
9. Mather, A.S. and Chapman, K. (1995). Environmental Resources. John Wiley and Sons, New York.

Expected course outcomes

On the successful completion of the course, student will be able to :

CO1	Remember the After the completion of course, the students will have ability to explain Scope of Geography of Resources.	K1
CO2	Understand the production and distribution of agricultural crops.	K2
CO3	Applying the facts and ideas of various minerals.	K3
CO4	Anaysisi the Understands the concept of basic industrial products.	K4
CO5	Evaluate Patterns of major transport types and the impacts of world trade and globalization.	K5 & K6

K1- Remember ,K2 - Understand, K3- Apply,K4- Analysis, K5- Evaluate -,K6 - Create

CO/SO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	2	1	1	3	1	1
CO2	1	2	1	1	3	1	1
CO3	1	2	1	1	3	1	1
CO4	1	3	1	2	2	2	2
CO5	1	3	1	2	2	2	2

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

Section - A		Section - B		Section - C	
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25)		One question from each unit(3*10=30)	

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SEMESTER II**ELECTIVE COURSE**

Course code:		EC REMOTE SENSING, AND GNSS					
Core/Elective		Elective - P23GDE2:3					
Pre-requisite		Basic knowledge in Remote sensing					
Category	Hours			Credit	Marks		
	L	T	P		CIA	EX	TOPE
	5	-	-	3	25	75	100

COURSE OBJECTIVES:

- Understand the purpose and importance of RS, GIS & GNSS
- To provide background knowledge and understanding of principles of RS and GNSS Systems
- To enhance student's capacity to interpret images and extract information on the earth surface from multi-resolution imagery at multi-scale level.

UNIT I-INTRODUCTION TO REMOTE SENSING

Remote Sensing Process - Analog to Digital data - Digital image data formats - Image processing system characteristics - atmospheric, radiometric and geometric correction.

UNIT II-IMAGE ENHANCEMENT

Contrast enhancement: linear, non-linear and level slicing - Spatial feature enhancement: spatial filtering, edge enhancement and Fourier and wavelet transform - multi-image enhancement - band rationing, principal component analysis, vegetation indices, IHS and texture transformations and image fusion

UNIT III-IMAGE CLASSIFICATION

Supervised classification: classification algorithm and training site selection - Unsupervised classification - Hybrid classification - Classification of mixed pixels: spectral mixture analysis and fuzzy classification - Post classification smoothing - Ancillary data - Classification accuracy assessment - Artificial Neural Networks - Contextual Classification - Object-Oriented Classification

UNIT IV-BASICS OF GNSS

Introducing Global Navigation Satellite System: GNSS Components, Satellite Orbit, Satellite Position on Orbital Plane, Signals, Reference System and Observation Techniques

UNIT V-AERIAL AND SATELLITE REMOTE SENSING

Film and Orientation -Photo scale - Parallax - Stereo model - Flight planning - Marginal information - Interpretation keys - LIDAR - Drone Satellite Remote Sensing: Satellite - Types, Orbits and Sensors - Resolution: types - aspects of LANDSAT, SPOT, IRS, IKONOS, QUIKBIRD and recent satellites - Marginal information and Interpretation - Applications of Microwave and Thermal Remote Sensing.

REFERENCE BOOKS:

2. Jain, Anil K. Fundamentals of digital image processing. India, Prentice Hall, 1989.
3. Campbell, James B. Introduction to Remote Sensing. United Kingdom, Taylor & Francis, 2002. Joseph, George. Fundamentals of Remote Sensing. India, Universities Press, 2005.
4. Michael N. DeMers, 2009, GIS For Dummies, Wiley Publishing, Inc., ISBN: 978-0-470- 23682-6
5. Ian Heywood, Sarah Cornelius and Steve Carver, An Introduction to Geographic Information System, 2010, third edition, Pearson Education Ltd
6. Peter A. Burrough and Rachael A. McDonnell, 2011, Principles of Geographic Information Systems, Oxford University Press.
7. Ka ng - Tsung Chang, 2018, Introduction to Geographical Information System, New York: McGraw-Hill Education, ISBN 9781259929649

Aerial Remote Sensing: Aerial photographs: Classifications based on Camera, Expected Course Outcomes:		
CO1	Understand the basics of spatial structure of transportation network	K1
CO2	Gain insights on processing methods and techniques for handling radiometric and geometric properties of remotely sensed	K2
CO3	Developing data processing automation skills necessary to analyze high level remote sensing and GIS Products.	K3
CO4	Familiarize with principles and methods of multi-resolutions and multi-spectral data fusion, multi- temporal processing and accuracy assessment.	K4
CO5	Create with using Aerial and Satellite remote sensing for film and orientation	K5 & K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*							
CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2	3	3	4	2	4
CO2	2	1	2	2	4	3	2
CO3	4	3	2	2	3	1	3
CO4	3	4	4	3	1	3	2
CO5	3	3	2	1	3	2	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)							
Section - A			Section - B		Section - C		
Multiple choice Questions from Each unit (10*1=10)		1 question from each unit (5*2= 10)	One (A&B) question from each unit(5*5=25)		One question from each unit(3*10=30)		

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SEMESTER II

ELECTIVE COURSE

Course code:	EC	PRINCIPLES OF GIS
Core/Elective	Elective - P23GDE2:4	
Pre-requisite	Basic knowledge in GIS	

Cat ego- ry	Hours			Credit	Marks		
	Lec	Tut	Prac		Ch	Ex	Total
	5	-	-	3	25	75	100

COURSE OBJECTIVES:

- Understanding the basic spatial concepts, approaches, history and development of GIS
- Obtain an understanding of spatial and non-spatial data models
- Understanding of data capturing methods and data accuracy and accessing publicly available data sets
- Teaching basic spatial operations skills necessary to work with GIS project
- Develop a project requiring GIS as a management, analytical, and/or visualization tool using spatial analysis methods

UNIT I

BASIC CONCEPTS OF SPATIAL SCIENCE AND GIS

Basic concepts of spatial science and GIS: geographic spaces, spatial data and information, reference systems and Datums, GIS definition, approaches and components; history and development of GIS.

UNIT II

DATA MODELS AND MANAGEMENT

Data models and management: spatial data models – vector and raster data models; data models – object based – oriented data models – coding and encoding.

UNIT III

Data Capture and Geoprocessing

Data Capture and Geoprocessing: sources of geographic data, capturing methods, topology, geometric transformation, reprojection.

UNIT IV

GIS: Spatial Operations

Spatial operations: basic operations and set theory basics - buffer, overlay, network, view shed and watershed analysis, interpolation, 3D visualization.

UNIT V SPATIAL MODELLING AND ITS APPLICATIONS

GIS modeling - multi-criteria analysis - network applications - suitability modelling - location allocation modeling.

