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| B.sc.,  GEOGRAPHY |
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| |  | | --- | | **SYLLABUS** | | **fROM the academic year**  **2023-2024** | |
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| **TAMILNADU STATE COUNCIL FOR HIGHER EDUCATION, CHENNAI – 600 005** |
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| **LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK GUIDELINES BASED REGULATIONS FOR UNDER GRADUATE PROGRAMME** | |
| **Programme:** | **B.Sc. GEOGRAPHY** |
| **Programme Code:** |  |
| **Duration:** | **3 Years (UG)** |
| **Programme Outcomes:** | **PO1: Disciplinary knowledge:** Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate Programme of study  **PO2: Communication Skills:** Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one’s views and express herself/himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups.  **PO3: Critical thinking:** Capability to apply analytic thought to a body of knowledge; analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development.  **PO4: Problem solving: Capacity** to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one’s learning to real life situations.  **PO5: Analytical reasoning**: Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints.  **PO6: Research-related skills**: A sense of inquiry and capability for asking relevant/appropriate questions, problem arising, synthesising and articulating; Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the results of an experiment or investigation  **PO7: Cooperation/Team work:** Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team  **PO8: Scientific reasoning**: Ability to analyse, interpret and draw conclusions from quantitative/qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective.  **PO9: Reflective thinking**: Critical sensibility to lived experiences, with self awareness and reflexivity of both self and society.  **PO10 Information/digital literacy:** Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.  **PO 11 Self-directed learning**: Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion.  **PO 12 Multicultural competence:** Possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully with diverse groups.  **PO 13: Moral and ethical awareness/reasoning**: Ability toembrace moral/ethical values in conducting one’s life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demonstratingthe ability to identify ethical issues related to one‟s work, avoid unethical behaviour such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights; appreciating environmental and sustainability issues; and adopting objective, unbiased and truthful actions in all aspects of work.  **PO 14: Leadership readiness/qualities:** Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.  **PO 15: Lifelong learning:** Ability to acquire knowledge and skills, including „learning how to learn‟, that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/reskilling. |
| **Programme Specific Outcomes:** | On successful completion of Bachelor of Physics with Computer Applications programme, the student should be able to:  **PSO1: Disciplinary Knowledge:** Understand the fundamental principles, concepts, and theories related to physics and computer science. Also, exhibit proficiency in performing experiments in the laboratory.  **PSO2: Critical Thinking:** Analyse complex problems, evaluate information, synthesize information, apply theoretical concepts to practical situations, identify assumptions and biases, make informed decisions and communicate effectively  **PSO3: Problem Solving:** Employ theoretical concepts and critical reasoning ability with physical, mathematical and technical skills to solve problems, acquire data, analyze their physical significance and explore new design possibilities.  **PSO4: Analytical & Scientific Reasoning:** Apply scientific methods, collect and analyse data, test hypotheses, evaluate evidence, apply statistical techniques and use computational models.  **PSO5: Research related skills:** Formulate research questions, conduct literature reviews, design and execute research studies, communicate research findings and collaborate in research projects.  **PSO6: Self-directed & Lifelong Learning:** Set learning goals, manage their own learning, reflect on their learning, adapt to new contexts, seek out new knowledge, collaborate with others and to continuously improve their skills and knowledge, through ongoing learning and professional development, and contribute to the growth and development of their field. |

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| **PO/PSO** | **PSO1** | **PSO2** | **PSO3** | **PSO4** | **PSO5** | **PSO6** |
| **PO1** |  |  |  |  |  |  |
| **PO2** |  |  |  |  |  |  |
| **PO3** |  |  |  |  |  |  |
| **PO4** |  |  |  |  |  |  |
| **PO5** |  |  |  |  |  |  |
| **PO6** |  |  |  |  |  |  |

