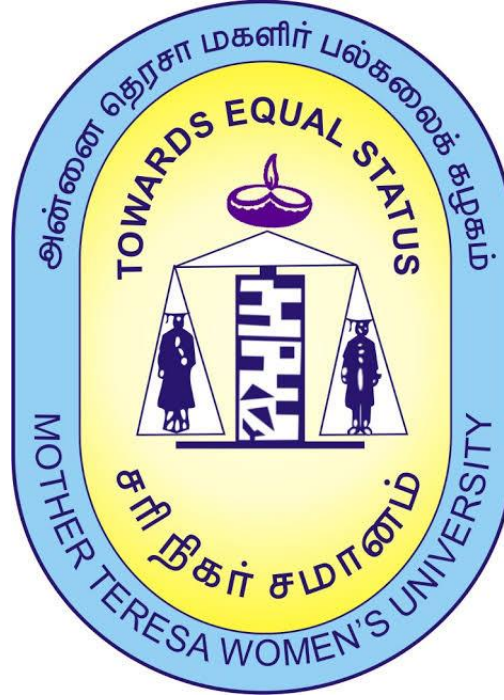# MOTHER TERESA WOMEN'S UNIVERSITY
## KODAIKANAL – 624102



**SYLLABUS**
**(With effect from 2021-2022)**


**M.Sc. GEOGRAPHY**
**(CHOICE BASED CREDIT SYSTEM)**
**(Full Time)**

**SYLLABUS, REGULATION AND SCHEME OF EVALUATION**

**Mother Teresa Women's University, Kodaikanal**
**Department of Geography**
**Choice Based Credit System (CBCS)**
**(2021-2022 onwards)**
**M.Sc. Geography**

## 1. About the Programme

The Master of Science in Geography hosted by the Department of Geography is a two-year program, spread over four semesters and designed to reflect the knowledge of theories, concepts, techniques and technologies in human and physical aspects of geography. It covers issues such as global warming and climate change, food and water resources, management of ecosystems, human modifications of land, regional economic disparities, and urban infrastructure from various theoretical positions. Both a physical and a social science, it provides a unique opportunity to obtain a broad exposure to modes of analyzing the many ecological and cultural problems of contemporary society. The Programme aims at empowering students with knowledge and skills for spatial thinking and analysis, to navigate real world problems, and contribute to society in a meaningful way.

## 2. Programme Educational Objectives (PEOs)

PEO1: to demonstrate proficiency in using the geographic research tools, including spatial statistics, mapping, remote sensing, GIS and IRNS.

PEO2: to inculcate the ability to evaluate and solve geographical problems effectively.

PEO3: to provide an environment in which the students have the opportunity to develop their skills and enthusiasms to the best of their potential.

PEO4: to develop the students' analytical skills through a wide range of expertise in handling applications of geography by their training acquired through the field work and lab.

PEO5: to equip the students in gathering spatial information, analyze, synthesize and to suggest solutions to geographical problems

PEO6: to attained a common level in elementary and basic principles of geography and laid a strong foundation in earth related sciences for their future courses.

## 3. Eligibility

A candidate who has passed B.Sc. Degree in Geography of this University or any other university accepted by the Syndicate as equivalent there, subject to such conditions as may be prescribed therefore, will be eligible for admission to the M.Sc. programme in Geography.

## 4. General Guidelines for PG Programme

   i.   **Duration:** The programme shall extend through a period of 4 consecutive semesters and the duration of a semester shall normally be 90 days. Examinations shall be conducted at the end of each semester for the respective subjects.

   ii.  **Medium of Instruction:**     English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

| Assessment/Examination | Theory | | Practical | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| **Internal** | 13 | 25 | 13 | 25 |
| **External** | 38 | 75 | 38 | 75 |

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**
- **Question Paper Pattern for External examination for all course papers.**
  **Max. Marks: 75**                                               **Time: 3 Hrs.**

| S.No. | Part | Type | Marks |
|---|---|---|---|
| 1 | A | **10*1 Marks=10** <br> Multiple Choice Questions (MCQs): 2 questions from each Unit | 10 |
| 2 | B | **5*4=20** <br> Two questions from each Unit with Internal Choice (either / or) | 20 |
| 3 | C | **3*15=45** <br> Open Choice: Any three questions out of 5: one question from each unit | 45 |
| | | Total Marks | 75 |

**\* Minimum credits required to pass: 90**

- **Project Report**

     A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 lines space.

- **Project Evaluation**

     There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

**5. Conversion of Marks to Grade Points and Letter Grade**
   **(Performance in a Course/Paper)**

| Range of Marks | Grade Points | Letter Grade | Description |
|---|---|---|---|
| 90 – 100 | 9.0 – 10.0 | O | Outstanding |
| 80-89 | 8.0 – 8.9 | D+ | Excellent |
| 75-79 | 7.5 – 7.9 | D | Distinction |
| 70-74 | 7.0 – 7.4 | A+ | Very Good |

| 60-69 | 6.0 – 6.9 | A | Good |
|---|---|---|---|
| 50-59 | 5.0 – 5.9 | B | Average |
| 00-49 | 0.0 | U | Re-appear |
| ABSENT | 0.0 | AAA | ABSENT |

## 6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance lesser than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

## 7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

## 8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the PG Programmes are also applicable for this Programme.

## 9. Programme Outcomes (POs)

On completion of the programme, the students will be able to

| PO1 | **Ability of Problem Analysis**: analyze the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will be able try to find out the possible measures to solve those problems. |
|---|---|
| PO2 | **Application of GIS and modern Geographical Map Making Techniques**: to prepare map based on GIS by using the modern geographical map-making techniques. Application of modern instruments: Students will be able to learn the application of various modern instruments and by these; they will be able to collect primary data. |
| PO3 | **Development of Observation Power**: to develop their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality. |
| PO4 | **Development of Communication Skill and Interaction Power**: understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions. |
| PO5 | **Ethics**: understand the moral dimensions and accept responsibility, understand Environmental Ethics and demonstrate the knowledge of need for sustainable development. |

## 10. Programme Specific Outcomes (PSOs)

On completion of the programme, the students will be able to

| | |
|---|---|
| **PSO1** | design and conduct independent research in their chosen field in the discipline, demonstrate knowledge of concepts, methods, and theories designed to enhance understanding of the natural world and human society. |
| **PSO2** | communicate the results and significance of their research in both written and oral form, evaluate how historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national and global settings. |
| **PSO3** | examine social and environmental processes, with a particular focus on space and place, critical theory, practical application, analysis and intervention in chosen field with in the discipline of Geography and evaluate causes, consequences and possible solutions to persistent, contemporary and emerging global issues |
| **PSO4** | follow established ethical guidelines for research and teaching with an in-depth understanding of and mastery of the literature, at least in one particular geographic subfield. |
| **PSO5** | classify processes of environmental changes and evaluate the relationship between human beings and their surroundings. |

## M.Sc. GEOGRAPHYCURRICULUM

| Sl. No | Course Code | Course Title | Credits | Hours L | P | CIS | ESE | Total |
|---|---|---|---|---|---|---|---|---|
| SEMESTER – I |||||||||
| 1 | P21GET11 | Core I –Advanced Geomorphology | 4 | 5 | - | 25 | 75 | 100 |
| 2 | P21GET12 | Core II –Applied Climatology | 4 | 5 | - | 25 | 75 | 100 |
| 3 | P21GET13 | Core III – Hydrology and Oceanography | 4 | 5 | - | 25 | 75 | 100 |
| 4 | P21GET14 | Core IV – Geography of India | 4 | 5 | - | 25 | 75 | 100 |
| 5 | P21GEP11 | Core V –Practical – I – Terrain and Climatic Data Analysis | 4 | - | 6 | 25 | 75 | 100 |
| 6 | P21CSS11 | **Supportive course I** – Lab – Computer Skills for Web Designing and Video Editing | 2 | - | 4 | 25 | 75 | 100 |
| | | **TOTAL** | **22** | **30** | | | | **600** |
| SEMESTER – II |||||||||
| 1 | P21GET21 | Core VI – Agricultural Geography | 4 | 5 | - | 25 | 75 | 100 |
| 2 | P21GET22 | Core VII – Urban Geography | 4 | 5 | - | 25 | 75 | 100 |
| 3 | P21GET23 | Core VIII – Medical Geography | 4 | 4 | - | 25 | 75 | 100 |
| 4 | P21GET24 | Core IX – Transport Geography | 4 | 4 | - | 25 | 75 | 100 |
| 5 | P21GEP22 | Core X – Practical– II Socio Economic Data Analysis | 4 | - | 6 | 25 | 75 | 100 |
| 6 | | NME | 4 | 4 | - | 25 | 75 | 100 |
| 7 | P21GES22 | **Supportive Course II** – Lab – Application of GIS and GPS | 2 | 2 | - | 25 | 75 | 100 |
| | | **TOTAL** | **26** | **30** | | | | **700** |
| SEMESTER – III |||||||||
| 1 | P21GET31 | Core XI – Geographical Thought | 4 | 5 | - | 25 | 75 | 100 |
| 2 | P21GET32 | Core XII – Remote Sensing, GIS and GPS | 4 | 5 | - | 25 | 75 | 100 |
| 3 | P21GET33 | Core XIII – Cartography and Quantitative method | 4 | 5 | - | 25 | 75 | 100 |
| 4 | P21GET34 | Core XIV – Population Geography | 4 | 5 | - | 25 | 75 | 100 |
| 5 | P21GET35 | Core XV – Research Methodology | 4 | 4 | - | 25 | 75 | 100 |
| 6 | P21GEP33 | Core XVI– Practical – III – Cartography and Geo informatics | 4 | - | 4 | 25 | 75 | 100 |
| 7 | P21WSS33 | **Supportive Course III**– Women Empowerment | 2 | 2 | - | 25 | 75 | 100 |
| | | **TOTAL** | **26** | **30** | | | | **700** |

| | | SEMESTER – IV | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | P21GEE411/ P21GEE412/ P21GEE413/ P21GEE414 | Elective – I: Social Geography/ Cultural Geography / Regional Planning and Management / Geography of Settlements/Any MOOC Course$ | 4 | 4 | - | 25 | 75 | 100 |
| 2 | P21GEE421/ P21GEE422/ P21GEE423/ P21GEE424 | Elective –II: Geography of Economic Activities/ Environmental Geography / Natural disaster Management / Geography of Tourism /Any MOOC Course | 4 | 4 | - | 25 | 75 | 100 |
| 3 | P21GER41 | Project | 8 | 22 | - | 25 | 75 | 100 |
| | | TOTAL | 16 | 30 | | - | - | 300 |
| | | GRAND TOTAL | 120 | 90 | | | | 2300 |

**Non-Major Elective**

The candidates who have joined the PG Programme, can also undergo NonMajor Elective offered by other Departments.

**Additional Credit Courses (Mandatory)**
1. **P21GEI21 –**Internship/Industrial Training – Two Credits – (End of Second Semester)
2. **P21GEO31 –**Online Courses (MOOC Courses) – Two Credits – (Third Semester)
3. **P21GEV11 –**Value Added Program I – Two Credits (First Semester) –Thematic Cartography
4. **P21GEV41 –**Value Added Program II – Two Credits (Fourth Semester)–Application of SPSS in Geography

*Those who have CGPA 9 and want to do the project in Industry / Institution during 4th semester, these two elective papers in IV semester can be opted in third semester itself.

$For Elective – I / Elective- II, the students can also take either one 4-credit course or two 2-credit courses in MOOC, with the approval of Departmental Committee.

**Non Major Elective**
**P21GEN21 –** Geography for Competitive Examinations

**Outside Class Hours(Attendance compulsory, Certificate Mandatory)**

- Health, Yoga and Physical fitness.
- Library information access and utilization
- Employability Training.
- Students Social Responsibility.

## SEMESTER – I

| Course Code | P21GET11 | ADVANCED GEOMORPHOLOGY | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE -I | | | 5 | - | - | 4 |

**Learning Objectives:**

1. The objectives of this course are to introduce the concepts in Geomorphology in adequate manner, many facets of surface relief features.
2. Students will understand the fundamental concepts of spatial interaction and diffusion, which explain how human activities are influenced by the concept of distance.
3. Students will be exposed to the nature of physical systems such as geomorphologic processes and natural hazards.
4. Students will learn how human, physical and environmental components of the world interact.
5. Students will also learn the relevance of applied aspects of Geomorphology in various fields

**Unit I:    Fundamental Concepts**
Nature – Scope and Content – Fundamental Concepts – Recent Trends

**Unit II:    Geomorphic Process & Theories**
Endogenic – Diastrophism – folds, faults – continental    Drift theory – Platetectonics – Mountain Building theories – geosynclinals theory of Kober, thermal contraction theory of Jeffrey, and thermal convection theory of Holmes – earth quake and volcanoes – Exogenic process – Weathering – Mass Movement – Soil formation.

**Unit III:    Gradational Process**
Work of River, Normal cycle of erosion by Davis – Peneplain concept – Modification of the cycle – concept of Penck and King

**Unit IV:    Evolution of Landforms**
Aeolian landforms– Erosional and depositional – Glaciallandforms – Erosional and Depositional – Underground water and karsts topography – landforms developed in limestone regions – Waves – erosional and depositional features – coast – Johnson's classification of coast.