REFERENCE BOOKS:

- David J Maguire, Michael F Goodchild, and David W Rhind ed. (1991).
- Geographical Information Systems, Longman Scientific & Technical Co-published in the USA with John Wiley & sons, Inc. New York

- Ian Heywood, Sarah Cornelius and Steve Carver (2000). An Introduction to Geographical Information Systems, Addison Wesley Longman Limited, New York.
- Kang-tsung Chang (2002). Introduction to Geographical Information Systems, Tata McGraw-Hill Publishing Company Limited, New Delhi
- Dr. K. Elangovan (2006). GIS - Fundamentals, Applications and Implementations, New India Publishing Agency, New Delhi.
- Campbell, J. and M.Shin (2013), Essentials of Geographic Information Systems Online text available.
- www.esri.com
- http://www.unigis.org/resources/
- http://www.soi.city.ac.uk/~dk708/part_1.htm
- www.ncgia.ucsb.edu/education/curricula/gisc

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Recall the Basic concepts of spatial science and GIS: geographic spaces, spatial data and information, reference systems. The history and development of GIS.	K1
CO2	Understand the Data models and management: spatial data models – vector and raster data models	K2
CO3	Apply the knowledge about data Capture and geoprocessing: sources of geographic data, capturing methods, topology.	K3
CO4	Analysis the Spatial operations: basic operations and set theory basics - buffer, overlay, network, view shed and watershed analysis, interpolation, 3D visualization.	K4
CO5	Create new GIS modeling - multi-criteria analysis - network applications - LBS - geocoding - suitability, applications and case studies.	K5 & K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2	3	3	4	2	4
CO2	2	2	2	2	4	3	2
CO3	4	3	2	2	3	1	3
CO4	3	4	4	3	1	3	4
CO5	3	3	2	1	3	2	3
Weighted % of course contribution to each pso							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong-3, Medium-2 and Low-1)

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B) question from each unit(5*5=25)
		One question from each unit(3*10=30)

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SEMESTER III
CORE COURSE

Course code:	CC VII	GEOGRAPHICAL THOUGHT✓					
Core/Elective	Core -P23GC307PGC307						
Pre-requisite	Basic knowledge in Geographical Thought						
Categ ory	Hours			Credit s	Marks		
	L e c	T u t	P r a c		C I A	E x	T o t a
	6	,	,	5	25	75	100

COURSE OBJECTIVES:

- To study the history and philosophy of geography and sub-disciplines
- To know the contributors and the evolution of geography through time
- To understand contemporary research in human and physical geography

Unit I

The Field of Geography: Nature - Approaches- Development of Geographical Thought: Classical period- Medieval and Modern Period. Contribution of Greeks, Roman, Arab and Indian Scholars to Development of Geography. Impacts of Exploration and Discoveries in Pre - Historical Period.

Unit II

Major Schools of Geographical Thought: America, German, French, British.

Unit III

Four Traditions in Geography: Man – Land. Area studies, Spatial and Earth sciences.

- Dualism in Geographical Studies: Determinism Vs Possibilism - Physical Vs Human - Systematic Vs Regional -Ideographic Vs Nomothetic - Quantitative Vs Qualitative, Visual Vs Digital.

Unit IV

Quantitative Revolution – Concept- Hypothesis- laws- theories and models in geography- Interpretation, Description and Explanation- System approach and analysis- Inductive and deductive approaches

Unit V

Recent Trends in Geography; Applied geography and applied research - Paradigms in Geography –Geography and Sustainable development Goals(SDG) – Geoinformatics- Online resources – future of geography and geographers.

References:

- Freeman. R (1970): Hundred year of Geography, Hutchinson. London.
- Hartshorne, Richard (1939): Nature of Geography, USA: Association of American Geographers.
- Hartshorne, Richard (1959): Perspectives on the Nature of Geography, USA: Association of American Geographers.
- Harvey, David (1969): Explanation in Geography, London: Arnold.
- Hussain. M (2015): Evolution of Geographical Thought.Rawat Publications
- SudeeptaAdhikari (2015): Fundamentals of Geographical Thought,Orient blackswan private limited

7.Wayne, Davis K.D. (1972) Conceptual Revolution in Geography, University of London press, London.

Web Source

- http://Evolution Of Geographical Thought By Majid Husain PDF, ePub eBook
- http:// Physical Geography and the Geographic Thought Course
- https://www.youtube.com/watch?v=8Dg-ljh6IF8, Modern Geographical Thought

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Remember the Field of Geography: Nature –Branches- Approaches- Development of Geographical Thought: Classical period- discoveries in geographical development.	K1
CO2	Understanding the Four Traditions in Geography: Man – Land. Area studies, Spatial and Earth sciences.	K2
CO3	Applying the Major Geographical Thoughts: America – Davis – Bowman – Geographical societies in India	K3
CO4	Analyzing the Quantitative Revolution – Concept Explanation- System approach and analysis- Inductive and deductive approaches	K4
CO5	Evaluate recent Trends in Geography; Applied geography and applied research - Goals(SDG) – Geoinformatics- Online resources – future of geography and geographers	K5 & K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2	3	3	4	2	4
CO2	2	2	2	2	4	3	2
CO3	4	3	2	2	3	1	3
CO4	3	4	4	3	1	3	4
CO5	3	3	2	1	3	2	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4,Strong -3, Medium-2 and Low-1)							

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25)
		One question from each unit(3*10=30)

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SEMESTER III

CORE COURSE

Course code:	CC VIII	THEORETICAL ECONOMIC GEOGRAPHY
Core/Elective	Core --P23GC308	P23GC308
Pre-requisite	Basic knowledge in Economic Activities	

Category	Hours			Credits	Marks		
	L	T	P		C I A	E X	T O T A L
	6	-	-	5	25	75	100

COURSE OBJECTIVES:

- To introduce the concepts in the human's economic activities under varying sets of conditions which is associated with production, location, distribution, consumption,
- To understand exchange of resources and spatial organization of economic activities across the world.
- To understand the theoretical knowledge in the developed and developing countries.
- To apply the classification of industrial concept of the world industrial regions.

UNIT - I

Economic activities – factors affecting spatial organization of economic activities - Primary, secondary, tertiary and quaternary.

UNIT - II

Natural resources – Renewable and non-renewable - classification – World distribution and associated problems – Resource management -World energy crises in developed countries.

UNIT- III

Classification of industries – bases and characteristics – factors of industrial localization – concepts and theories – Weber, Hoover, August Losh, Pres and Smith - World industrial regions.

UNIT- IV

Models of Transportation and Transport Cost – Accessibility and Connectivity Measures and Indices – Comparative Cost Advantages - Spatial Flow Models Gravity and Allocation Models – Ideas of Edward Ullman and Hurst.

UNIT-V

Information and Communication Technology – World Distribution and Growth– World Trade Organizations – Globalization and Liberalization - World Trade Patterns – Problems and Prospects.

Reference Books

1. Gopal Singh – Geography of India, Atma Ram & Sons, New Delhi, 1995
2. Sharma T.C. and Countinho. O – Economic and Commercial Geography of India, Vikas publishing house Pvt. Ltd, New Delhi, 1998

3. Memoria, C.B, Economic and Commercial Geography of India, Sivaia agrawal and company, Agra 1995

4. Tirtha, Geography of India, 1996

5. Dubey and Negi – economic and commercial geography 1999

6. Sher Singh parmar Geography, Economics And Economic Geography, text Book cum Reference Book, International Trade 2003

Web Source

1. Ronald Abler, John s Adams, Peter Gould Spatial Organization The Geographer's View of the World 1971

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Recall the Economic activities – factors affecting spatial organization of economic activities -Primary, secondary, tertiary and quaternary.	K1
CO2	Understand Renewable and non-renewable - classification – World distribution and associated problems – Resource management -World energycrises in developed countries.	K2
CO3	Classification of industries – bases and characteristics – factors of industrial localization – concepts and theories – Weber, Hoover, August Losh, Pres and Smith - World industrial regions.	K3
CO4	Apply Transportation and Transport Cost – Accessibility and Connectivity Measures and Indices – Comparative Cost Advantages - Spatial Flow Models Gravity and Allocation Models – Ideas of Edward Ullman and Hurst.	K4
CO5	Evaluate information and Communication Technology – World Distribution and Growth– World Trade Organizations – Globalization and Liberalization - World Trade Patterns – Problems and Prospects.	K5&K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2	3	3	4	2	1
CO2	3	2	2	2	4	3	2
CO3	4	3	2	2	3	1	3
CO4	3	4	4	2	1	3	4
CO5	2	3	2	1	3	2	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4,Strong -3, Medium-2 and Low-1)							

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25)
		One question from each unit(3*10=30)

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கும்பகோணம் - 612 002.

SEMESTER III

CORE COURSE

Course code:	CC VIII	GEOGRAPHY OF INDIA					
Core/Elective		Core --P23GC309		PGC309			
Pre-requisite		Basic knowledge in India					
Category	Hours			Credits	Marks		
	Lec	Tut	Prac		CIA	Ex	Total
	6	-	-	5	25	75	100

COURSE OBJECTIVES:

- The course introduces the students the diverse physiographic, climate and landscape of India
- Students will learn about the resource like minerals, water, vegetation, ecosystem
- To help students to get knowledge on economic, social and cultural setup of this country

Unit-I

Physical Landscape: Location of India, Location, Geo-politics: India and geopolitics of the India Ocean, Physiographic divisions, Drainage, Climate: Seasons and the Indian monsoon, Forest classification of Indian Forests.

Unit - II

Soil and Agriculture: Soil - types, characteristics and problems, conservation. Agriculture: salient features, determinants, irrigation, major crops and their distribution (Rice, Wheat, Cotton, Sugarcane, Tea, Coffee, Rubber, Jute) Green, white and blue revolution, aquaculture, sericulture, horticulture, poultry farming, dry farming and agribusiness.

Unit - III

Minerals – Metallic and Non-Metallic Minerals - Iron – Manganese – Bauxite- Copper- Mica- Iluminite Energy (Hydel, Thermal and Atomic) - Industries- Iron & Steel – Textiles – Paper – Shipbuilding – Locomotives – Cement – Fertilizer- Major Industrial Regions of India.

Unit- IV

Transport and Trade: Transport: Road, railways, waterways and airways, Communication: postal, telecommunication and print media, Trade: major exports and imports, international trade, policies.

Unit- V

Population, Urbanization and Contemporary issues: Population: Distribution, growth and its problems. International boundaries of India and its disputes.

References

1. Majid Husain (2009 and 2014) Geography of India, Tata McGraw hill Education Private Ltd, New Delhi. Tamilnadu State Council for Higher Education 23
2. Chopra J.K. (2010) Geography of India, Unique Publisher, New Delhi.
4. Majid Husain (2012) World Geography, Fourth edition, Rawat Publications, Jaipur.
5. Alka Gautam (2014) Advanced geography of India, Sharda Pustak Bhawan, Allahabad.
6. Ramanathan, R (2014) Indian transport towards the new millennium, Concept Publishing Company, New Delhi.
7. Rupali Chatterji (2014) Geography of India, Concept Publishing Company, New Delhi.

8. Rupali Chatterji (2014) Geography of India, Global Academic Publishing and distribution, New Delhi.

9. Arunachalam, P (2014) Geography of India; physical, political and commercial, Swastika Publications, New Delhi.

Web Sources

1. [http://www.yourarticlelibrary.com/agriculture/8-salient-features-of-indian-agriculture/20959/\(Agriculture\)](http://www.yourarticlelibrary.com/agriculture/8-salient-features-of-indian-agriculture/20959/(Agriculture))
2. <http://www.thealternative.in/business/10-technological-innovations-revolutionizing>

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Recall the Physical Landscape: Setting and situation of India, strategic importance of its location, Geo-politics.	K1
CO2	Understand the Soil and Agriculture: Soil - types, characteristics and problems, conservation, Agriculture: salient features, determinants, irrigation, major crops and revolution, aquaculture, sericulture, horticulture, poultry farming, dry farming and agribusiness.	K2
CO3	Apply the Minerals and Industries: Minerals: classification and distribution of of minerals, biotic resources, energy resources distribution of major industries, industrial regions and problems.	K3
CO4	Analyzing the transport and Trade: Transport: Road, railways, waterways and airways, Communication- major exports and imports, international trade, policies.	K4
CO5	Evaluate the Population, Urbanization and Contemporary issues: Population: Distribution, growth, population pyramid and its problems.	K5 & K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	2	2	3	4	2	1
CO2	3	2	2	2	4	3	2
CO3	4	3	2	2	3	1	2
CO4	3	4	4	2	2	3	4
CO5	2	2	2	1	3	2	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)							

Section - A		Section - B		Section - C
Multiple choice Questions from Each unit (10*1=10)		1 question from each unit (5*2=10)		One (A&B) question from each unit (5*5=25)
				One question from each unit (3*10=30)

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SEMESTER III

CORE COURSE

Course code:	CC X	PRACTICAL - TERRAIN AND CLIMATIC DATA ANALYSIS
Core/Elective	Core - P23GC310P	PGC310P
Pte-requisite	Climatic Data Analysis	

Category	Hours			Credit	Marks		
	L e c	T u t	P r a c		C I A	E x t o t a	
	6	-	-	5	25	75	100

COURSE OBJECTIVES

- To understand the representation of reliefs.
- To attempt drainage and slope analysis.
- To understand to prepare suitable diagrams for various climatic datasets.

UNIT I

PROFILE

- a. Serial Profile
- b. Super imposed Profile
- c. Projected profile
- d. Contour profile

UNIT II

SLOPE ANALYSIS

- a. Smith Method
- b. Wentworth Method
- c. Robinson Methods

UNIT III

MORPHOMETRIC ANALYSIS

- a. Linear Aspects
- b. Areal Aspects
- c. Relief Aspects

UNIT IV

CLIMATIC DIAGRAMS

- a. E.E.Foster's Climograph
- b. Climatograph
- c. Hythergraph
- d. Ergograph
- e. Wind - rose Diagram
- f. Water balance Graph

REFERENCE BOOKS

1. R.L. Singh - Elements of Practical Geography, Kalyani Publishers, New Delhi.
2. F.J. Monkhouse and H.R. Wilkinson, Maps and Diagrams, B.I. Publications, Madras.
3. Gopal Singh - Map work and Practical Geography, Vikas publishing house Ltd.

Expected Course Outcomes:

CO1	A clear remember profile and its types	K1
CO2	Understand the slope analysis	K2
CO3	Learn the skills in Morphometric analysis.	K3& K4
CO4	analyse and evaluate the Climatic diagrams .	K5&K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	2	2	3	4	2	4
CO2	2	2	2	2	4	2	2
CO3	4	4	2	2	3	1	2
CO4	3	4	4	2	2	1	4

Weighted %
of course
contribution
to each
pso

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)

Section - A

Questions from Each
unit (4*15=60)

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அரசினர் மகளிர் கல்லூரி (தன்னாட்சி),
கும்பகோணம் - 612 002.

SEMESTER III

P23 GCE3:1

ELECTIVE COURSE

Course code:	EC	URBAN GEOGRAPHY
Core/Elective	Elective - P23 GCE3:1	
Pre-requisite	Basic knowledge in urban geography	

PGDE3:1

Category	Hours			Credit	Marks		
	L	T	P		C	E	T
	4	-	-	3	25	75	100

COURSE OBJECTIVES:

- To understand the nature and development of urban geography along with prospects and problems of urbanization.
- To understand the patterns of land use and comparative models of internal structure of cities

UNIT I- INTRODUCTION TO URBAN GEOGRAPHY

Nature and scope of urban geography - development of urban geography - recent trends - origin and growth of urban settlements - urbanization - classification of urban settlements

UNIT II- GROWTH AND THEORIES OF URBAN

Urban growth and theories - Primate City - Rank-size rule - Settlement hierarchy - Central Place Theory of Christaller - August Losch theory of market centers - Urban economic base: Basic and non-basic functions

UNIT III URBAN MORPHOLOGY

Urban morphology and land use structure - CBD - Umland and periphery - urban expansion - Theoretical models: Concentric zone model, Sector model and Multiple Nuclei model - Social area analysis - Applications

UNIT IV- CONTEMPORARY ISSUES OF URBAN

Contemporary urban issues - urban poverty, urban renewal, urban sprawl, slums and transportation - urban infrastructure - environmental pollution: air, water, noise and solid waste - urban crime - issues of environmental health

UNIT V- URBAN POLICY AND PLANNING

Urban policy and planning - city planning - Smart City- urban policy - contemporary issues in urban planning - globalization and urban planning in the Third World - urban land use planning.