**Unit V:    Development of slopes**
Ideas of Wood, Davis, Penck and King – Climatic geomorphology – Morpho genetic regions – Applied Geomorphology – Mineral exploration, Engineering, hydrology.

**TEXT BOOKS:**
1. Dayal, P., A Text book Geomorphology, Shukla Book Depot, Patna, India, 1990
2. Pitty,A.F., The Nature of Geomorphology, Methuen and Co. Ltd., London, 1982
3. Thornbury, W. D. Principles of Geomorphology, John Wiley and Sons, New York, I960
4. Kale, V. S. and Gupta, A.  Introduction to Geomorphology, Orient Longman, Calcutta, 2010

5.  Singh, Savindra, Geomorphology, PrayagPustakBhawan, Allahabad, 2002.

**REFERENCE BOOKS:**
1.  Balbir Singh Negi, Physical Geography, S.J Publications Meerut, 1993
2.  Das Gupta, A., and Kapoor, A.N, Principles of Physical Geography, S.C. Chand & Company Ltd, 2001.
3.  Lobeck. A.K., An Introduction to the study of Landscapes, McGraw –Hill Book company, 1939
4.  Thorn Bury.D., - Principles of Geomorphology, Wiley Eastern Ltd, New Delhi, 1984

**Learning Outcomes:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | have knowledge of physical geography in relation to its nature and scope, the concepts of origin and evolution of topography. | K2 |
| CO2 | describe scientific ideas and theories about the development of the landscapes. | K3 |
| CO3 | explain the position of geomorphology in physical geography along with the divisions of geomorphology in relation to structural, fluvial, arid, glacial, coastal or tropical morphology. | K4 |
| CO4 | evaluate the impacts of human activities on natural environments. | K5 |
| CO5 | apply the knowledge about global issues to local circumstances to evaluate the local effects of the issues. | K5 |

**\*K1** – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyze, **K5** – Evaluate

**Outcome Mapping:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating  – 3**                          **Moderately Correlating – 2**
**Weekly Correlating    – 1**                              **No   Correlation – 0**

| Course Code | P21GET12 | APPLIED CLIMATOLOGY | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE II | | | 5 | - | - | 4 |

**Learning Objectives:**
1. The broad objective of the course is to introduce to the students the fundamentals of atmospheric phenomena, global climate systems and climate change.
2. Students will learn how climatic variability and change are central to the issue of current and future global environmental change.
3. To grasp the techniques for modeling the climate, covering both theoretical and technical aspects.
4. Students will understand the Humidity, precipitation and atmospheric disturbances.
5. To be able to analyses and interpret climatic data.

**Unit I**    **Atmosphere Composition and Structure**
solar radiation –Temperature – factors controlling the distribution of temperature – horizontal, vertical distribution of temperature – heat balance of the earth – Atmospheric Pressure – distribution – General circulation of the atmosphere – wind – systems – planetary – seasonal and local winds.

**Unit II**    **Atmospheric Moisture**
Humidity, evaporation – condensation – clouds – Precipitation – types and forms – distribution – Air mass – classification – fronts – Thunderstorms – jet streams – Elnino and La Nina .

**Unit III**    **Climatic Classification**
Empirical and generic climatic classification –Koppen and Thornthuwaite – World Climatic regions – Climatic changes – evidences and theories

**Unit IV**    **Applied climatology**
Micro climate –agro climatology – concepts –elements – temperature –wind – rainfall –water budget –artificial rainfall.

**Unit V**    **Urban climatology**
Micro climatic changes– global warming – heat island – health hazards – pollution –rainwater harvesting – man's impact on climate.

**TEXT BOOKS:**
1. Lal. D.S., Climatology, Chatianya Publishing House, Allahabad, 1998
2. Howard J. Chritchfield, General Climatology, Prentice, Hall of India Pvt Ltd, 1987
3. Glen. T. Trewartha and LyesH.Horn, An Introduction to Climate, International student Edition, McGraw Hill International Book Company, 1980.
4. Critchfield, H. J. General Climatology, Prentice Hall, Englewood Cliffs, 1998
5. Smith, K., (1975). Principles of Applied Climatology, McGraw Hill Book Co., London.

**REFERENCE BOOKS:**
1. Trewartha, G.T., An Introduction to Climate, McGraw Hill Book Co., New York, 1968.
2. Woolridge and Morgan, Physical basis of Geography, Palala Press Indian Edition, 2015.
3. Ayoade, J.O. Introduction to Climatology for the Tropics, John Wiley and Sons Ltd., New York, 1983.
4. Oke T.R., Mills G., Christen A. and Voogy J.A., Urban Climates, Cambridge University Press, Cambridge, 2017.
5. Jones and Bartlett Learning, Climatology, 4th editions, Louisiana State University, Baton Rouge, 2017.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | The learners will have the basic concepts of climatology and its geographical significance along with knowledge of earth's atmosphere in respect to structure, composition and characteristics. | K2 |
| CO2 | Know something of the way various human activities are increasing emissions of the natural greenhouse gases | K4 |
| CO3 | They aware of the difficulties involved in the detection of any unusual global warming and background noise of natural variability. | K2 |
| CO4 | Understand that although a growing scientific consensus has become established through the IPCC, for the climate. | K2 |
| CO5 | Understand the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change. | K4 |

**\*K1** – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyze, **K5** – Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**      **Moderately Correlating – 2**
 **Weekly Correlating – 1**      **No Correlation – 0**

| Course Code | P21GET13 | HYDROLOGY AND OCEANOGRAPHY | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE -III | | | 5 | - | - | 4 |

**Learning Objectives:**

1. Describing and analyzing the concepts of Hydrology and Oceanography
2. Students understand the essential components and function of the hydrologic parameters including precipitation, evaporation/evapotranspiration, overland flow and surface storage, groundwater flow and storage, and channel flow, runoff and water quality
3. Study about the stream flow measurement and basin morphology.
4. Studying the characteristics and distribution of global oceans.
5. Students will understand the effects of tsunami, waves and tides.

**Unit I          Hydrological Cycle**
Sub cycle – elements – precipitation, evaporation, infiltration, runoff.

**Unit II         Drainage Basin**
Characteristics, human impact on hydrological systems – Construction of dams and reservoirs – capacity changes – river draining – principles of water balance and it application.

**Unit III        Ocean of the World**
Atlantic, Indian and Pacific Ocean – relief temperature, salinity and density of ocean water – distribution

**Unit IV        Ocean Water & Currents**
Movements of ocean water –Waves, tides, Tsunami – currents of Atlantic, Pacific and Indian oceans

**Unit V         Ocean Resources**
Ocean deposits – Origin Types and Distribution – Coral reef – conditions for growth – types and distribution – theories.

**TEXT BOOKS:**

1. H.M. Raghunath., Hydrology Principles, Analysis and design, Wiley Eastern Limited, New Delhi, 1986.
2. Richard J.Chorley., Introduction to Physical Hydrology – Methuen & CO LTD – 1977.
3. Grant Gross – Oceanography, Prentice – Hall International Editions, 1987
4. Sharma.R.C., and M.Vital – Oceanography for Geographers, Chatianya publishing house, Allahabad , 1987
5. Paul R. Pinet – Oceanography, West Publishing Company, 1992
6. Lal. D.S. (2003) Oceanography, Sharada Pustak Bhavan, Allahabad, 2003.

**REFERENCE BOOKS:**

1. King Cuchalaine A.M. Oceanography for geographers, Edward Arnold publications, London. (2000)
2. Savindra Singh, Physical geography, Prayog Pustak Bhavan, Allahabad, (2004)
3. Siddharth, Oceanography: A brief introduction, Rawat Publishers. New Delhi. (2005)
4. Sharma RC, Oceanography for Geographers, Chaitanya Publishers, Allahabad, (2000)
5. Yadav A.S. Geography of Minerals of Oceans, concept Publishers, New Delhi, (2002).
6. Basu S.K. Hand book of oceanography, Global vision, Delhi. (2003)
7. Garisson Tom, Oceanography, Cole, Wadsworth, New York. (1999).

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | identify different physical aspects of water and the ocean as a natural resource. | K2 |
| CO2 | learn some strategies of water resource management and conservation of water. | K2 |
| CO3 | understand the variations of the global hydrological cycle and emphasizing the significance of groundwater quality and its circulation. | K2 |
| CO4 | have knowledge of the bottom relief of oceans, their waves and current in relation to origin, type, characteristics and impact of ocean waves and current on the environment. | K4 |
| CO5 | learn about why physical oceanography is important in the earth system and learn about the interactions with other components of the system, particularly the atmosphere. | K2 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 2 |

**\*Strongly Correlating – 3**                                       **Moderately Correlating – 2**
**Weekly Correlating– 1**                                            **No Correlation– 0**

| Course Code | **P21GET14** | **GEOGRAPHY OF INDIA** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|---|
| **CORE -IV** | | | **5** | **-** | **-** | **4** |

**Learning Objectives:**

1. Students will get an introduction to the main regions of the India in terms of both their uniqueness and similarities.
2. Students will be exposed to historical, economic, cultural, social and physical characteristics of India.
3. Students will learn the relationships between the global, the regional and the local, particularly how places are inserted in regional and global processes.
4. In addition to the ability of understanding and reading maps, students will develop cartography skills and will be able to create maps on their own.
5. Students will be introduced to demographic, social and cultural attributes such as migration, social relations and cultural identity.

**Unit I        Induction and Physiographic Aspect**
Location – Structure and relief – Drainage pattern – Climate – Rainfall distribution – Climatic types.

**Unit II        Irrigation, Soils and Agriculture**
Soils – Naturals vegetation – Need for conservation of soils and forests – Agriculture types and regions – Irrigation – Types and multipurpose projects – Distribution of food and commercial crops – Rice, Wheat, Cotton, Sugarcane, Tea, Coffee and Jute.

**Unit III        Resources& Industries**
Power resources – Hydel, Thermal, Atomic –Mineral resources – Iron ore, Manganese, Mica, Bauxite and Copper. Major industries – Cotton, Iron and Steel, Sugar, Cement – Small scale and cottage industries.

**Unit IV        Transport and Communication& Population**
Land, Water and Air – Ports and Harbors – Economic significance – Trade – volume– direction. Population – Distribution and density – growth –Trends – Problems.

**Unit V        Regionalization of Tamil Nadu**
Resources of Tamil Nadu – Climate,Water, Soil, Forest, Population, Power – Industrial regions.

**TEXT BOOKS:**

1. Gopal Singh, Geography of India, Atma Ram, India, 1976.
2. Nag, P. and Roy, P., Geography of India, Concept Publications, New Delhi, 1998.
3. Tirtha, R., Geography of India, Rawat Publications, Jaipur, 1996.
4. Majid Hussain, Geography of India, McGraw, 2009.
5. Hill India Rajaram K, Geography Of India, Spectrum Books (P) Ltd, 2015.

**REFERENCE BOOKS:**
1. Ranjit Tirtha and Gopal Krishnan, Geography of India Rawat Publications, Jaipur, New Delhi, 1996.
2. Prithvish Nag and Smita Sengupta, Geography of India, Concept Publishing Company, New Delhi, 1999.
3. C.B. Mamoria, Geography of India, Shivalal Agarwala& Company, Agra, 1975.
4. R.L. Singh, India A Regional Geography, National Geographical Society of India, 1971.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | Identify and explain the Indian Geographical Environment, from global to local scales. | K2 |
| CO2 | Apply geographical knowledge to everyday living. | K3 |
| CO3 | understand the Mineral and Power Resources of India. | K2 |
| CO4 | Show an awareness and responsibility for the environment and India. | K4 |
| CO5 | Evaluate the impacts of human activities on natural environments special reference to India. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**  **Moderately Correlating – 2**
**Weekly Correlating   – 1**  **No Correlation – 0**

| Course Code | P21GEP11 | TERRAIN AND CLIMATIC DATA ANALYSIS | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE -V | | | - | - | 6 | 4 |

**Learning Objectives:**

1. Students will learn how terrain data analysis, profiles and slope analysis.
2. Students will learn Strahelr's method, Bifurcation ratio and Miller's ratio and understanding the Drainage basin analysis.
3. Students will acquire climatic data analysis.
4. Students will learn rainfall variability.
5. Students will learn Water balance, Aridity Index and NDVI Index.

**Unit I    Terrain Data Analysis**
Profiles – Serial, Super imposed – projected and Composite – Slope analysis – Smith, Wentworth and Robinson Methods.

**Unit II    Drainage Basin Analysis**
Stream Ordering – Strahelr's method – Bifurcation ratio, drainage density – shape of the drainage basin – Miller's circulatory ratio.

**Unit III    Climatic Data Analysis**
Climatic diagram – E.E. Fosters Climograph, Climatograph

**Unit IV    Thermo Isopleths**
Rainfall distribution – dispersion – rainfall variability.

**Unit V    Water Balance**
Aridity Index – NDVI Index.

**TEXT BOOKS:**

1. R.L. Singh _ Elements of Practical Geography, Kalyani Publishers, New Delhi, 1998.
2. F.J.Monk house and H.RWilkinson, Maps and Diagrams, B.I. Publications, Madras, 2001.
3. Gopal Singh – Map work and Practical Geography, Vikas publishing house Ltd, 1996.
4. V.P. Subrahmanyam and Subramaniam A.R. Application of water balance concept for a climatic study of droughts in south India, 1964
5. Monkhouse F.J and Wilkinson HR Maps and Diagrams, their compilations and concentration, Muthuen & Co. London, 1952.