REFERENCE BOOKS

- Dickinson, R.E. (1964) - City and Region, Routledge, London.
- Urban Geography, An Introductory Analysis, 2nd Edition, Authors: James H. Johnson, Editors: W. B. Fisher, eBook ISBN: 9781483181547.
- Sumita Ghosh, Orient Longman, (1998), Introduction to Settlement Geography.
- Mandal, R.B., (2000), Urban Geography, Concept Publishing

Company, New Delhi.

- Mohammed Ishar Hasan (2014) Population geography, Rawat Publications.
- Richa Mehta (2014) Population geography, Srishti book distributors, New Delhi.
- Urvija Shanker (2014) Population pattern and urban development, Rajesh publications.
- <https://transportgeography.org/>
- [https://cbpbu.ac.in/userfiles/file/2020/STUDY MAT/GEO/null.pdf](https://cbpbu.ac.in/userfiles/file/2020/STUDY%20MAT/GEO/null.pdf)
- <https://unece.org/transport>

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Remember the Nature and scope of urban geography - recent trends - origin and growth of urban settlements - urbanization	K1
CO2	Understand growth and theories - Primate City - Rank-size rule - Settlement hierarchy - Theories - Basic and non-basic functions	K2
CO3	Apply Urban morphology and land use structure - CBD - Umland and periphery - urban expansion - Theoretical models: Social area analysis - Applications	K3
CO4	Contemporary urban issues of environmental health	K4
CO5	Evaluate Urban policy and planning - globalization and urban planning in the Third World - urban land use planning.	K5 & K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	2	2	3	4	2	1
CO2	3	2	2	2	4	3	2
CO3	4	3	2	2	3	1	2
CO4	3	4	4	2	2	3	4
CO5	2	2	2	1	3	2	3
Weighted % of course contribution to each PSO							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong - 3, Medium - 2 and Low - 1

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2=10)	One (A&B) question from each unit (5*5=25)
		One question from each unit (3*10=30)

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SEMESTER III

P23GCE3:2

ELECTIVE COURSE

Course code:		EC	POLITICAL GEOGRAPHY				
Core/Elective		Elective - P23GDE3:1					
Pre-requisite		basic knowledge inPolitical geography					
Cate gory	Hours			Credit	Marks		
	L e c	T u t	P r a c		C I A	E x	T o t a
	4	-	-	3	25	75	100

COURSE OBJECTIVES:

- To introduce the concept of nation, country, state and many other facets of political geography
- The main purpose of this course is to enhance awareness of multi-dimensional nature of geo-political space.
- The students will understand basic concepts of political geography and understand the different characteristics of territories in a broad and integrative manner.

UNIT-I

Introduction: Meaning, nature and scope of political geography - Recent trends in political geography - Approaches to political geography - Major traditions in political geography - Relevance of political geography in international relations.

UNIT-II

States and Nations: Concepts of Nations - State and Nations - Types of Nation Elements of the State - Typology of State - Frontiers and boundaries - Unitary States and federal States - Forms of governance - Nationalism and national building.

UNIT-III

Geopolitics: Development of geopolitics - Global strategic views: Heartland theory, Rimland theory, Organic theory and Domino theory - Sea power: Geopolitical significance of the Indian Ocean - Recent trends in Geopolitics:

Meta-geopolitics.UNIT-IV

Electoral Geography: History of electoral studies - Geography of voting and representation - Geographic influences on voting pattern - Voting system in India: Factors affecting voting systems - Electoral distortion and bias: Gerrymandering and Malapportionment - Electoral mapping.

UNIT-V

Political Realm of India: Governance system in India - Changing Political maps of India - Emergence of new states - Unity and Diversity: Centripetal and centrifugal forces - Interstate issues - Federal India - Political relation of India -

Geo-political problems of Border States.

References Book

- Adhikari, S. (2004) Political Geography, Rawat Publication, New Delhi.
- Dr. Sudeepth (2013), Political Geography of India - Sharda Pustak Bhawan Allahabad.
- Sudeeptha Adhikari (2007) Political Geography - Rawat Publication New Delhi.

Web Source

- <https://academicearth.org/political-science/>
- <https://study.com/academy/topic/political-geography.html>

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Recall the Meaning, nature and scope of political geography - Approaches to political geography	K1, K2
CO2	Remember the Concepts of Nations - State and Nations - Types of Nation Elements of the State -	K2, K3
CO3	Applying the concept and Development of geopolitics - Global strategic views: Heartland theory, Rimland theory.	K3, K4
CO4	Electoral Geography: History of electoral studies - Voting system in India: Factors affecting voting systems - Electoral distortion and bias: Gerrymandering and Malapportionment - Electoral mapping.	K4, K5
CO5	Political Realm of India: Governance system in India - Changing Political maps of India - Political relation of India - Geo-political problems of Border States.	K5, K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	4	2	2	3	4	2	3
CO2	2	2	4	2	4	3	2
CO3	3	3	2	2	3	1	2
CO4	3	4	4	2	2	3	4
CO5	1	2	2	1	3	2	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong - 3, Medium - 2 and Low - 1)							
Section - A		Section - B		Section - C			
Multiple choice Questions from Each unit (10*1=10)		1 question from each unit (5*2=10)		One (A&B) question from each unit (5*5=25)		One question from each unit (3*10=30)	

[Signature]
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SEMESTER III

P23G2SE2 IDSEC

PG3 IDC

Course code: IDSEC		REMOTE SENSING AND GIS					
II							
SEC	Skill Enhancement Course - P23G2SE2						
Pre-requisite	Basic knowledge in remote sensing and GIS						
Category	Hours			Credit	Marks		
	Lec	Tut	Prac		CIA	EX	TOTAL
	4			3	25	75	100

COURSE OBJECTIVE:

- The objective of this course is to introduce the basic concepts of image acquisition systems, image processing and the working principles of GIS.

UNIT I-INTRODUCTION TO REMOTE SENSING

Introduction: Aerial remote sensing, Photogrammetry, Remote Sensing: active and passive, GIS and GNSS - historical development - emerging trends and interdisciplinary nature

UNIT II-AERIAL REMOTE SENSING

Terrestrial and Aerial Remote Sensing: Basic principles - Elements of EMR - Energy interaction in atmosphere - Terrestrial interaction - Spectral signature - Spectral reflectance curves - Aerial photography - Types of photographs - Aerial triangulation - Photogrammetry - Visual interpretation: Equipment's - Elements of image interpretation

UNIT III-SATELLITE REMOTE SENSING

Satellite Remote Sensing: Platforms - Sensors - FOV and IFOV - Pixel - Resolution: spatial, spectral, radiometric and temporal - Earth observation satellites: weather satellites, land and marine observation satellites - Image pre-processing - Image enhancement - Image classification - Accuracy assessment

UNIT IV-GIS

Geographical Information System: Definition - Components of GIS - Raster and vector data structures - RDBMS - Spatial referencing - Spatial data input and editing - GIS analysis

UNIT V-APPLICATIONS OF REMOTE SENSING AND GIS

Applications of Remote sensing and GIS - Resource Mapping - Land and Water Resources, Urban Studies, Disaster Management and Land Use Planning.

REFERENCE BOOKS

- Lillisand T.M and R.W. Kiefer (1994) Remote Sensing and Image Interpretation. John Wiley & Sons, New York.
- Burrough, P. A., & McDonnell, R., (2000) Principles of Geographical Information Systems, Oxford Press, London.
- Jensen, J.R., (2006). Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice-Hall Inc., New Jersey.
- Jensen, J. R., (2007). Remote Sensing of the Environment: An Earth Resource Perspective, Prentice-Hall Inc., New Jersey & Wasle, (2008) Global Navigational Satellite Systems, Springer Wien New York.
- Gomarasca, M. A. (2009) Basics of Geometrics, Springer Science, NewYork

Expected Course Outcomes:

CO1	Recall the students the principles of remote sensing	K1
CO2	To understand and visual interpretation of aerial remote sensing	K2
CO3	Applying the basic knowledge and visual interpretation of satellite remote sensing	K3
CO4	Analyzing the differentiate components of GIS.	K4
CO5	Create applications of Remote sensing and GIS	K5&K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3
CO3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

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

Section - A	Section - B	Section - C
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Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2=10)	One (A&B) question from each unit(5*5=25)	One question from each unit(3*10=30)
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Course code:	IDSEC II	REMOTE SENSING AND GIS					
SEC	Skill Enhancement Course - P23G2SE2						
Pre-requisite	Basic knowledge in remote sensing and gis						
Category	Hours			Credit	Marks		
	Lec	Tut	Prac		CIA	Ex	Total
	4			3	25	75	100

COURSE OBJECTIVE:

- The objective of this course is to introduce the basic concepts of image acquisition systems, image processing and the working principles of GIS.

UNIT I-INTRODUCTION TO REMOTE SENSING

Introduction: Aerial remote sensing, Photogrammetry, Remote Sensing: active and passive, GIS and GNSS - historical development - emerging trends- multidisciplinary nature

UNIT II-AERIAL REMOTE SENSING

Terrestrial and Aerial Remote Sensing: Basic principles - Elements of EMR - Energy interaction in atmosphere - Terrestrial interaction - Spectral signature - Spectral reflectance curves - Aerial photography - Types of photographs - Aerial triangulation - Photogrammetry - Visual interpretation: Equipment's - Elements of image interpretation

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Satellite Remote Sensing: Platforms - Sensors - FOV and IFOV - Pixel - resolution: spatial, spectral, radiometric and temporal - Earth observation satellites: weather satellites, land and marine observation satellites - Image processing - Image enhancement - Image classification - Accuracy assessment

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Geographical Information System: Definition - Components of GIS - Raster and vector data structures - RDBMS - Spatial referencing - Spatial data

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3. Jensen, J.R., (2006). Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice-Hall Inc., New Jersey.
4. Jensen, J. R., (2007). Remote Sensing of the Environment: An Earth Resource Perspective, Prentice-Hall Inc., New Jersey & Wasle, (2008) Global Navigational Satellite Systems, Springer Wien New York.
5. Gomasca, M. A. (2009) Basics of Geometrics, Springer Science, New York

Expected Course Outcomes:

CO1	Recall the students the principles of remote sensing	K1
CO2	To understand and visual interpretation of aerial remote sensing	K2
CO3	Applying the basic knowledge and visual interpretation of satellite remote sensing	K3
CO4	Analyzing the differentiate components of GIS.	K4
CO5	Create applications of Remote sensing and GIS	K5&K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3
CO3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

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

Section - A		Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B) question from each unit(5*5=25)	One question from each unit(3*10=30)

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GRI COLLEGE FOR WOMEN (AUTONOMOUS),
KUMBAKONAM - 612 002.

SEMESTER I**CORE COURSE**

Course code:	IDC	DISASTER STUDIES
Core/Elective	Elective - P23GDE1:4	
Pre-requisite	DISASTER MANAGEMENT	

Cat ego ry	Hours			Credit s	Marks		
	Lec	Tut	Prac		CIA	Ex	Total
	3	-	-	3	25	75	100

COURSE OBJECTIVES

- The objective of this course is to provide students an exposure to disasters, their significance.
- Various types of disaster and risk managements were discussed.
- This multidisciplinary course will also enable students to recognize the increasing vulnerability of the planet in general and India in particular to disasters.

UNIT I

Introduction: Concepts and Terminologies: Disaster, Hazard, Catastrophes, Emergency, Risks, Vulnerability - Types of Disasters and its Impacts: (Physical, Social, Economic, Political, Environmental and Psychosocial - Resilience).

UNIT II:

Natural Disasters: Geophysical: Earthquakes, Tsunamis, Landslides and Volcanoes - Hydrological: Floods and Avalanches - Meteorological: Cyclones, Drought, Extreme Temperatures and Wildfires - Biological: Disease Epidemics and Insect / Animal Plagues.

UNIT III

Anthropogenic Disasters: Atmospheric Disasters: Global Warming, Ozone Depletion, Acid Rain, Snow Melt, Sea Level Rise - Chemical / Industrial Disasters: Fire Accidents, Nuclear Disasters, Mining, Chemical Pollution, Oil spill and Industrial Waste - Biological Disasters: Deforestation, Bio-Diversity Loss and Coral / Mangrove Depletion.

UNIT-IV

Disaster Risk Management: Management Cycle: Response and recovery, Risk Assessment, Mitigation and Prevention, Preparedness Planning, Prediction and warning - Indigenous Knowledge - Community Based Disaster Management - Do's and Don'ts During Disasters.

Unit-V

Disaster Management in India: Hazard and Vulnerability Profile of India - Institutional Framework: Disaster Management Act - Policy and Guidelines - International Strategy for Disaster Reduction.

References

1. Savindra S. and Jeetendra S. (2013) Disaster Management, Pravalika Publications, Allahabad.
2. Govt. of India (2008) Vulnerability Atlas of India. BMTPC, New Delhi.
3. Govt. of India (2011) Disaster Management in India. Ministry of Home Affairs, New Delhi.
4. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters. Macmillan, Delhi.
5. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication. New Delhi.
6. Carter, N. (1991) Disaster Management: A Disaster Manager's Handbook. Asian Development Bank. Manila. Tamilnadu State Council for Higher Education

Web/ Online References:

- <http://www.ndma.gov.in/en/>
- <http://nidm.gov.in/>
- <http://www.imd.gov.in/>
- <https://www.unisdr.org/>

Expected Course Outcomes:

CO1	Remember the basics Concepts and Terminologies: Disaster, Hazard, Catastrophes, Emergency	K1
CO2	Understand the Natural Disasters	K2
CO3	Assess the Measurements - Anthropogenic Disasters: Atmospheric Disasters and its Analysis	K3
CO4	Analyze Disaster Risk Management: Management Cycle and preparedness Planning,	K4
CO5	Evaluate the role of Disaster Management Act - Policy and Guidelines - International Strategy for Disaster Reduction	K5&K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
C01	4	3	3	3	3	2	4
C02	2	3	2	2	4	3	4
C03	3	3	3	1	3	1	3
C04	3	4	4	3	1	3	2
C05	2	3	2	3	3	3	3
Weighted % of course contribution to each pso							

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4, Strong -3, Medium-2 and Low-1)

QUESTION PATTERN

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2=10)	One (A&B) question from each unit (5*5=25) One question from each unit (3*10=30)

முனைவர் பி. அனுவர்த்
முனைவர் பி. அனுவர்த் M.Sc., M.Phil., Ph.D.,
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அரசினர் மகளிர் கல்லூரி (தன்னாட்சி),
குடும்பகோணம் - 612 002.

GOVERNMENT COLLEGE FOR WOMEN (AUTONOMOUS) KUMBAKONAM
REQUEST LETTER FROM THE COLLEGE TO INTERNSHIP PROVIDER

To

.....

.....

.....

Subject: REQUEST FOR INSTITUTIONAL/INDUSTRIAL TRAINING of
M.A./M.Com/M.Sc Degree Programme,
Dear Sir/Madam,

Our Students have undergone internship training in your esteemed
Organization in the previous years. I acknowledge the help and the support extended
to our students during training in previous years.