**REFERENCE BOOKS:**

1. Harwel JD, Newson MD. Techniques in Physical Geography, Mc. Millan Edu. Ltd. London, 1973
2. Mishra RP. And Ramesh A, Fundamentals of Cartography, Prasaranga, University of Mysore, Mysore. 1968
3. Robinson & Marison, Elements of Cartography, USA. 1995.
4. R.L. Singh Practical Geography, Sharada Pustak Bhavan, 11, University Road, Allahabad, UP – India, 2010

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | Students will learn about the profiles, Smith, Wentworth and Robinson Methods. | K4 |
| CO2 | Students will understand the climatic diagram. | K2 |
| CO3 | Students will gain a level of understanding about Drainage basin analysis such as drainage density and shape of drainage basin. | K2 |
| CO4 | Students will understand the rainfall distribution, rainfall dispersion and rainfall variability. | K4 |
| CO5 | Students will be exposed to the Water balance. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**　　　　**Moderately Correlating – 2**
**Weekly Correlating – 1**　　　　　　**No Correlation– 0**

| Course Code | P21CSS11 | COMPUTER SKILLS FOR WEB DESIGNING AND VIDEO EDITING | L | T | P | C |
|---|---|---|---|---|---|---|
| Supportive Course I | | | - | - | 4 | 2 |

**Learning Objectives:**
1. Prepare students develop an effective web page using HTML tags
2. Create a table within a web page
3. Insert heading levels within a web page.
4. Insert ordered and unordered lists within a web page.
5. Publish a web page.
6. Learn how to combine basic design principles in video editing.
7. Generate a video by applying her knowledge.
8. Present the edited video and record short clips by using camera.

**Unit I      Basics of Hardware and Software**

Basics of Windows Operating System – Windows Utilities. Internet: Concept of Internet, Applications of Internet, connecting to the Internet, Troubleshooting – World Wide Web – Web Browsers – Search Engines: Accessing Web Browser, Downloading Web Pages, Printing Web Pages – Understanding URL – Surfing the Web: Using e-Governance Websites.

**Unit II     Hyper Text Markup Language (HTML)**

Structure of HTML Script – Components: Text, Table, Image, Hyperlinks, Types of Lists – Headers and Footers. Forms in HTML: Label – Text Field – Radio Group – Text Area – Buttons.

**Unit III    Open Element**

Introduction Creating and Saving a Project - Basic User Interface Elements – Media Elements – Images – Carousels - Image Gallery – Videos – Project Preview in Browser.
Containers and Groups: Accordion Group – Collapsible Panel – Group of Elements – Back-End and Full Stack Development.

**Unit IV     Video Recording**

Grabbing all computer activities like playing video games, browsing the net, making voip calls, and more - Record the desktop screen in custom or full-screen mode - Capture the computer screen with voice narrations, system audio, and PIP effects - Include annotations such as colorful texts, shapes, lines, arrows, and drawings - Edit the video by cropping, trimming, adding subtitles, applying watermarks - Conversion of Recorded Video to MP4, VOB, MTS, DV.

**Unit V      Video Editor**

New Video Project – Sort Video Projects – Store Board – Project Library – Video Editing Tools: Filters, Trim, Split, Text, Motion, 3D Effects, Speed - Screen Direction - Sound Design – Continuity – Titling - Picture Management - Color Correction - Special Effects.

**TEXT BOOKS:**

1. Anne Boehm &Zac Ruvalcaba, HTML5 and CSS3, 4th Edition, 2018.
2. Aaron Goold, Video Editing Handbook, ISBN: 1521721041,2017

**LEARNING OUTCOMES:**

After the completion of the course, Students will be able to

1. Enrich Fundamentals of Computers, Components of a Computer System and Software
2. Drafting of Letters and reducing. Insertion of Objects: Equation Editor, Organizational Chart
3. Representation of Financial/numeric data in Spreadsheet
4. Understand the basics Database Management
5. Emphasis on New Video Project.

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|-------|-----|-----|-----|-----|-----|------|------|------|------|------|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                    **Moderately Correlating – 2**
 **Weekly Correlating    – 1**                        **No Correlation – 0**

**SEMESTER– II**

| Course Code | P21GET21 | AGRICULTURAL GEOGRAPHY | L | T | P | C |
|---|---|---|---|---|---|---|
| **CORE -VI** | | | 5 | - | - | 4 |

**Learning Objectives:**
1. The objectives of this course are to acquaint the students with the spatial organization of agriculture and processes determining the agricultural pattern and processes.
2. The students will develop on in-depth knowledge about the dynamic of land use, cropping pattern and the factors involved in-change of agricultural landscape.
3. Students will learn determinates of agriculture.
4. Students will understand the Agricultural productivity and measurements of agriculture.
5. Students will be able to explain the agriculture region in world, India and Tamil Nadu.

**Unit I    Defining the Field**
Nature, Scope and significance of Agricultural Geography – Approaches to the study of Agricultural Geography – Agricultural types and their Characteristics –Elements of Agriculture – Land, Labour , Capital, Market.

**Unit II    Determinants of Agriculture**
Physical, Economic, Social Institutional and technological factors – Green Revolution – First and Second – its implications.

**Unit III    Theory of Agricultural**
Von Thunen's Theory of Agricultural location and its modification – Applicationof Von Thunen's theory to present day agricultural location – land use – types – land use survey – land capability classification – Remote sensing in land use analysis.

**Unit IV    Agricultural productivity& Regionalization**
Determinants and –measurements–Regionalization– cropping Pattern, – crop combination Analysis – Weaver, DoiRafiullah, Crop Diversification – Bhatia.

**UNIT V    Agricultural Regions**
Agricultural Regions of the World – India and Tamil Nadu – Whittlessey's agricultural classification.

**TEXT BOOKS:**
1. Hussain, M. – Agricultural Geography Inter, India Publications, New Delhi, 1964
2. Singh Jasbir, and Dhillon - Agricultural Atlas of India - A Geographical Analysis, Vista Publishers, Krukshetra, 1987.
3. Symons,I – Agricultural Geography, G. Bells & Sons, London, 1999.
4. Mohammad Shafi, Agricultural Geography, Dorling Kindessley (India) Pvt. Ltd. New Delhi, 2006.
5. Negi. B.S. Indian Agriculture: problems, Progress & Prospects, Vikas publishing house Pvt. Ltd. S. Ansari Road, Daryagani, New –Delhi, 2003.

**REFERENCE BOOKS:**
1. Majid Hussain, Agricultural Geography, Ed Anmol Publishing Pvt. Ltd. Ansari Road, Daryagani, New Delhi, 2000.
2. Singh &Dhillion, Agricultural Geography, PrayogPustakBhavan, 20 A, University Road, Allahabad, UP, 2000.
3. Asbir Singh, Agricultural geography, PrayogPustakBhavan, 2001.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | know about the spatial organization of agricultural activities in world and India. | K2 |
| CO2 | know about the origin, location, distribution of the agriculture and its dynamics and impact of climate change and economic liberalization on agricultural pattern and process. | K4 |
| CO3 | to analyze and modify communication. | K3 |
| CO4 | Students will be learning about land use and agriculture. | K4 |
| CO5 | to demonstrate the ability to analyze data and appropriate statistical conclusions. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**    **Moderately Correlating – 2**
**Weekly Correlating – 1**    **No Correlation – 0**

| Course Code | P21GET22 | | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE -VII | | URBAN GEOGRAPHY | 5 | - | - | 4 |

**Learning Objectives:**
1. To explain the nature scope and development of urban geography, urbanization of in developed countries of India
2. To describe the demographic structure and cities and population growth
3. To identify the urban land uses and functional classification demographic of town basic and non-basic concept.
4. To describe the urban expansion, umland demarcation, urban centers, rank size rules and central base theory.
5. To explaining the urban problems, slumbs, pollution, transport, urban migration and land use changes.

**Unit I    Introduction**
Nature, Scope and Development of urban Geography – Urbanization –Factors – Urbanization in developed countries and India.

**Unit II    Demographic structure of cities**
Age and sex structure –population – growth, density, and occupational structure.

**Unit III    Urban Land Use & Classification**
Urban land use models – C.B.D. – Delimitation – Economic base – Functional classification of towns and cities – Basic and non-Basic concepts.

**Unit IV    Urban Expansion & Concept**
Vertical and Horizontal – Urban sprawl – Urban fringe – Urban renewal – Suburbs - Growth and characteristics – City regions concept – Umland demarcation – Hierarchy of Urban centers – Rank size rule – Central Place Theory.

**Unit V    Urban Problems**
Slums – Pollution – Transport – Urban Planning – Rural settlement – types and patterns distribution – Urban migration, land use changes – land acquisition and characteristics.

**TEXT BOOKS:**
1. Friedmann, J. Life space and economic space: Contradictions in regional development, 1988.
2. Friedmann, J. (ed.) Life Space and Economic Space: Essays in Third World Planning, 2007.
3. Hardoy, J. E., Mitlin. D. Satterthwaite. D. Environmental Problems in Third World Cities, 1992.
4. Earthscan, Great Britain. Harold Carter, The Study of Urban Geography, Arnold, London, 1995
5. Harvey, D. Social Justice and the City. London: Edward Arnold, 1973.

6. Jensen, J.R. Remote Sensing of the Environment: An Earth Resource Perspective, Prentice-Hall, NJ, USA, 2007.

**REFERENCE BOOKS:**
1. Marcotullio, P. McGranahan. G. Scaling Urban Environmental Challenges: From Local to Global and Back, Earth scan, Great Britain, 2007.
2. Michael. Urban Geography: A Global Perspective, Taylor & Francis, Great Britain. Ramachandran R 1992, Urbanization and Urban Systems in India, Oxford University Press, Delhi, 2009.
3. Singh R Y, Geography of Settlement, Rawat Publication, Jaipur, 2002.
4. Singh S B, "New Perspectives in Urban Geography, M.D Publication, New Delhi, 1996.
5. Sivaramakrishnan, Urbanization in India, Concepts Publishing Company, New Delhi, 1996.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | gain knowledge about the development of urbanization. | K2 |
| CO2 | understand the world demographic structure of cities | K2 |
| CO3 | learn and explain the functional classification towns, and basic and non-basic concept. | K2 |
| CO4 | understand the urban settlements and hierarchy of urban centers, central place theory. | K4 |
| CO5 | learn urban problems, types of and pattern, distribution acquisition and characteristics. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                    **Moderately Correlating – 2**
 **Weekly Correlating – 1**                         **No Correlation – 0**

| Course Code | P21GET23 | MEDICAL GEOGRAPHY | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE -VIII | | | 4 | - | - | 4 |

**Learning Objectives:**

1. The broad objective of the course is introduced to the student the concept of health and Disease, climate and Disease.
2. To guide students to learn the Nutrition Deficiency related Disease and the Geographical perspectives of communicable and non-Communicable Disease.
3. The students will be exposed the Disease Ecology, Disease diffusion and the Dynamics of major Disease.
4. Student will understand the Medical Geography, medical Statistics and disease measurement and analysis.
5. To know the hierarchy of Medical services and GIS in public surveillance and monitoring.

**Unit I** **Perspectives on Health**

Nature, scope and development of Medical Geography – Traditional and contemporary approaches – Concept of Health and Diseases – Reproductive Health – Climate and Health – Human diseases – Classification – Infectious, Degenerative and chronic, inherited and genetic diseases.

**Unit II** **Diseases Pattern**

Nutrition - Deficiency related diseases **-** Geographical perspectives of Communicable and Non-communicable diseases - Epidemic, Endemic and Pandemic nature of diseases - Major Tropical diseases - Malaria, Filariasis and Leprosy Cancer and Heart attack - Social diseases - HIV IAIDS, STD.

**Unit III** **Disease Ecology**

Determinants of diseases - Interplay of environmental, cultural, socio-economic and ecological factors – Gender and health – Diseases of the rich and poor - Disease diffusion – Concepts– Dynamics of major diseases – Migration and Disease – Travel Medicine.

**Unit IV** **Medical Cartography**

Measurement techniques of diseases Disease mapping techniques at macro, meso and micro levels – Medical statistics – Epidemiological methods in disease measurement and analysis – Measurement of Morbidity and Mortality.

**Unit V** **Health Care Delivery System and GIS Technics**

Health care delivery system - Hierarchy of medical services – Planning for manpower, infrastructure and service facilities of health care – Rural and urban disparities – Health Education – Improved Health care delivery system –GIS in Public Health surveillance and monitoring Environmental and Health data management.

**TEXT BOOKS:**

1. Textbook of Social and Preventive Medicine - Park, 19" edition, Bhandi, 2007 Geography and Health - Hussain, A, Mahaveer & Sons, New Delhi, 2007.

2. Geography of Health: A Treatise on Geography of Life and Death in India - Misra, R.P., Concept Publishing Company, 2007.
3. Tribal Health and Medicines – Kalla & Joshi, Concept Publishing Company, 2004. and
4. Health and Diseases: Dynamics and Dimensions - Surendra Singh & Misra, New Royan Book Company, 2000.