In view of the above, I request your good self to allow our following students
for practical training in your esteemed organization. Kindly accord your permission
and give at least 30 hours of training for the students to complete internship.

S.NO	NAME OF THE STUDENT	REG.NO	DISCIPLINE

If vacancies exist, kindly do plan for Campus/Off Campus Interview for _____
batch passing out students in above branches.

A line of confirmation will be highly appreciated.

With warm regards,
Yours sincerely,

////////////////////

Head of the Department.

FORM - 1

INTERNSHIP DETAILS

(THIS WILL BE PREPARED IN CONSULTATION WITH FACULTY MENTOR AND TO BE
MAINTAINED BY THE DEPARTMENT)

Student

Name: _____ Reg.No. _____ Class _____

Campus Address: _____

Phone: _____ Email: _____

Internship Provider

Name: _____

Title: _____

Company/Organization: _____

Internship Company Address _____

Phone: _____ Email: _____

Faculty Mentor

Name: _____ Phone: _____

Designation: _____ Department: _____

Academic Credit Information

Internship Title: _____

Date of Initiation: _____ Date of Completion: _____

Total Hours: _____

FORM - 2
STUDENT'S DAYWISE LOG ENTRY

Name and Reg.No. of the Student: _____ Name and address of the
Internship Provider: _____

Period of Internship: From:			To:	
Date	Hours	Details of work done	Signature of the Student	Signature of the Supervisor

Signature of the Mentor: _____

Signature of the Internship Provider: _____

FORM -3
SUPERVISOR EVALUATION OF CANDIDATE

Student Name: _____ Date: _____

Work Supervisor: _____ Title: _____

Company/Organization: _____

Internship Address: _____

Dates of Internship: From _____ To _____

Please evaluate your candidate by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Interest in work				
Punctuality				
Reliability				
Responsibility				
Communication				
Team work				
Overall performance				

Additional comments, if any:

Signature of Internship Provider

FORM - 4**STUDENT FEEDBACK OF INTERNSHIP (TO BE FILLED BY STUDENTS AFTER INTERNSHIP COMPLETION)**

Student Name: _____ Class: _____

Internship Provider: _____

Address: _____

Title of Internship : _____

Supervisor Email: _____

Faculty Mentor: _____

Indicate the degree to which you agree or disagree with the following statements.

This experience has	Strongly Agree	Agree	Disagree
Given me the opportunity to explore a career field			
Helped me to apply classroom theory to practice			
Expanded my knowledge			
Helped me develop my written and oral communication skills			
Given me a chance to improve my interpersonal skills			
Provided me with contacts which may lead to future employment			
Helped me clarify my career goals			

Considering your overall experience, how would you rate this internship?
(Tick one). (Satisfactory/ Good/ Excellent)

Signature of the Student

FORM - 5**EVALUATION SHEET (FOR MENTOR)**

S.NO	NAME OF THE STUDENT	REG.NO	NO. OF ACTUAL 11 INTERNSHIP HOURS	GRADE*

* Evaluation based on report submitted by the student and evaluation by Internship provider. (Excellent/ Very good/ Good)

Signature of the Head of the Department

Signature of the Mentor

P23GL411

SEMESTER IV				CORE COURSE			
Course code:		CC XI		REGIONAL PLANNING			
Core/Elective		Core -					
Pre-requisite		Basic knowledge in Planning Regions					
Cate gory	Hours			Credit s	Marks		
	L e c	T u t	P r a c		C I A	E	T o t a
	6	-	-	5	25	75	100

COURSE OBJECTIVES:

- To equip the students in the regional analysis at various levels, preparation of action oriented policies, plan, strategies and management plan for human settlements
- To educate Sustainable Resource Management plans
- To educate on planning for social inclusion and people participatory programs for long term goals

UNIT - I

Region - Definition and Classification of Regions - Regional imbalance and Disparity - Regional planning - Concepts and Theory of Regional Planning - Principles and Scope - Concept of Regional Planning - Sectoral and Spatial planning concepts.

UNIT - II

Regional disparity and problems in India; Approaches to Regional analysis: Geographic approach - Economic approach - Sociological approach - Holistic Approach; Regions for planning in India.

UNIT - III

Theories of Regional Development - Economic Base Theory - Location - Allocation - Models - Linear Programming, Central Place Theory - Growth Pole Theory and Diffusion Models - Input - Output Analysis - Cost benefit analysis.

UNIT - IV

Planning in India: Historical Development; Appraisal of Five-Year Plans and Annual Plans, Multi Level Planning, Planning regions in India; Objectives and achievements of special programmes; NITI Aayog, Drought Prone Area programme, Tribal and Hill Area Development Programme, Backward Area Development Programme, National Watershed Development Programme.

UNIT - V

Planning in Tamil Nadu: State Planning Commission - District Planning units and its Implementing authorities. Panchayat Raj System - Power and functions of town panchayat, Municipality and corporation - CMDA - Planning regions of Tamil Nadu.

References:

1. Misra, R. P., Sundaram, K.V. and V.L.S. Prakasa Rao, (1974) Regional Development planning in India, Vikas Publishing House Delhi.
2. Sundaram, K.V. and R.P. Misra (1976) Micro - Level planning and Development Process Vol.1: Area Development Programme in India - A Review and Appraisal, Institute of Development Studies, University of Mysore.
3. Misra, RP (2002) Regional Planning - Concept, Techniques, Policies and case Studies, Concept publishing Company, Delhi.

Web Resources

- <https://csub.libguides.com/c.php?g=561010&p=3860927>
- <http://guides.lib.berkeley.edu/city-planning>
- <http://guides.lib.umich.edu/c.php?g=283101&p=1886114>
- <http://www.semco.org/>
- <http://geography.utoronto.ca/departments/careers-in-geography-and-planning/>

Expected Course Outcomes:

On the successful completion of the course, student will be able to:		
CO1	Remember the Region - Regionalization - Regional Concept - Definition and Classification of Regions - Concept of Regional Hierarchy	K1
CO2	Understand the City Region, River Basins and Resource Base Analysis - Population - Resource Regions - River valley Region; Natural Regions and Resource planning	K2
CO3	Applying the theories of Regional Development - Central Place Theory - Growth Pole Theory and Diffusion Models - Input - Output Analysis - Cost benefit analysis	K3
CO4	Analyzing the types of Regional Planning - Urban Planning - Integrated Rural and Urban Development Planning - Regional and State level planning Programmes	K4
CO5	Evaluate Regional Planning in Tamil Nadu: Evolution of regional planning - Planning regions of Tamil Nadu - Backward area development - Panchayat Act, Municipality Act, Corporation Act, TNULB Act, land acquisition Act 1854.	K5&K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3
CO3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4 Strong - 3, Medium-2 and Low-1)

Section - A		Section - B		Section - C	
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B) question from each unit (5*5=25)		One question from each unit (3*10=30)	

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அரசினர் மகளிர் கல்லூரி (தன்னாட்சி),
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SEMESTER – IV

CORE COURSE

Course code: CC XII		MAP AND IMAGE INTERPRETATION					
Core/Elective		Core -					
Pre-requisite		Basic knowledge in Image Interpretation					
Category	Hours			Credit	Marks		
	L	e	c		C	I	A
	6	-	-	5	40	60	100

COURSE OBJECTIVE

- To provide practical skills to interpret Indian topographical sheets, U.S and O.S maps, aerial photos and satellite images.

UNIT I

SOI Sheets

- Appreciation of SOI Sheets
- Interpretation of Physical Features
- Interpretation of Cultural Features

UNIT II

U.S. Maps

- Appreciation of US Maps
- Interpretation of Physical Features
- Interpretation of Cultural Features

UNIT III

OS Maps and NATMO Maps

- Appreciation of OS Maps and NATMO Maps
- Interpretation of OS Maps
- Interpretation of National Atlas of India and Census Atlas (NATMO) Maps

UNIT IV

AERIAL PHOTOGRAPHS

- Stereoscope Vision Test
- Marginal Information of Aerial Photographs
- Interpretation of Aerial Photographs

UNIT V

SATELLITE IMAGE

- Marginal Information of Satellite Images
- Interpretation of Physical Features
- Interpretation of Cultural Features

REFERENCE BOOKS

- Robinson A.H. and R.D.Sale - Elements of Cartography - John Wiley and Sons, New York.
- F.J. Monkhouse and H.R Wilkinson, Maps and Diagrams, B.I. Publications, Madras.
- Lillisand T.M., and Kiefer P.W. - Remote Sensing and Image Interpretation, John Wiley & Sons,

- Wolf P. R - Elements of Photogrammetry, McGraw Hill books Co., London.
- Rampal K.K - Hand Book of Aerial Photography and Interpretation, Concept Publishing Company, New Delhi.
- Lillisand, T.M., and Kiefer, P.W., (2007). Remote Sensing and Image Interpretation, 6th Edition, John Wiley & Sons, New York.
- Campbell, J. B. and Wynne, R.H., (2011). Introduction to Remote Sensing, 5th Edition, The Guilford Press, New York.

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Recall the SOI Sheets a. Appreciation of SOI Sheets b. Interpretation of Physical Features c. Interpretation of Cultural Features	K1
CO2	Understand the U.S. Maps a. Appreciation of US Maps b. Interpretation of Physical Features c. Interpretation of Cultural Features	K2
CO3	Applying the OS Maps and NATMO Maps a. Appreciation of OS Maps and NATMO Maps b. Interpretation of OS Maps c. Interpretation of National Atlas of India and Census Atlas(NATMO) Maps	K3
CO4	Analyzing the Aerial photographs a. Stereoscope Vision Test b. Marginal Information of Aerial Photographs c. Interpretation of Aerial Photographs	K4
CO5	Evaluate and Create the Satellite images	K5 & K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	3	3	3	3	3	2
CO2	3	4	3	3	2	3	3
CO3	4	3	2	3	4	3	3
CO4	3	2	3	3	4	3	1
CO5	2	3	3	3	3	3	3

Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4Strong -3, Medium-2 and Low-1)

Section - A

Questions from Each unit (4*15=60)

[Signature]
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SEMESTER IV

CORE COURSE

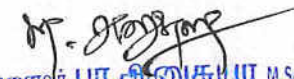
Course code:	CC XIII	PROJECT WORK					
Core/Elective		Core - Industry Model					
Pre-requisite		Geo-spatial project planning Management					
Category	Hours			Credits	Marks		
	Lec	Tut	Prac		CIA	E	Total
	8	-	-	5	20	80 *	100

- Introduction
- Study Area
- Materials and Methods
- Results and Discussion
- Summary and Conclusion
- References
- Appendices

COURSE OBJECTIVES:

- To understand about the various research methods and its applications.
- To learn about the collection of data, types, analysis, interpretation and report with suggestion.

- The students should select a specific topic from the following broad areas for conducting the Project Work.
 - Land Resources
 - Land use / Land cover Analysis
 - Water Resources
 - Disaster Studies
 - Climatic Analysis
 - Urban Studies
 - Pollution and EIA Studies
 - Demography and Health Analysis
 - Transport and Service Area Analysis
 - Social Area Analysis
 - Perception Studies
- Integration of primary and secondary data may be used, wherever possible.
- The students should read Geographical Research Methodology books before conducting the Project Work.
- The Project Report should be between 50 and 60 pages.
- Sufficient maps, diagrams and graphs and appropriate interpretation should be incorporated in the report.
- The Report should be divided as:


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 அரசினர் மகளிர் கல்லூரி (தன்னாட்சி),
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P23GCE4:1

SEMESTER :IV	
Course code:	EC SOCIAL AND CULTURAL GEOGRAPHY
Core/Elective	Elective - P23GDE4:1
Pre-requisite	Basic knowledge of Cultural Geography

COURSE OBJECTIVES

Category	Hours			Credits	Marks		
	Lec	Tut	Prac		CI A	Ex	Total
	5	-	-	3	25	75	100

- The primary objective of social and cultural geography is to help students to understand diversity of cultures and relationship between cultures and pattern of living and economic development.
- The students would also be able to identify the issues / problems confronting various social and cultural groups in the world as well as in India

UNIT I

Nature and Scope of Social Geography – Social Structure and Processes – Concept of Space and Place – Well Being – Quality of Life – Social Exclusion and Inclusion

UNIT II

Ethnicity, Tribe, Dialect, Language, Caste and Religion – Spatial Distribution – World and Indian

UNIT III

Space and Society: Concept of social space - Social structure and Social processes - Geographical bases of social formation -Social differentiation and region formation - Patterns and bases of rural and urban society

UNIT IV

Concept of Culture, Culture Complex, Culture Areas and Cultural Regions, Cultural Heritage, Cultural Interactions, Cultural Diffusion and Cultural Ecology – Cultural Imperialism

UNIT V

Human Development – Measurement of Human Development – Social, Economic and Environmental Indicators – Contemporary Issues – Regional Disparity, Poverty, Population Explosion and Globalization – Impact of Development on Environment – Social and Ethnic Tension – Gender Discrimination – Empowerment of Women

REFERENCE BOOKS

1. C.Daryl Forde (1977) - Habitat, Economy and Society, Methuen Publishers.
2. Majid Husain - Human Geograpy - Rawat Publications 1994.
3. Giilian C.Morgan - Human and Economic Geography, Oxford University Publications, 1999.

4. Chandna - Population Geography, Kalyani Publishers.
5. Dikshit R. (2009) - Political Geogoraphy, 3rd Edition, Tata McGraw Hill.
6. Casino V. J. D., Jr., Social Geography: A Critical Introduction, Wiley Blackwell.
7. Cater J. and Jones T., 2000: Social Geography: An Introduction to Contemporary Issues, Hodder Arnold.
8. Holt L., 2011: Geographies of Children, Youth and Families: An International Perspective, Taylor & Francis.

Web Source

10. <https://swayam.gov.in/courses/4951-social-and-cultural-anthropology>

Expected Course Outcomes:		
On the successful completion of the course, student will be able to:		
CO1	Reall the Nature and Scope of Social Geography – Social Structure and Processes – Concept of Space and Place – Social Well Being – Quality of Life – Social Exclusion and Inclusion	K1
CO2	Understanding the Ethnicity, Tribe, Dialect, Language, Caste and Religion – Spatial Distribution – World and Indian	K2
CO3	Apply the Space and Society: Concept of social space - Social structure and Socialprocesses - Geographical bases of social formation -Social differentiation and region formation - Patterns and bases of rural and urban society	K3
CO4	Analysis the Concept of Culture, Culture Complex, Culture Areas and Cultural Regions, Cultural Heritage, Cultural Interactions, Cultural Diffusion and Cultural Ecology – Cultural Imperialism	K4
CO5	Evaluate Human Development – Measurement of Human Development – Social, Economic and Environmental Indicators – Contemporary Issues – Regional Disparity, Poverty, Population Explosion and Globalization – Impact of Development on Environment – Social and	K5 &K6

Mapping with Programme Outcomes (MPO)*							
CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	3	4	3	3	3	3
CO2	4	4	3	3	4	3	3
CO3	3	3	2	2	3	2	3
CO4	2	3	3	3	3	3	4
CO5	2	3	3	3	3	3	3
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4Strong -3, Medium-2 and Low-1)							

Section - A	Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25) One question from each unit(3*10=30)

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SEMESTER IV

Course code:	IDSEC II	GEODATABASE PROGRAMMING					
SEC	Skill Enhancement Course - P23GDE12						
Pre-requisite	Basic knowledge in Geodatabase Programme						
Category	Hours			Credit	Marks		
	Lec	Tut	Prac		CIA	Ex	Total
	4	-	-	3	25	75	100

COURSE OBJECTIVE:

- Understand Spatial Data, Familiarizing with statistical techniques and processes-gaining practical knowledge with regard to Big Data, Data Security and Cloud Computing.