**REFERENCE BOOKS:**

1. Aikat, B.K. Tropical diseases in India, Arnold Meinemann, Delhi, 1stEdition,1985
2. AkhtarRais, Environmental population and health problems, Ashish,1990 Publishers Home, New Delhi.
3. Ansari, S.H. "Spatial Organization of health care facilities in Haryana" NGJI, Vol 51, PP 3-4, 51- 61.2005

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|----|-----------------------------------------------------------------|---------|
| CO1 | The focus of medical Geography is on the geographical patterns of health and diseases from the view point of the populations. | K2 |
| CO2 | Medical Geography seeks to improve our understanding of the various factors which affect the health of the population. | K3 |
| CO3 | Medical Geography helps researchers to understand the power of mapping their study data and understanding health and disease. | K3 |
| CO4 | Understanding of the health problems based on the various geographic factors influencing them. | K4 |
| CO5 | It focuses on the topics of disease diffusion and human ecology, role of geographical information systems for health, and healthcare disparities and various methods for analyzing health/disease data. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|-------|-----|-----|-----|-----|-----|------|------|------|------|------|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                    **Moderately Correlating– 2**
 **Weekly Correlating – 1**                      **No Correlation– 0**

| Course Code | P21GET24 | TRANSPORT GEOGRAPHY | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE -IX | | | 4 | - | - | 4 |

**Learning Objectives:**
1. The broad objective of the course is to appraise the students about the geographic relevance of transportation.
2. The students will understand the various models of global relevance and modal characteristics of modes.
3. Students will learn how structural analysis of transport networks for accessibility and connectivity.
4. Students will be evaluating the development of Urban and Regional transport planning.
5. Students will learn the relevance of applied manual uses of geographical models.


**Unit I        Introduction**
Nature, scope and significance of Transport Geography – Different types of transportation – Their merits and demerits – Choice of mode of Transport.

**Unit II       Transportation Terminal and Freight Distribution**
Terminal charges and operating charges – Tapering cost structure – Variation in freight structure on distance, commodity, size and elasticity of demand – Long haul advantage

**Unit III      Transportation network**
Nodes and links – Connectivity – Accessibility – Centrality Structural analysis of transportation network – Graph theoretic measures – Stages of development of network – Measures of nodal accessibility – Matrix measures - Shortest path – Desire line – Detour index.

**Unit IV      Theories & Model**
Theories of Spatial interaction – Interaction models – Gravity models – Ullman's triad – Critical appreciation of gravity model – Flows in the network – Intensity of flow – Allocation model for transportation

**UNIT V       Transportation and Spatial Structure12 hours**
Hinterlands – Regional specialization – Idealized process of transport development – Interdependence of transport and economy – Role of transport in socio-economic integration – Rural and Urban transport – Problems – Urban and Regional transport planning

**TEXT BOOKS:**

1. Transport and Developing Countries - Hillings, H, Rouledge, 1996
2. Geography of Transportation, Naresh Kumar, Concept Publication, 1991
3. Transport for the Space Economy: A Geographical Study -Hay, A, Macmillan, 1973
   Transportation Geography: Comments and Readings - Eliot Hurst, M.E., 1971

**REFERENCE BOOKS:**

1. Taafee E.1., and H.L. Gauthier, Geography of Transportation, Prentice Hall Foundation of Economic Geography Series, 1970
2. Lloyd, P .E., and P. Dicken, Harper and Row, Location in Space: A Theoretical approach to Economic Geography, 1969

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | learn about the significance of transport in multifaceted development. | K2 |
| CO2 | learn the significance of various models. | K2 |
| CO3 | understand the role of theories related to transport networks. | K3 |
| CO4 | grasp the techniques for Accessibility, connectivity and measures transportation network. | K4 |
| CO5 | To apply the various approaches of transport in daily life. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 2 |

**\*Strongly Correlating – 3**   **Moderately Correlating – 2**
**Weekly Correlating – 1**   **No Correlation – 0**

| Course Code | P21GEP22 | SOCIO ECONOMIC DATA ANALYSIS | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE –X PRACTICALS | | | - | - | 6 | 4 |

**Learning Objectives:**

1. The objective of this course is to provide an understanding for the graduate business student on Population data, Simple line graph, Semi log, Log graph, Lorenz curve, Age and sex pyramid, Triangular graph and Population Potential map.
2. To calculate and apply measures of Transport analysis, Connectivity measures, Accessibility measures and Distance Matrix, Detour index
3. To apply the Agricultural Data Analysis, Weaver's, Doi and Rafiuallah's methods, crop diversification Bhatia's method
4. Students will demonstrate the ability to analyse the Index of Industrial Diversification, Hierarchy of Industrial centers,
5. Students will be able to Nelson's and Rafiullah's methods, Nearest Neighbour Technique

**Unit I** **Population data**
Growth– Simple line graph – Semi log –Log graph – Lorenz curve – Age and sex pyramid – Triangular graph– Population Potential map.

**Unit II** **Transport Analysis**
Connectivity measures – Alpha, Beta and Gamma indices. Accessibility measures – Binary matrix, shortest path matrix, Associated Numbers, Shymbel Index, Distance Matrix – Detour index.

**Unit III** **Agricultural Data Analysis**
Cropped areas of individual crops – crop ranking – crop combination analysis – Weaver's, Doi and Rafiuallah's methods – crop diversification Bhatia's method

**Unit IV** **Index of Industrial Diversification**
Hierarchy of Industrial centers –Rank Size rule

**Unit V** **Functional Classification**
Nelson's and Rafiullah's methods – Nearest Neighbor Technique.

**TEXT BOOK**

1. F.J.Monkhouse & H.R.Wilkinson, Maps and Diagrams, Dirton Co- New York, 1971

**REFERENCE BOOKS:**

1. R.LSingh, Elements of Practical Geography–Kalyani Publishers New Delhi, 1979
2. Kansy, Y., The Structure of Transportation Network, 2001.
3. Tafee, E.J. & H.L Gauthier–Geography of Transportation, Prentice Hall, New York, 1998.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | Apply statistical techniques to a variety of socio-economic data | K2 |
| CO2 | Demonstrate understanding of basic concepts of Transport analysis and statistics embedded in their courses. | K2 |
| CO3 | Interpret statistical output to the agricultural data analysis aid in decision making in the Agricultural activities | K3 |
| CO4 | Evaluate the impacts of human activities and the industries activities | K4 |
| CO5 | Apply the knowledge of global issues to a unique scientific problem of agricultural data analysis | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                           **Moderately Correlating– 2**
 **Weekly Correlating – 1**                              **No Correlation – 0**

| Course Code | P21GEN21 | GEOGRAPHYFOR COMPETITIVE EXAMINATIONS | L | T | P | C |
|---|---|---|---|---|---|---|
| NON MAJOR ELECTIVE – I(NME) | | | 4 | - | - | 4 |

**Learning Objectives:**

1. To explain various processes and various landscape forming in Geomorphology
2. To familiarizes the students with basic concepts of Human Geography.
3. To make aware the students with the nature of man environment relationship and human capability.
4. To familiarize the students with spatial and structural dimensions of global population and their problems as well as concept and trend of migration.
5. To help them understand the atmospheric circulation, global Weather phenomena.

**Unit I        Physical Geography**

Geomorphology – Origin of the earth; Interior of the earth; rocks; Folding and faulting; volcanism; earthquakes; weathering; landforms produced by fluvial, Aeolian and glacial actions. Climatology – Structure and composition of the atmosphere; temperature; pressure; wind systems; clouds; cyclones and anti-cyclones; major climatic types. Oceanography – Ocean relief; temperature, salinity, ocean deposits, ocean currents, waves and tides. Biogeography – origin and types of soils, major biomes, ecosystem, and food chain, environmental degradation and conservation.

**Unit II        Human Geography**

Man and environment Relationship – Growth and development of Human Geography; Concepts of determinism and Possibilism. Population – Races of mankind and tribes, growth and distribution of world population, migration, population problems. Economic Activities – Food gathering and hunting, Pastoral herding, fishing and forestry, types of agriculture – Mining- Power, manufacturing industries, trade and transport. Settlements – Origin, types and patterns of rural settlements, process of urbanization, morphology and functional classification of towns.

**Unit III        Geography of India**

Physical setting – landforms, drainage, climate, soils and natural vegetation's. Economic Setting – Minerals and energy resources, forest resources, irrigation, agriculture and industries, trade and commerce. Population - Growth, distribution and density, demographic characteristics. Environmental problems, developmental issues and regional planning.

**Unit IV        Geographical Thought**

Ancient period – contribution of Indians, Greeks, Romans and Arabs. Modern period – Determinism and possibilism. Recent Period – Quantitative Revolution, radicalism, behaviouralism and humanism.

**Unit V**      **Techniques in Geographical Analysis**

Maps – Scale, types and uses. Diagrams – Types and Uses. Projections – types, characteristics and uses. Remote sensing and GIS, aerial photo and imagery and GIS.

**TEXT BOOKS:**

1. Thorn Bury D. Principles of Geomorphology, Wiley Eastern Ltd. New Delhi – 1984.
2. Dayal P. A Text book of Geomorphology, Shukla book Deprt, Patna – 1995.
3. Lal. D.S., Climatology , Chaitanya Publishing House, Allahabad, 1990
4. Howard J. Chritchfield, General Climatology, Prentice – Hall of India Pvt Ltd, 1987
5. Sharma.R.C., and M.Vital – Oceanography for Geographers, Chaitanya publishing house, Allahabad, 1987
6. Trivedi, R.N - A Text Book of Environmental Sciences, Anmol Publications Pvt. Ltd. New Delhi, 1997

**REFERENCE BOOKS:**

1. Sexna, H.M – Environmental Geography, Rawat Publications Jaipur, 1999
2. F.J. Monkhouse and H.R Wilkinson, Maps and Diagrams, B.I. Publications, 1998,
3. Gopal Singh – Geography of India, Atma Ram & Sons, New Delhi, 1995
4. Sharma T.C. and Countinho. O – Economic and Commercial Geography of India, Vikas publishing house Pvt Ltd, New Delhi, 1998
5. C.S.Agarwal & P.K.Grag – Text Book of Remote Sensing – Wheeler Publishing 2000

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | learn various techniques application of geomorphological knowledge to solve the challenging issues of man environmental relationships. | K2 |
| CO2 | learn to use techniques of weather related maps and statistical methods and their interpretation to solve the climatic problems | K3 |
| CO3 | Understand the basic concepts and characteristics of human settlement and their environmental relationship. | K2 |
| CO4 | learn the techniques of application of Human Geography knowledge to solve the challenging issues of man environmental relationships. | K4 |
| CO5 | be familiar with physiographic divisions of India and their characteristics, drainage system and climate of India and their importance for particular region. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|-------|-----|-----|-----|-----|-----|------|------|------|------|------|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**          **Moderately Correlating – 2**
**Weekly Correlating – 1**               **No Correlation– 0**

| Course Code | P21GES22 | APPLICATIONSOF GIS & GPS | L | T | P | C |
|---|---|---|---|---|---|---|
| SUPPORTIVE COURSE II | | | 2 | - | - | 2 |

**Learning Objectives:**

1. Study GIS data model and nature of GIS & remote sensing.
2. Apply basic graphic and data visualization concepts such as color theory, symbolization, and use of white space.
3. Demonstrate proficiency in the use of GIS tools to create maps that are fit-for-purpose and effectively convey the information they are intended to.
4. Demonstrate confidence in undertaking new (unfamiliar) analysis using GIS, troubleshoot problems in GIS, and seek help from software/website help menus and the GIS community to solve problems.
5. Gather and process original data using a Global Positioning System (GPS) or other Global Navigation Satellite Systems (GNSS).

**Unit I      Identification of spatial data**

Point, line and polygon features, representation of spatial features: Raster and vector data model, data structure.

**Unit II      Map Analysis**

Overlay analysis, change analysis and buffer analysis. Scanning, integration of attribute data. Geographic analysis, digital terrain models- Application.

**Unit III      Introduction to Arc-View, GIS software**

Digitizing, attribute data editing, query building and executing, typology, symbology and layout.

**Unit IV      Data Representation**

Dot map, choro-pleth, located bar and pie maps.

**Unit V      Introduction of GPS**

Introduction to GPS, finding latitude, longitude and altitude, tracking in GPS, routing in GPS.

**TEXT BOOKS:**

1. Peter A. Burrough and  Rachael A. McDonnell, Principles of Geographic Information systems, Oxford University Press, New York, 1998.
2. Aronoff S, Geographic Information System, A Management Perspective, WDL Publications, Ottawa, Canada, 1989.
3. Ian Heywood, Sarah Cornelius, Steve Carver, An Introduction to Geographic Information System, Pearson Education Ltd., India, 2003.