UNIT - I Data science

Classification, Regression, Similarity matching. - Algorithms Used in Data Science: Supervised learning: Linear/Logistic regression, Decision trees, Naïve Bayes. Unsupervised learning: K-means clustering, Association rules, Apriori, EM. (expectation-maximization), Support vector machine(SVM), Naïve Bayesian - Collaborative Filtering

UNIT II-GIS and Remote Sensing data, Formats ,Example & exchange

Image storage formats, Data retrieval & Data compression techniques. Data Structures: Geographical data; spatial & non spatial, geographical data in computers, Spatial data Model – (i) Cartographic Map model– Raster structure, Quad tree Tessellation (ii) Geo-relational Model – Vector Data structure, Advantages & Disadvantages of Both.

UNIT III-Understanding Spatial Data Science

Understanding of Spatial Data Science, Machine learning, spatial data

mining, spatial indexing, Spatial data mining, Spatial data visualization, Spatial effects, Spatial data structures, spatial computing, Spatial data and spatial analysis, Spatial DBMS, Relational DBMS for spatial data, Spatial Hadoop and GIS Tools for Hadoop..

UNIT IV-Big Data security

Symmetric Techniques, Asymmetric Techniques, Authentication and Security Analytics. Big Data Technology: Operational vs. Analytical and cloud computing.Open source and commercial big database management system.

UNIT V-Application & Challenges

Use cases for Spatial Big Data, Features of Spatial Big Data, Challenges of Spatial Big Data, Bigdata for social sciences

References

- 1.Anderson, C. (2008). The end of theory: The data deluge makes the scientific method obsolete. Wired Magazine. Updated 6/23/2008),
- 2.James, G., Witten, D., Hastie, T., Tibshirani, R. An introduction to statistical learning with applications in R. Springer, 2013.
- 3.Cathy O'Neil and Rachel Schutt (2013). Doing Data Science, Straight Talk from the Frontline. O'Reilly.
- 4.Jure Leskovek, Anand Rajaraman and Jeffrey Ullman. Mining of Massive Datasets. v2.1, Cambridge University Press. 2014. (free online)
- 5.Kevin P. Murphy. Machine Learning: A Probabilistic Perspective. ISBN 0262018020. 2013.

Available http://www.wired.com/science/discoveries/magazine/16-07/pb_theory.

Expected Course Outcomes:		
CO1	Understand Spatial data	K1,k2
CO2	Developing data analysis skills	K3, K4
CO3	Identify and Apply analytical technique	K3,K5
CO4	Be able to identify challenges and deal with solutions for the same	K4, K5
CO5	Incorporate these concepts and techniques into the learning, business as well as related environment	K4, K6
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create		

Mapping with Programme Outcomes (MPO)*							
CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	2	3	3	3	3	3	2
CO2	3	3	3	2	2	3	3
CO3	3	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes (PSO) in the 3-Point scale of 3,2,1 Strong -3, Medium-2 and Low-1)							

Section - A		Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2= 10)	One (A&B)question from each unit(5*5=25)	One question from each unit(3*10=30)

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SEMESTER – IV

EC VI

Course code:	EC VI	GEOGRAPHY FOR COMPETITIVE EXAMINATIONS					
SEC	Skill Enhancement Course - P23G2SE2						
Pre-requisite	Basic knowledge in remote sensing and GIS						
Category	Hours			Credits	Marks		
	Lecturer	Tutorial	Prac		C I A	E _x	Total
	6	-	-	5	25	75	100

COURSE OBJECTIVE:

- To help aspirants of Competitive Examinations like IAS, SSC, UPSC etc.
- To make the students learn how Human, Physical and Environmental components of the World interact with each other particularly in a Tropical country like India.
- To enable students, understand information regarding Climate, Oceanography and the Physical World.

UNIT - I

Geomorphology-Continental Drift, Plate Tectonics, Endogenetic and Exogenetic Forces. Weathering, Geomorphic Cycle (Davis and Penck), Slope Development Theories, Earth Movements (Folding, Faulting) Geomorphic Hazards (Earthquakes, Volcanoes, Landslides).

UNIT - II

Climatology-Composition and Structure of Atmosphere; Insolation, Heat Budget of Earth, Temperature, Pressure and Winds, Atmospheric Circulation (Air-Masses, Fronts and Upper Air Circulation, Cyclones and Anticyclones (Tropical and Temperate), Climatic Classification of (Koppen & Thornthwaite), ENSO Events (El-Nino, La-Nina), Disasters (Cyclones, Thunderstorms, Tornadoes, Heat and Cold Waves and Drought).

UNIT - III

Oceanography-Relief of Oceans, Composition: Temperature, Density and Salinity, Circulation: Warm and Cold Currents, Waves, Tides, Sea Level Changes, Hazards: Tsunami.

UNIT - IV

Economic Geography-Factors affecting spatial organisation of Economic Activities (Primary, Secondary, Tertiary and Quaternary), Natural Resources (Classification, Distribution)

UNIT - V

Geography of India-Major Physiographic Regions - Drainage System, Climate - Climatic Divisions, Indian Monsoon - Jet Streams - Natural Resources: Soil, Vegetation, Water, Mineral Resources - Population distribution, Growth and Composition (Age, Sex, Occupational and Educational) - Major Crop Regions - Production of Major Food Crops - Green Revolution - Transport Networks (Railways, Roadways, Waterways and Airways), Internal and External Trade.

REFERENCE BOOKS

- 1.P. Dayal (2013) Text book of Geomorphology Shukla Book Depot. Patne.
- 2.Savindra Singh, (2019) Physical Geography Pravalika Publication, Allahabad, India.
- 3.D.S. Lal, (1990), Oceanography, Chaitanya publishing house, Allahabad.
- 4.D.S. Lal, (1998), Climatology, Chaitanya publishing house, Allahabad.
- 5.N.Tikka (1998), Physical Geography, Kedar Nath, Ram Nath, Meerut
- 6.Dr.A.Alka Gautham, (2015) Advanced Geography of India.

LEARNING OUTCOMES

Expected Course Outcomes:							
CO1	Confidence level of the competitive exam aspirants is boosted up.	K1					
CO2	Students ability of computing appropriate to the discipline is enhanced.	K2					
CO3	Students capability to face tests and interviews conducted by potential employers is improved.	K3					
CO4	They can differentiate components Economic activities	K4					
CO5	E valuate mineral resources ,transport and trade	K5 &K6					
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create							
Mapping with Programme Outcomes (MPO)*							
CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2	3	3	4	2	4
CO2	2	2	2	2	4	3	2
CO3	4	3	2	2	3	1	3
CO4	3	4	4	3	1	3	4
CO5	3	3	2	1	3	2	3
Weighted % of course contribution to each pso							
Map Course Outcomes (CO) for each Course with Programme Specific Outcomes(PSO) in the 3-Point scale of 4,3,2,1 Very strong - 4,Strong -3, Medium-2 and Low-1)							

Section - A		Section - B	Section - C
Multiple choice Questions from Each unit (10*1=10)	1 question from each unit (5*2=10)	One (A&B) question from each unit (5*5=25)	One question from each unit (3*10=30)

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