**REFERENCE BOOKS:**

1. Chrisman N.R. Exploring Geographic Information System, Wiley, New York, 1997.
2. Lillesend TM & Kiefer R.W, Remote Sensing & Image Interpretation, John Wiley & sons, New York, 2004.
3. Luedev D.R. Aerial Photographic Interpretation Mc. Graw Hill Company, New York, 2000

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | understand data structure in GIS | K2 |
| CO2 | acquire knowledge about Roster & Vector data Models, etc. | K3 |
| CO3 | analyze geographical change analysis using geo processing tool | K3 |
| CO4 | produce thematic maps in Arc GIS | K4 |
| CO5 | Collect points in tracking the routes in GPS | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**          **Moderately Correlating – 2**
 **Weekly Correlating – 1**            **No Correlation – 0**

## SEMESTER –III

| Course Code | P21GET31 | | L | T | P | C |
|---|---|---|---|---|---|---|
| **CORE XI** | | **GEOGRAPHICAL THOUGHT** | 5 | - | - | 4 |

**Learning Objectives:**

1. Main objectives of this course are to acquaint the students with the philosophy.
2. Also teach the Methodology and historical development of geography as a professional field.
3. The idea is to address the spirit and purpose of the changing geographies and to what we as geographers contribute towards knowledge production.
4. The course aims at developing critical thinking and analytical approaches.
5. Students will acquire an understanding of and appreciation for the relationship between geography and culture.

**Unit I      Development of Schools of Thought**
Contributions of Greek, Roman, Arab, Chinese and Indian scholars to geography – Beginning of modern Geography – varenions, kant, Alexander Von Humboldt, Carl Ritter – German, French, British and American schools of Geographical thought.

**Unit II      Trends in Geography**
Major geographic traditions – earth science, man – environment relationship – area studies spatial analysis.

**Unit III      Concepts**
Dualism in Geography, physical Vs human, regional Vs systematic, determinism Vs possibilism, qualitative Vs quantitative, ideographic Vs nomothetic

**Unit IV      Models & Theories**
Forms of explanations in geography – Models, Theories and laws in geography.

**Unit V      Perspectives in geography**
Possibilism, behaviouralism, humanism – Marxism and structuralism, feminism postrodemisim.

**TEXT BOOKS:**

1. Dikshit R. D., Geographical Thought: A Contextual History of Ideas, Prentice– Hall India, 1997.
2. Hartshone R., Perspectives of Nature of Geography, Rand MacNally and Co, 1959.
3. Holt-Jensen A., Geography: History and Its Concepts: A Students Guide, SAGE, 2011.
4. Johnston R. J., Geography and Geographers, Anglo-American Human Geography since 1945, Arnold, London, 1997.
5. Kapur A., Indian Geography: Voice of Concern, Concept Publications, 2001.

**REFERENCE BOOKS:**

1. Negi B.S. Geographical thought – KarinathRamnathmeerat 1994.
2. Freeman. R. Hundred Years of geography – Hutchinson London 1970
3. Martin Geoffrey J., 2005: All Possible Worlds: A History of Geographical Ideas, Oxford, 2001.
4. Soja, Edward, Post-Modern Geographies, Verso, London. Rawat Publ., Jaipur and New Delhi, 1997.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | to critically look at the contents of other courses at Postgraduate level as logically integrated with the broad currents of thought the subject has witnessed in the distant and recent past. | K2 |
| CO2 | gain knowledge about development of geographical thought. | K2 |
| CO3 | understand the major current philosophical and theoretical debates in geography. | K4 |
| CO4 | demonstrate an understanding of current research within the breadth of geography, as well as more in-depth knowledge of research in their specialty areas. | K2 |
| CO5 | develop a solid understanding of the concepts of "space," "place" and "region" and their importance in explaining world affairs. | K3 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 2 |

**\*Strongly Correlating – 3**                          **Moderately Correlating – 2**
 **Weekly Correlating – 1**                              **No Correlation– 0**

| Course Code | P21GET32 | REMOTE SENSING, GIS AND GPS | L | T | P | C |
|---|---|---|---|---|---|---|
| **CORE XII** | | | 5 | - | - | 4 |

**Learning Objectives:**

1. To appraise the students to various aspects of Aerial photographs.
2. To introduce about Remote Sensing and GIS.
3. To teach about the important elements of the Geospatial technology.
4. To introduce about the earth revolutionary and rotation system.
5. To give technical knowledge of satellite system.

**Unit I        Basic Concepts**

Remote Sensing- definition-Types – Basic Principles – Ideal Remote Sensing System – Aerial Photography – Types of Photographs – Photo Mosaics – elements – photo Interpretation – Limitations of Aerial Photographic Technique – Photogrametry.

**Unit II       Satellite Remote Sensing**

Spaceborne Remote Sensing – EMR – Platforms – Sensors – Resolution – Spectral signatures – visual image interpretation – Fundamentals – equipment's – digital image processing.

**Unit III      Development of Remote Sensing Programs in the World**

USA, USSR, FRANCE, U.K and India – Development of remote sensing in India

**Unit IV      Application of Remote Sensing**

Land form inventory – water resources – urban studies, waste land management, disaster management, land use planning.

**Unit V       GIS Data Structures**

GIS – Definition – Basic Principles – Elements – DBMS – Geographic Database – GIS – Hardware and Software – Use of GIS – Application of GIS – resource mapping – natural hazards, flood and drought management in India – GPS – Historical development – components – differential GPS – applications

**TEXT BOOKS:**

1. Campbell J. B., Introduction to Remote Sensing, Guildford Press, 2007.
2. Jensen J. R., Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall, 2004.
3. Joseph, G. Fundamentals of Remote Sensing, United Press India, 2005.
4. Nag P. and Kudra, M., Digital Remote Sensing, Concept, New Delhi, 1998.
5. Rees W. G., Physical Principles of Remote Sensing, Cambridge University Press, 2001.

**REFERENCE BOOKS:**

1. Lan Heywod, Sarah Cornelines, An Introduction to Geographical Information System I Addison, Wesley, Longman Ltd,2000

2. C.S.Agarwal & P.K.Grag, Text Book of Remote Sensing, Wheeler Publishing,  2000

3. Gampbell. James B.I Introduction to Remote Sensing, The Guild Press, New York, 2017

4. Curran, Fundamentals of Remote Sensing, Longman, London, 2006

5. Lillesend TM & Kiefer R.W, Remote Sensing & Image Interpretation, John Wiley & sons, New York, 2004.

6. Luedev D.R. Aerial Photographic Interpretation Mc. Graw Hill Company, New York, 2000

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| **CO1** | Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS. | **K2** |
| **CO2** | Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution. | **K2** |
| **CO3** | Student will be familiar with modern techniques in Geography. | **K4** |
| **CO4** | Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution. | **K2** |
| **CO5** | Students will be prepared to apply their skills in professional careers. | **K5** |

**\*K1** – Remember, **K2** – Understand, **K3** – Apply, **K4** – Analyze, **K5** – Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| **CO2** | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| **CO3** | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| **CO4** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| **CO5** | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                         **Moderately Correlating – 2**
**Weekly Correlating – 1**                             **No Correlation – 0**

| Course Code | P21GET33 | CARTOGRAPHY AND QUANTITATIVE METHODS | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE XIII | | | 5 | - | - | 4 |

**Learning Objectives:**

1. Students can able to identify the fundamentals of maps, geographic coordinates and their mapping procedures.
2. Students will be able to understand the map symbols, layout and printing process and their combinations.
3. Students can be able to know the various research methodology tests in a given procedure.
4. To understanding the data collection methods, types and other statistical procedures.
5. Students can acquire knowledge about various methods of statistical calculations in SPSS and other software's

**Unit I       Introduction to Cartography**:

Meaning, Scope and Development of Cartography – Fundamentals of Map Projections – Types – Uses and choice of map Projection – Compilation and Generalization of Maps – Compilation of Base Maps.

**Unit II      Quantitative Techniques in Cartography**

Simple and Complex – Thematic maps – Qualitative and Quantitative- Point, line, Area and Volume Symbols – Map Design and Layout – Lettering and Toponomy – Tools and Techniques for map drawing – map construction and production – photographic and non – photographic processes, printing processes – stencil cutters.

**Unit III     Hypothesis Testing**

– Needs & Types – Significance & Confidence Level –Parametric – Non-Parametric Produce – Chi Square Testing, T – test-Test

**Unit IV      Data Collection**

Sources of data – secondary, primary and spatial data – data processing – measures of central tendency – mean, median, mode – standard deviation – coefficient of variation.

**Unit V       Data Analysis**

Cor-relation – Pearson's product movement correlation – Spearman's rank correlation – Regression analysis – residual mapping – factor analysis – ANOVA

**TEXT BOOKS:**

1. Monkhouse F.J. and Wilkinson H.R.-Maps and Diagrams-Dirton Co., Newyork, 2006
2. R.P.Mishra and A.Ramesh – Fundamentals of Cartography - Concept publishing Company, New Delhi, 2000.
3. Raise E.-Principles of Cartography Mc.Graw Hill, 1996.
4. Robinson A.H. and R.D.Sale - Elements of Cartography - Hjohn Wiley and Sons, NewYork, 2007.

**REFERENCE BOOKS:**

1. Singh R.L. and P.K.Dutt-Elements of Practical Geography, 1993..
2. Subramaniam - Introduction to Computer, 2011.
3. M.D. Zulfequarahamad Khan –Text Book of Practical Geography, Concept Publishing Company, New Delhi, 2009.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | Acquire knowledge about scope and development of cartography, Projections and compilation of maps | K2 |
| CO2 | to identify the different kinds of maps with using cartographic symbols, map design and layout procedures and photo printing process | K3 |
| CO3 | evaluate the different techniques of hypothesis to justifying the various testing methods | K4 |
| CO4 | obtain the different kinds of data sources and analysis of various statistical methods. | K4 |
| CO5 | complete the lesson they will get the capacity of statistical analysis with suitable software's | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                    **Moderately Correlating – 2**
 **Weekly Correlating – 1**                         **No Correlation – 0**

| Course Code | P21GET34 | POPULATION GEOGRAPHY | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE XIV | | | 5 | - | - | 4 |

**Learning Objectives:**

1. This course introduces the history of population, methodology of population geography, sources & types of population data and spatial distribution of population with causative factors.
2. Get knowledge about the various theories and concepts related to population
3. The study of the population is an essential component in the planning of current various human related issues.
4. They get knowledge about various kinds of demographic problems eg. Zero, under & decline population.
5. Population Geography also deals with population policies in developed & developing countries

**Unit I        Introduction**
Nature, scope and significance of population geography – Sources of populations data – Reliability of population data. Distribution and density of world population – Factors and pattern distribution.

**Unit II       Dynamics of Population**
Fertility – its measures and determinants and world pattern - mortality – its measures and determinants and world trend – world population growth and its trend – theories of populations growth – Malthus , Ricardo and Marx.

**Unit III      Demographic Transition**
Migration types – determinants – consequences of migrations – laws of migration – policies of migrations.

**Unit IV      Populations Composition Characteristics**
Age, sex, rural, urban, occupation education – literacy – determinants and world pattern

**Unit V       Population Resource and Policies**
Population resource relationship –Optimum population under population –over population – population policies.

**TEXT BOOKS:**
1. Jones, H.R., Population Geography, Paul Chapman, London, 2000.
2. Mamoria, C.B. India's Population Problems, Kitab Mahal, New Delhi, 1981.
3. Mitra, Ashok, India's Population Problems and Control (Vol. I &II), Kitab Mahal, New Delhi, 1978.
4. Chandna R.S Geography of Population Concepts, Determinants and patterns, Kalyani Publishers., New Delhi 1980
5. Clark John.I.-Population Geography Pergamum Press Ltd. Oxford 1981
6. Gosh B.N –Population Geography, Sterling Publications.1987
7. Beauju Garneir.J – Geography of Population, Longman group Ltd, 1978

**REFERENCE BOOKS:**

1. Beaujeu, Garnier, J. Geography of Population, Longman, London, 1966.
2. Bogue, D.J. Principles in Demography, John Wiley, New York, 1969
3. Chandna, R .C. Geography of Population, Kalyani Publ., New Delhi, 2000.
4. Clarke, J.I.  Population Geography, Pergamon Press, Oxford,1972
5. Garnier, B. J., Geography of Population, Longman, London, 1970.
6. Ghosh, S. Settlement Geography, Orient Longman Ltd. , Kolkata, 1998.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | develop their understanding of the distribution of the population and its various characteristics including population growth, density, fertility, mortality, death rate, birth rate etc. | K2 |
| CO2 | understand the negative or positive effects of population distribution and growth in the society and can create awareness among the people of society regarding this. | K2 |
| CO3 | analyze the global trend and patterns of population growth in developing countries and migration patterns. | K4 |
| CO4 | evaluate the population growth theory and migration theories. | K4 |
| CO5 | Students will understand the population policies and their importance in different countries. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**　　　　　**Moderately Correlating – 2**
**Weekly Correlating– 1**　　　　　**No Correlation – 0**

| Course Code | P21GET35 | RESEARCH METHODOLOGY | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE XV | | | 4 | - | - | 4 |

**Learning Objectives**

1. The broad objective of the course is to understand a general definition of research design.
2. Students should know the introduction of research, motivation in research, types of research, the significance of the research, research process and criteria of good research.
3. Students should be familiar with ethical issues in educational research, including those issues that arise in using quantitative and qualitative research.
4. Students should know the primary characteristics of quantitative research and qualitative research
5. Students should be familiar with how to write a good introduction to an educational research study and the components that comprise such an introduction.

**Unit I      Introduction**
Research meaning and need for scientific research –Approaches to research – interdisciplinary and trends in geography

**Unit II     Research Design**
Research design –Identification selection and definition of problem – Selection of Topic –Formulation of Hypothesis – Testing of Hypothesis

**Unit III    Sampling Techniques**
Sampling Techniques –Types – Construction of Schedule Questionnaire – Quantitative Techniques used to analysis the data

**Unit IV    DataCollection**
Collection of data – sources of data – primary, secondary, data – data transformation, tables charts diagrams and maps

**Unit V     Report Writing**
Library and thesis writing – bibliography – cards – glossary – appendix – languages presentation – review of work done in the field – review of books and journals – writing of project reports.

**TEXT BOOKS:**

1. B.N.Ghosh, scientific method and social research, strelling publishing, pvt. limted, 1982
2. Good and Hatt, method in social research, Mc Graw hill book company, 1981
3. Gilbert, N.Researching Social Life, Sage, London, 2001.
4. Flowerdew, R. and D. Martin, Methods in Human Geography: A Guide for students doing a research project, Prentice Hall, New York, 2005.

**REFERENCE BOOKS:**

1. Clifford, N.J. and G. Valentine, Key methods in Geography, Sage, London, 2003.
2. Leedy, P. D. and J.E. Ormrod, Practical Research: Planning and Design, 2001.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | Students should be able to distinguish a purpose statement, a research question or hypothesis, a research objective and the utility of a hypothesis in scientific research. | K2 |
| CO2 | Students should be able to identify independent, dependent, features development of research and sampling design and its basic types. | K2 |
| CO3 | Students should be able to distinguish the interpretation, report-writing techniques and mechanics of writing of Report. | K3 |
| CO4 | Students should be able to design a good quantitative purpose statement and good quantitative research questions and hypotheses. | K4 |
| CO5 | Students will be able to understand the research problems, the link between quantitative research questions, data collection and how research questions are operationalized in educational practice. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**            **Moderately Correlating – 2**
 **Weekly Correlating – 1**                     **No Correlation – 0**

| Course Code | P21GEP33 | CARTOGRAPHY AND GEO INFORMATICS | L | T | P | C |
|---|---|---|---|---|---|---|
| CORE - XVI | | | - | - | 4 | 4 |

**Learning Objectives:**

1. Students will have a general understanding of the various thematic maps and how to represent the different symbols in a statistical representation.
2. Students will be able to understand the Survey of India toposheets and the observation of different kinds of colours and symbols in interpretation.
3. Students will be able to identify the different elements with regarding the remote sensing datas
4. Students can acquire knowledge of remote sensing data processing technique with help of various softwares.
5. At the end of the lesson students can get a clear idea about cartographic techniques and GIS based software's.

**Unit I**  **Statistical Data Analysis**
Preparation of Thematic Maps – Representation of Statistical Data by Point, Area, Line and Volume Symbols.

**Unit II**  **Soil Interpretation**
Interpretation of Survey of India Toposheet.

**Unit III**  **Satellite Image Interpretation**
Visual Interpretation of satellite imagery, identification of features through signatures, color identifications. Preparation of thematic maps using the satellite imagery.

**Unit IV**  **Aerial Photo Interpretation**
Elements of aerial photographs, stereographic interpretation of aerial photographs and manual preparation of land use maps.

**Unit V**  **Digital Image Processing**
Digital image processing technique.

**TEXT BOOKS:**

1. Robinson Arthur H et al, Elements of Cartography, 6th edition, Wiley India pvt. Ltd, 2010
2. Misra.R.P and A.Ramesh, Fundamentals of cartography, Concept Publishing Company, New Delhi, 2000.
3. Erwin and Raisz, Principles of cartography, Mcgraw Hill book company 1962

**REFERENCE BOOKS:**

1. Robinson.H., Elements of Cartography, John Wiley and Son INC,1960
2. Rampal K K, Mapping and Compilation, Concept Publishing Company, New Delhi, 1993
3. Monhouse, Map and diagrams, Methuan, 1971
4. RL Singh, Elements of practical geography, Students to friends Allahabad 1968

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | identify the kinds of thematic maps and how to drawn point, line and area symbols in correctly in statistical method. | K2 |
| CO2 | develop the skills about Indian Toposheet interpretation with help of interpretation keys | K3 |
| CO3 | develop a solid understanding of the concepts of aerial and satellite image interpretation and their importance in explaining by their elements | K3 |
| CO4 | use various GIS software's to analyze and processing the digital satellite images | K4 |
| CO5 | get the potential of mapping techniques and image interpretation with suitable software's | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 2 |

**\*Strongly Correlating – 3**         **Moderately Correlating – 2**
**Weekly Correlating – 1**              **No Correlation        - 0**

| Course Code | P21WSS33 | WOMENEMPOWERMENT | L | T | P | C |
|---|---|---|---|---|---|---|
| Supportive Course III | | | 5 | - | - | 2 |

**Learning Objectives:**

1. To understand about Women Empowerment
2. To Highlight the various types of Empowerment
3. To motivate learners to participate in developmental programmes
4. To sensitize other women too to make aware of empowerment opportunities
5. To Transform women to get real empowerment

**Unit I      Introduction**
Empowerment – Meaning and concept of empowerment – Individual and collective empowerment – Framework for empowerment – Choices women can make for empowerment – Constitution of India – Social Legislation – The Five Years Plans- Welfare approach – Women in Development – Equity approach – Empowerment approach – Indian Women Today – Concept of Agency – Empowerment indicators.

**UNIT II      Social Empowerment**
Meaning – Importance and framework – Demography, education, health and nutrition, environment, violence against women – problems and rights of the girl child – Media – Science and technology – Women in difficult circumstances.

**UNIT III      Economic Empowerment**
Women in labour force participation – Women and domestic work – Home based work – Work in organized and unorganized sector – Women in agriculture – industry and service sector – women entrepreneurs – Women self-help groups (Micro credit), Gender and poverty – Globalization and women

**UNIT IV      Political Empowerment**
Need of women in politics – Dominant women in politics – political participation in grass root level-Barriers for participation of women in local governments – Reservation policy for women in politics – Legal empowerment.

**UNIT V      Decision Making**
Capacity building for empowerment of women – Gender training and capacity building – Training methodology – women Leadership – Group dynamics – Problem solving – Conflict resolution – Group discussions – Crisis management.

**TEXT BOOKS:**

1. Government of India, Planning and Commission, Five Year Plans, the Tenth Five- Year Plan. (1951-56 to 2012-17)
2. Meena PriyadharshiniS, "SocialempowermentofWomen",24/7publications, Kolkatta, 2017.
3. Judge, P.S., "Mapping Social Exclusion in India: Caste, Religion and Borderlands", Cambridge University Press, Delhi, 2014.

**REFERENCE BOOKS:**

1. Haque, T, "Empowerment of Rural Women in Developing Countries: Challenges and Pathways", New Delhi: Concept Publishing Company, 2015.
2. Ramachandran, Vimala and Kameshwari Jandhyala (ed). Cartographies of Empowerment: The Mahila Samkhya Story. New Delhi: Zubaan, 2012.

**LEARNING OUTCOMES:**

1. Understand  Social, Economical and Political Empowerment

2. Make aware of importance of Women Empowerment

3. Understand the women development agents

4. Critically analyze the life style and challenges of women

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|-------|-----|-----|-----|-----|-----|------|------|------|------|------|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 2 |

**\*Strongly Correlating – 3**                                   **Moderately Correlating –2**
**Weekly Correlating – 1No Correlation – 0**

**Semester IV**

| Course Code | P21GEE411 | CHOICE -I | L | T | P | C |
|---|---|---|---|---|---|---|
| ELECTIVE – I | | SOCIALGEOGRAPHY | 4 | - | - | 4 |

**Learning Objectives:**

1. Understanding the concept of space and place, religions and language groups.
2. Explaining the Human health and Health care planning.
3. Explaining the concept of culture, cultural regions and cultural imperialism.
4. Recognize the difference between boundary and land boundary.
5. Understanding the connection between Hartland theory and Rimland theory and contemporary politics.

**UNIT I      Introduction of Social Geography**
Social Geography – Nature and scope – social structure and processes – concept of space and place –social wellbeing – quality of life – social exclusion, derivation and discrimination issues relating to under privileged groups–spatial distribution of social groups in India, tribes, castes, religions and language groups.

**UNIT II     Concept of Culture a nd Cultural Regions in World**
Concept of culture, culture complex, culture areas and cultural regions, cultural heritage, cultural interactions, cultural diffusion and cultural ecology – cultural imperialism.

**UNIT III    Health Factors**
Health – factors affecting human health – nutritional status, diseases – etiological condition, classification and distribution patterns, – Health care planning and policies in India, prospects of medical tourism in India.

**UNIT IV     Development of Political Geography**
Concept of boundaries and frontiers, heart land and rim land theories – conflicts – resource, regional and ethnic human rights and conflicts resolution – recent trends and development in Political Geography.

**UNIT V      Geo-Politics of World**
Geopolitics of climatic change, geopolitics of World Resources – regional organizations of cooperation (SAARC, ASEAN, OPEC, EU)

**TEXT BOOKS:**

1. Majid Husain – Human Geography – Rawat Publications 1994.
2. Gillian C.Morgan – Human and Economic Geography, Oxford University Publications 1999.

**REFERENCE BOOKS:**

1. Aime Vincent Perpillou-Human Geography, Longman Group limited London 1977.
2. C.Daryll Forde-Habitat, Economy and Society, Methuen Publishers 1977.
3. Chandna – Population Geography, Kalyani Publishers, 2015.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | After this lesson, the students will have acquired Knowledge about the spatial distribution of social groups, religions and language groups. | K2 |
| CO2 | Students will understand an overview of the culture complex, cultural heritage and cultural imperialism. | K2 |
| CO3 | Students will understand the factors affecting human health, disease and Planning. | K3 |
| CO4 | Students will have basic concepts about boundaries and frontiers. | K2 |
| CO5 | Students will learn about the political geography. | K2 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**　　　　　　　　**Moderately Correlating – 2**
**Weekly Correlating – 1**　　　　　　　　**No Correlation – 0**

| Course Code | P21GEE412 | CHOICE -II | L | T | P | C |
|---|---|---|---|---|---|---|
| ELECTIVE – I | | CULTURAL GEOGRAPHY | 4 | - | - | 4 |

**Learning Objectives:**

1. Understand and apply relevant geographic themes, such as location, place, region, movement, and human-environment interaction
2. Develop geographical skills and knowledge helpful for understanding local, national, and world events and issues
3. Develop skills for the observation and documentation of ordinary landscapes
4. Develop map-based knowledge of key location in world regions
5. Provide a broad overview of the key concepts and approaches in social and cultural geography.

**UNIT I    Introduction**
Nature of cultural geography – Concept and meaning of culture – elements of culture, convergence and divergence of culture–cultural change.

**UNIT II    Cultural Diversity**
Cultural diversity:  Human races – Caucasoid, mongoloids and negroids–World's major regions–major languages of the World, and India's cultural Regions. Ethnic groups, case study, bushman, pygmies and eskimos, tribals of India.

**UNIT III    Major Human Activities and Cultural and Occupations of Man**;
Agriculture including its origin & diffusion, industrialization and its impact on culture and modernization broad features and impact in culture.

**UNIT IV    Culture and Social Well-Being**
Culture and social well-being: Cultural indicators and human development index (HDI) at global, India Level.

**UNIT V    Human Settlements**
Rural and urban settlement patterns. Economic and social characteristics – Impact of technology on human settlements. Emerging issues of aged population and their care.

**TEXT BOOKS:**

1. Ahmad, A, Social Geography, Rawat Publication, New Delhi, 2019
2. Ahmed, A. (ed) Social Structure and Regional Development: A Social Geography. Perspective, Rawat Publications, Jaipur, 1993.
3. Anderson, K. Domosh M., Pile, S., Thift, N (eds). Handbook of Cultural Geography. Sage Cosgrove Denis (1984) Social Transformation and Symbolic Landscape, Croom Helen, London, 2002.

**REFERENCE BOOKS:**

1. Crang, Mike. Cultural Geography, Routledge, London Feasibility reports, 1998.
2. KILA Pannikar, K.M. Geographical Factors in Indian History, Bharatiya Vidya Bhavan, Bombay Pannur writings. Africa in Kerala. Ente Hridathile Adivasi Personality of India, 1959.
3. Rachel, Pain. (eds). Introducing Social Geographies, Arnold Hoddergoup, London &Oxfod University Press, 2001.
4. Raza, M. and Ahmed, A.. An Atlas of Tribal India, Concept Publishing Co, Delhi, 1990.
5. Robertson Iaian and Penny Richards, Studying Cultural Landscapes, Oxford University Press, London and New York, 2003.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | understand the key concepts of Social and Cultural Geography | K2 |
| CO2 | apply concepts and evaluate emerging issues in contemporary cultural context | K2 |
| CO3 | acquire a general understanding of the major concepts and approaches in the fields of social and cultural geography. | K2 |
| CO4 | gain an appreciation for the role that social power plays in the formation of socio-spatial identities and the processes of place-making. | K4 |
| CO5 | develop the ability to critically assess the material and symbolic aspects of cultural landscapes. | K2 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**          **Moderately Correlating– 2**
**Weekly Correlating – 1**               **No Correlation– 0**

| Course Code | P21GEE413 | CHOICE -III | L | T | P | C |
|---|---|---|---|---|---|---|
| **ELECTIVE – I** | | **REGIONAL PLANNING AND DEVELOPMENT** | 4 | - | - | 4 |

**Learning Objectives:**
1. The regional planning should make the ecology and environment sustainable. Achieve effective land use planning on regional level
2. Promote affordable housing of all types on regional scale. Assure regional renewal in all inner-city areas.
3. To achieve quality education on all levels and to all residents. Assure appropriate job creation and job training
4. Maximize airport system balance for all types and sizes throughout region. Focus on tax base sharing in all forms.
5. Create and maintain a quality region-wide health care system. Minimize public sector budgetary waste and balance budgets

**UNIT I     Concept of region**
Types, hierarchy and characteristics of regions, delineation methods of regions – Formal, functional and nodal. Geography and regional planning. Concept and scope of regional planning. Regional approaches. Principles, methods, techniques of regional planning, need for planning.

**UNIT II     Conceptual and theoretical frame work of regional planning**
Growth pole and growth foci. Planning processes: Sectoral, multilevel, decentralized planning. Integrated area development planning (IADP). Planning for tribal and hill areas, drought prone areas, command areas and watershed. Planning for metropolitan region: CDP, satellite towns, urban green belt.

**UNIT III     Concept of development, indicators of development**
Regional imbalance. Regional development strategies. Problems and issues in regional planning. Sustainable development of regions. Regionalization of India: Based on natural, economic and administration (macro and meso levels only).

**UNIT IV     Theories of regional development12 hours**
Central place theory, diffusion theory (Hegerstand's). The role of locational theories in regional planning process.

**UNIT V     An evaluation of regional disparities / imbalances**
backward regions of India. Identification of backward areas, planning backward area. Causes and consequences regional disparities. Measures of disparities. Harnessing the information through GIS, remote sensing, GPS for regional planning and development.

**TEXT BOOKS:**
1. Isaac, Thomas and Richard, W. Franke. (Eds.) Local Democracy and Development: People's Campaign for Decentralization in Kerala, New Delhi: Leftward. Jaipur: Rawat Publications, 2000.
2. John, M.S. and Jos Chathukulam. Building Social Capital through State Initiative – Meghalaya), Man and Development, 2002.

**REFERENCE BOOKS:**
1. Action Programme for the 11 FYP, New Delhi: Planning Commission, 2011.
2. Participatory Planning in Kerala, Economic and Political Weekly, Vol. XXXVII, No.20, 18 May, 2002.
3. Rai, Manoj, et. al. (Eds.). The State of Panchayats: A Participatory Perspective, New Delhi: Samskriti, 2001.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | Understand the significance of decentralized planning. Understand the planning process at each level of Local Institutions. | K2 |
| CO2 | Evaluate role of the Local Governments in the planning. Comprehend the advantages of local level planning with peoples participation | K5 |
| CO3 | Create a spatial data base for local level planning. Describe how long-range transportation plans can be coordinated with local & regional land use goals | K3 |
| CO4 | Identify roles that MPOs and other regional. state agencies can take in creating coordinated regional transportation & land use plans | K2 |
| CO5 | Describe how to structure a process for creating a regional plan Identify effective tools to implement regional transportation & land use plans | K2 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**          **Moderately Correlating– 2**
**Weekly Correlating – 1**          **No Correlation – 0**

| Course Code | P21GEE414 | CHOICE -IV | L | T | P | C |
|---|---|---|---|---|---|---|
| ELECTIVE – I | | GEOGRAPHY OF SETTLEMENTS | 4 | - | - | 4 |

**Leaning Objectives:**
1. The objective of the paper is to give to the students the basic ideas about the rural settlements, historical development during ancient, medieval and modern times, morphology of rural settlements, functions and rural settlement planning in India.
2. To describe the meaning of settlements
3. To identify various types of rural settlements
4. To describe various house types in India
5. To explain the functional classification of urban settlements.

**UNIT I    General Introduction, Evolution & Distribution of Settlements**
Nature, Scope, Significance and Recent Trends in Settlement Geography. Evolution of Settlements in India: Emergence of Village Settlements, Origin and Growth of Towns; Basic and Non – Basic Concepts in Settlement formation. Distribution of Settlements, Spacing of Settlements – Application of Models of Christaller and Losch.

**UNIT II    The Functional classification of Settlements**
Rural and Urban Settlements. Rural Settlements – Types of Rural Settlements, House Types, Morphology and Functions of Rural Settlements; Rural Service Centers and their Role in Urbanization Process. Indian Rural Settlements in Different Micro – Environmental Conditions: (a) Mountains (b) Desert Region (c) In the vicinity of Urban Centers.

**UNIT III    Urban Settlements**
Classification of Urban Places – Non– Functional and Functional. Morphology of Indian Cities and Its Comparison with Western Cities; Functional Relations between Urban Settlements and their umlands.

**UNIT IV    Theories in Settlement Geography**
CBD, Centrifugal and centripetal forces theory, Urban Fringe, Urban structures theories.  Rank size relationship.

**UNIT V    Settlement Geography of selected Indian Cities**
Mumbai, Kolkata, Bangalore, Delhi, Chennai, Hyderabad, Pune, Lucknow, Patna, Jaipur and Chandigarh.

**TEXT BOOKS:**
1. Hudson, F. S. Geography of Settlements, Macdonald, London, 1976.
2. Northam Ray, M. Urban Geography, John Wiley and Sons, New York, 1979.
3. Ambrose, Peter, Concepts in Geography, Vol.-I, Settlement Pattern, Longman, 1970.
4. Baskin, C., (Translator), Central Places in Southern Germany, Prentice-Hall Inc. Englewood Cliffs New Jersey, 1996.
5. Haggett, Peter, Andrew D. Cliff and Allen Frey (Ed.), Locational Models Arnold Heinemann, 1979.

6. King, Leslie, J., Central Place Theory, Saga Publications, New Delhi, 1986.

**REFERENCE BOOKS:**
1. Mayer, M. Harold and Clyde F. Kohn (Ed.) Readings in urban Geography, Central Book Depot, Allahabad, 1967.
2. Mitra, Asok, Mukherjee S and Bose, R.,: Indian Cities Abhinav Publications, New Delhi, 1980.
3. Nangia, Sudesh, Delhi Metrpolitan Region, K.B. Publications, New Delhi, 1976.
4. Prakasa, Rao, V. L. S., Urbanization in India: Spatial Dimensions, Concept Publishing Co., New Delhi, 1992.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | understand the significance and recent trends in settlements geography. | K2 |
| CO2 | access the functional classification of the settlements. | K2 |
| CO3 | establish the relationship between house types with relief, climate, and building materials | K3 |
| CO4 | evaluate the urban settlements and imphological Indian cities. | K5 |
| CO5 | analyse the theories of urban settlements and selected Indian cities. | K4 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 2 |

**\*Strongly Correlating – 3**  **Moderately Correlating – 2**
**Weekly Correlating – 1**  **No Correlation – 0**

| Course Code | P21GEE421 | CHOICE -I | L | T | P | C |
|---|---|---|---|---|---|---|
| **ELECTIVE – II** | | **GEOGRAPHY OF ECONOMIC ACTIVITIES** | 4 | - | - | 4 |

**Learning Objectives:**

1. Students will learn the Economic activities.
2. Students will learn the World industrial regions.
3. Students will learn the Communication technology.
4. Students Will learn the Measures and indices of connectivity and accessibility
5. Students will learn the World trade pattern.

**UNIT I**  **Economic Activities and Natural Resource**
Economic Geography – Economic activities – Primary – secondary – tertiary and Quaternary activities – Natural resources – classification – World distribution and associated problems – resource management.

**UNIT II**  **Industrial Location Theories**
Classification of industries – factors affecting location of industries – world industrial regions – tourism industry potentials and problems.

**UNIT III**  **Transport and Spatial Organization**
World distribution and growth on information and communication technology – spatial interaction ideas of Edward Ullman, functional approach of M.E.Hurst, Models of transport and transport cost.

**UNIT IV**  **Notion of Accessibility and Network Models**
Measures and indices of connectivity and accessibility, spatial flow models – gravity model and its variants – allocation models.

**UNIT V**  **Globalization and World Trade Pattern**
World Trade Organizations, Globalization and liberation and world trade patterns – problems and prospects of inter and intra-regional co – operation and trade.

**TEXT 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, Sivalalagrawal and company, Agra 1995

**REFERENCE BOOKS:**

1. Tirtha, Geography of India, 1996
2. Dubey and Negi – economic and commercial geography 1999

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | gain factual knowledge about the primary, secondary, tertiary, and quaternary activities. | K2 |
| CO2 | have an effective Understand the classification of industries, factors affecting location of industries and tourism industry potential and problems. | K2 |
| CO3 | have the basic knowledge of the spatial interaction ideas of Edward Ullman, functional approach of M.E.Hurst, Models of transport and transport cost. | K2 |
| CO4 | learn and understand the spatial flow models, gravity model and it's variation and allocation models. | K2 |
| CO5 | understand the World Trade Organizations, Globalization and Liberation and prospects of inter and intra-regional co-operation and trade. | K2 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**Strongly Correlating – 3**                    **Moderately Correlating – 2**
  **Weekly Correlating – 1**                      **No Correlation – 0**

| Course Code | P21GEE422 | CHOICE -II | L | T | P | C |
|---|---|---|---|---|---|---|
| ELETIVE –II | | ENVIRONMENTAL GEOGRAPHY | 4 | - | - | 4 |

**Learning Objectives:**

1. Understand the natural interactions within our environment.
2. Students will also learn the Ecosystem, Biomes and biodiversity.
3. The students will have a basic knowledge of Natural disruptions of the ecosystem.
4. Integrate this understanding with the uses that humans make of the natural world and their impacts.
5. Explaining the Environment related policies and programmes in India.

**UNIT I    Introduction of Environment**

Elements and Types Man and environment relationships – determinism – possibilism, changing nature of concept – lithosphere – hydrosphere – biosphere – multi disciplinary approach

**UNIT II    Concept of Ecosystem**

Ecosystem – structure – classification – Biomes – functioning of the ecosystem – food web – food pyramid – nutrient cycle – biodiversity – types.

**UNIT III    Natural disruptions of the ecosystem**

Natural hazards – land slide, earth quake, volcano, floods, droughts, pollution, human interference on ecosystem – population growth and its impact – Man's modifications of the biosphere – agriculture – Green Revolution – HYV and pesticides – mining, soils – coastal areas.

**UNIT IV    Environmental Planning and Management**

Objectives and strategies, natural resource management and conservation (land, water and forest) – sustainable development concept, need, problems and strategies – EIA principles and procedures.

**UNIT V    Environmental Programme and Policies**

The Stockholm conference, the earth summits and round tables, climate change (causes and consequences), Kyoto Protocol, world climate data monitoring programme (WCD MP) Environment related policies and programmes in India pertaining to wild life, water, forest and environment; Environment Governances

**TEXT BOOKS:**

1. Anderson J.M. Ecology for Environmental Science: Biosphere, Ecosystems and Man, Arnold, London, 1981.
2. Balakrishnan, M., Environmental Problems and Prospects in India, in Das, R.C., et. al. Oxford & IBH Pub., New Delhi, 1998.
3. Canter Chary, L. W. Environmental Impact Assessment, 2nd edition, McGraw Hill, New York, 1996.
4. Chichester: Marsh, W.M. and Grossa, J.M., Environmental Geography: Science, Land use and Earth Systems, John Wiley & Sons, 1996.

5. Das, M.C., Fundamentals of Ecology, Tata Mc Graw Hill, New Delhi, 1993.

6. Farmer, A. Managing Environmental Pollution, Routledge, London, 1997.

**REFERENCE BOOKS:**
1. Gilpin, A. Dictionary of Environment and Sustainable Development, John Wiley and Sons Ltd., 1996.

2. Goudie, Andrew, The Nature of the Environment, Oxford Katerpring Co. Ltd. Huggett, R.J. 2002. Fundamentals of Biogeography, Routledge, London & New York, 1984.

3. Nobel and Wright, Environmental Science, Prentice Hall, New York, 1996.

**4.** Odum, E.P. Fundamental of Ecology, W.B. Sanders, Philadelphia, 1971**.**

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| **CO1** | Students will be learning about the Man and environment relationships, biosphere and multi-disciplinary approach. | **K2** |
| **CO2** | Students will be able to Ecosystem, classification and functioning of the ecosystem. | **K2** |
| **CO3** | Students will be able to discuss the natural hazards and Man's modifications of the biosphere. | **K4** |
| **CO4** | Able to apply principles and procedures. | **K3** |
| **CO5** | Able to apply Environment Governances. | **K5** |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| **CO2** | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| **CO3** | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| **CO4** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| **CO5** | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                                        **Moderately Correlating - 2**
**Weekly Correlating – 1**                                            **No Correlation          - 0**

| Course Code | P21GEE423 | NATURAL DISASTER MANAGEMENT | L | T | P | C |
|---|---|---|---|---|---|---|
| ELETIVE –II | | | 4 | - | - | 4 |

**Learning Objectives:**
1. Provide prevention and mitigation strategies for common natural disasters.
2. Identify the types of illnesses and injuries commonly seen in natural disasters
3. Discuss actions to take to protect health, safety, and security of responders and affected populations in natural disasters
4. Describe clinical management guidance for injuries and illnesses seen in common natural disasters.
5. Students will be lean about political administrative aspects, social aspect, economic aspect, cultural aspect and environmental aspects.

**UNIT I**     **Environment hazards &Disasters**
Meaning & approaches, Causes and consequences of disaster: Physical, economic and cultural, National and International organizations Into disaster management. Types of environmental hazards and disaster: Natural disaster- Earthquake, tsunamis, landslides, volcanic eruption, cyclones, tornados, floods, droughts, heat waves and cold waves. Man induced hazards-Soil erosion, release of toxic chemicals, nuclear explosion, population explosion and resultant environmental disasters.

**UNIT II**     **Emerging approaches to Disaster management**
(1)Pre-disaster stage (Preparedness)- hazard zonation maps-predictability and forecasting warning, land use zoning, Information, Education & Communication (IEC) Disaster resistance house construction, Population reduction in vulnerable area and awareness. (2) Emergency Stage- Rescue training for search and operation at national and regional level, ground management plan preparation, immediate relief, Assessment surveys. (3) Post disaster stage rehabilitation

**UNIT III**     **Social and Political Aspects**
Political administrative aspects, social aspect, economic aspect, cultural aspect and environmental aspects.

**UNIT IV**     **Natural Disaster mitigation**
Relief measure, role of GIS in Relief measures, role of GPS in search and rescue, role of Remote sensing in prediction of hazards and disasters, measures of adjustment of natural    hazards.

**UNIT V**     **Disaster in Indian Context**
A regional survey of Land Subsidence, Coastal Disaster, Cyclonic Disaster & Disaster in Hills, terror attacks, communal clashes, Remedial measures. National and international policies for disaster management.

**TEXT BOOKS**
1. R.B. Singh (Ed), Environmental Geography, Heritage Publishers New Delhi, 1990.
2. Savinder Singh, Environmental Geography, Prayag Pustak Bhawan, 1997.
3. Kates, B.I & White, G.F The Environment as Hazards, oxford, New York, 1978.
4. R.B. Singh (Ed), Disaster Management, Rawat Publication, New Delhi, 2000.
5. H.K. Gupta (Ed), Disaster Management, Universities Press, India, 2003.
6. R.B. Singh, Space Technology for Disaster Mitigation in India (INCED), University of Tokyo, 1994.

**REFERENCE BOOKS**
1. Dr. Satender, Disaster Management t in Hills, Concept Publishing Co., New Delhi, 2003.
2. A.S. Arya Action Plan For Earthquake, Disaster, Mitigation in V.K. Sharma (Ed) , Disaster Management IIPA Publication New Delhi, 1994.
3. M.C. Gupta, Manuals on Natural Disaster management in India, National Centre for Disaster Management, IIPA, New Delhi, 2001.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | Identify major natural disaster | K2 |
| CO2 | Analyze the causes and consequence of disaster | K2 |
| CO3 | Execute different preventing methods | K3 |
| CO4 | Connect real world with methods | K4 |
| CO5 | Students will be acquiring knowledge about the National and international policies for disaster management. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**                **Moderately Correlating – 2**
 **Weekly Correlating – 1**                **No Correlation– 0**

| Course Code | P21GEE424 | GEOGRAPHY OF TOURISM | L | T | P | C |
|---|---|---|---|---|---|---|
| ELETIVE –II | | | 4 | - | - | 4 |

**Learning Objectives:**

1. Understanding the different dimensions of tourism and their interrelationships.
2. Learn recent trends and dynamics of tourism in the context of globalization and sustainability.
3. Explain the location factors tourism activities.
4. Knowing the geographical, social, economic, political, cultural particularities of tourism resources and destinations.
5. Understand the interrelationships of tourism with environmental processes that interact at local, regional and global scale, with particular attention to the effects of climate change and biodiversity loss.

**UNIT I    Geography of Tourism**

Definition, Nature, Scope and Extent. Concept of Tourism, Importance of Tourism. Relationship between Geography and Tourism, Tourism Promotion – Ecotourism, Agro – tourism, Heritage tourism and Adventure tourism. Factors affecting Tourism – Physical and Cultural factors. Tourism motivation, tourism as an industry.

**UNIT II    The Classification of Tourism and Tourists**

Types of Tourism – Domestic and International Tourism – Adventure, Wildlife, Medical, Pilgrimage, Business, Leisure, Pleasure, Eco and Cultural Tourisms. Comparison between Mass and Alternative Tourism.  Tourists types – Local, National and International. Impact of Tourism – Economic Impact, Physical and Environmental Impact, Socio-Cultural Impact.

**UNIT III    Infrastructural Approach for the development of Tourism**

Mode of transportation, Agencies, Guides, License, Hotels, Resorts, Youth Hostels, Home stays, Govt. TB,. Role of Foreign Capital and Impact of Globalization on Tourism, Environmental Law and Tourism Government Policies for Planning and Promotion of Tourism in India. State level tourism planning in India with special reference to Karnataka.

**UNIT IV    Case Studies**

Major Tourist Centers. Hill Station – Mount Abu, Shimla, Kudhuremukha. Beach Points – Mangalore, Vizag, Pangim, Marino Beach. Historical centers – Badami, Bijapur, Mysore, Ellora and Tajmahal.

**UNIT V    Religious Centers**

Shiradi, Kanyakumari, Tirupathi and Dhamastala. Dams - T B Dam, Bhakranangal, DVP. National Parks – Dachigam National Park, Gir National Park, Nanda Devi National park, Periyar National park.

**TEXT BOOKS:**
1. Bhatia A.K, Tourism Development: Principles and Practices. Sterling Publishers, New Delhi, 1996.
2. Inskeep. E, Tourism Planning: An Integrated and Sustainable Development Approach Van, 1991.
3. Kaul R.K, Dynamics of Tourism and Recreation, Inter- India, New Delhi, 1985.
4. Kaur, J. Himalayan Pilgrimages and New Tourism, Himalayan Books, New Delhi, 1985.

**REFERENCE BOOKS:**
1. Lea, J. Tourism and development in the third world, 1988
2. Milton, D., Geography of World Tourism, Prentice Hall, New York, 1993
3. Peace, D. G, Tourism To-Day: A geographical Analysis, Harlwo, Longman, 1987.
4. Robinson, H. A. A geography of tourism, McDonald and Evans, London, 1996.
5. Sharma,J.K, Tourism, Planning & Development–A new perspective Kanishka, 2000.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | understand spatial distribution of resources in the evolution of tourism. | K2 |
| CO2 | critique worldwide economic, cultural, political and technological exchanges and connections that tourism brings. | K2 |
| CO3 | rate tourism as a key sustainable sector in country's economic growth | K4 |
| CO4 | design sustainable tourism management plan using GST for tourism development. | K4 |
| CO5 | evaluate socio-cultural, economic and environmental impacts of tourism. | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**Outcome Mapping:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

**\*Strongly Correlating – 3**          **Moderately Correlating – 2**
**Weekly Correlating– 1**                **No Correlation – 0**

| Course Code | P21GEV11 | THEMATIC CARTOGRAPHY | L | T | P | C |
|---|---|---|---|---|---|---|
| VALUE ADDED PROGRAM I | | | 2 | - | - | 2 |

**Learning Objectives**:
1. Students have gained understanding of the purposes of cartography, recognize the elements of cartographic representation, and how maps work
2. Students gained understanding of the theory and principles of cartography and their relationship to practice
3. The main purpose of geography is to show different phenomena whether it cultural or physical on maps, therefore showing things on maps is main purpose of geographers.
4. This paper deals with conducting survey by different methods and preparation of maps.
5. Will become able to make graphical representation of world map.

**UNIT I** **Map Compilation and Generalization**
Map Generalization – Map Compilation – Scale Conversion

**UNIT II** **Representation of Relief**
Methods of Depiction of Relief – Spot Height – Bench Mark – Triangulation Station – Hachuring – Hill shading – Layer Tinting

**UNIT III** **Statistical Data Analysis and Mapping**
Representation of Statistical data into Thematic maps – Point symbol Maps – Line symbol Maps – Area symbol Maps – Volume symbols Maps

**UNIT IV** **Interpretation of SOI Map**
Survey of India Topographical Sheet – Cartographic Appreciation of Survey of India – Detailed interpretation of Survey of India

**UNIT V** **Interpretation of British and US Maps**
Interpretation of British and US maps – British Ordnance Survey - US Geological Survey maps

**TEXT BOOKS:**
1. Monkhouse, F.J. and Wilkinson, H.R, Maps and Diagrams (3rd Edition). Methuen & Co., London, 1971.
2. Khan, M.Z.A. Text Book of Practical Geography. Concept Publishing Company, New Delhi, 1998.
3. Negi, B.S. Practical Geography. Kedarnath and Ramnath, Meerut, 1998.

**REFERENCE BOOKS:**

1. Singh, G. Map Work and Practical Geography (3rd Edition). Vikas Publishing House Pvt. Ltd., New Delhi, 1995.
2. Khullar, D.R. Essentials of Practical Geography. New Academic Publishing Co., Jalandhar, 2004.

3. Robinson, H. Elements of Cartography (6th Edition), John Wiley and Sons, New York, 1995.

**Learning Outcomes:**

| CO | After the completion of the course, students will be able to | Remarks |
|----|--------------------------------------------------------------|---------|
| CO1 | have gives clear idea regarding different types of maps and different map making processes | K2 |
| CO2 | draw the map generalization and compilation | K2 |
| CO3 | acquire practical knowledge for construction and interpretation of relief, spot height, bench mark, triangulation and layer tinting | K4 |
| CO4 | study and interpret the thematic maps | K4 |
| CO5 | develop world demarcation maps based on British and US map | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**Outcome Mapping:**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|-------|-----|-----|-----|-----|-----|------|------|------|------|------|
| CO1 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 |

**\*Strongly Correlating – 3**              **Moderately Correlating – 2**
**Weekly Correlating – 1 No Correlation– 0**

| Course Code | **P21GEV41** | **APPLICATION OF SPSS IN GEOGRAPHY** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|---|
| **VALUEA ADDED II** | | | **2** | **-** | **-** | **2** |

**Learning Objectives**:

1. The main objective of the course is to impart adequate professional knowledge and computer skills so as to enable the students to take up career in the field of Geospatial Technology.

2. This paper deals with the analysis of statistical data.

3. Deals with the statistical data representation (median and mode; NN Analysis; Principal component analysis).

4. Student can apply this map making process in practical base research work and they can further prepare more accurate and précised map by applying different quantitative method

5. Skill of drawing of map, graph, diagrams and scale

**UNIT I     Spatial analysis**
Centro graphic analysis – Mean center – Weighted mean center – Standard distance – Nearest Neighbor analysis.

**UNIT II     Measures of Central Tendency**
Measures of central tendency – mean, median and mode – standard deviation– coefficient of variation.

**UNIT III     Measures of Dispersion**
Measures of dispersion–Correlation – Linear regression analysis – Residual mapping – Factor analysis – ANOVA.

**UNIT IV     Hypothesis Testing**
Hypothesis Testing – Parametric and Non–parametric test – Chi-Square testing, F–test and T–test.

**UNIT V     GIS Data Analysis**
GIS – Georeferencing – Digitization – Queries – Buffering - Overlay Analysis – Interpolation – Map layout.

**TEXT BOOKS:**
1. Aslam Mahmood, and Moonis Raza, Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi, 1986.
2. David Unwin - Introductory Spatial Analysis, Methuen, London, 1981.
3. Gregory S. - Statistical Methods and the Geographer, Longman, London, 1978

**REFERENCE BOOKS:**

1. Hammond R and P.S. McCullagh - Quantitative Techniques in Geography, An Introduction, Clarendan Press, Oxford, 1974.
2. John P. Cole and Cuchlaine A. M. King, Quantitative Geography, John Wiley, London, 1968.

3. Johnston R. J., Multivariate Statistical Analysis in Geography, Longman, London. 1973.

**LEARNING OUTCOMES:**

| CO | After the completion of the course, students will be able to | Remarks |
|---|---|---|
| CO1 | understand Modern science and technology that have made tremendous progress in all possible fields. | K2 |
| CO2 | get knowledge about statistical methods. | K3 |
| CO3 | develop their quantitative application in geographical study which gives more accuracy in any geographical enquiry which can further helps students in conducting research activities. | K4 |
| CO4 | create digital maps in formats reflecting the purpose, content and function of input data | K4 |
| CO5 | use GIS software to produce accurate, appropriate, convincing and creative maps and graphics | K5 |

**\*K1**– Remember, **K2**– Understand, **K3**– Apply, **K4** – Analyze, **K5**– Evaluate

**OUTCOME MAPPING**

| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| CO3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 |

**\*Strongly Correlating – 3**       **Moderately Correlating – 2**
 **Weekly Correlating – 1**        **No Correlation – 0**

**\*\*\*\*\*\*\***