**2. Highlights of the Revamped Curriculum**:

* Student-centric, meeting the demands of industry & society, incorporating industrial components, hands-on training, skill enhancement modules, industrial project, project with viva-voce, exposure to entrepreneurial skills, training for competitive examinations, sustaining the quality of the core components and incorporating application oriented content wherever required.
* The Core subjects include latest developments in the education and scientific front, advanced programming packages allied with the discipline topics, practical training, devising statistical models and algorithms for providing solutions to industry / real life situations. The curriculum also facilitates peer learning with advanced statistical topics in the final semester, catering to the needs of stakeholders with research aptitude.
* The General Studies and Statistics based problem solving skills are included as mandatory components in the ‘Training for Competitive Examinations’ course at the final semester, a first of its kind.
* The curriculum is designed so as to strengthen the Industry-Academia interface and provide more job opportunities for the students.
* The Statistical Quality Control course is included to expose the students to real life problems and train the students on designing a mathematical model to provide solutions to the industrial problems.
* The Internship during the second year vacation will help the students gain valuable work experience, that connects classroom knowledge to real world experience and to narrow down and focus on the career path.
* Project with viva-voce component in the fifth semester enables the student, application of conceptual knowledge to practical situations. The state of art technologies in conducting a Explain in a scientific and systematic way and arriving at a precise solution is ensured. Such innovative provisions of the industrial training, project and internships will give students an edge over the counterparts in the job market.
* State-of Art techniques from the streams of multi-disciplinary, cross disciplinary and inter disciplinary nature are incorporated as Elective courses, covering conventional topics to the latest DBMS and Computer software for Analytics.

**Value additions in the Revamped Curriculum:**

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| --- | --- | --- |
| Semester | Newly introduced Components | Outcome / Benefits |
| I | **Foundation Course**  To ease the transition of learning from higher secondary to higher education, providing an overview of the pedagogy of learning abstract Statistics and simulating mathematical concepts to real world. | * Instil confidence among students * Create interest for the subject |
| I, II, III, IV | **Skill Enhancement papers** (Discipline centric / Generic / Entrepreneurial) | * Industry ready graduates * Skilled human resource * Students are equipped with essential skills to make them employable |
| * Training on Computing / Computational skills enable the students gain knowledge and exposure on latest computational aspects |
| * Data analytical skills will enable students gain internships, apprenticeships, field work involving data collection, compilation, analysis etc. |
| * Entrepreneurial skill training will provide an opportunity for independent livelihood * Generates self – employment * Create small scale entrepreneurs * Training to girls leads to women empowerment |
| * Discipline centric skill will improve the Technical knowhow of solving real life problems using ICT tools |
| III, IV, V & VI | Elective papers-  An open choice of topics categorized under Generic and Discipline Centric | * Strengthening the domain knowledge * Introducing the stakeholders to the State-of Art techniques from the streams of multi-disciplinary, cross disciplinary and inter disciplinary nature * Students are exposed to Latest topics on Computer Science / IT, that require strong statistical background * Emerging topics in higher education / industry / communication network / health sector etc. are introduced with hands-on-training, facilitates designing of statistical models in the respective sectors |
| IV | DBMS and Programming skill, Biostatistics, Statistical Quality Control, Official Statistics, Operations Research | * Exposure to industry moulds students into solution providers * Generates Industry ready graduates * Employment opportunities enhanced |
| II year Vacation activity | Internship / Industrial Training | * Practical training at the Industry/ Banking Sector / Private/ Public sector organizations / Educational institutions, enable the students gain professional experience and also become responsible citizens. |
| V Semester | Project with Viva – voce | * Self-learning is enhanced * Application of the concept to real situation is conceived resulting in tangible outcome |
| VI Semester | Introduction of  Professional Competency component | * Curriculum design accommodates all category of learners; ‘Statistics for Advanced Explain’ component will comprise of advanced topics in Statistics and allied fields, for those in the peer group / aspiring researchers; * ‘Training for Competitive Examinations’ –caters to the needs of the aspirants towards most sought - after services of the nation viz, UPSC, ISS, CDS, NDA, Banking Services, CAT, TNPSC group services, etc. |
| Extra Credits:  For Advanced Learners / Honors degree | | * To cater to the needs of peer learners / research aspirants |

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| **Skills acquired from the Courses** | Knowledge, Problem Solving, Analytical ability, Professional Competency, Professional Communication and Transferrable Skill |

**Credit Distribution for UG Programmes**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sem I** | **Credit** | **H** | **Sem II** | **Credit** | **H** | **Sem III** | **Credit** | **H** | **Sem IV** | **Credit** | **H** | **Sem V** | **Credit** | **H** | **Sem VI** | **Credit** | **H** |
| Part 1. Language – Tamil | 3 | 6 | Part..1. Language – Tamil | 3 | 6 | Part..1. Language – Tamil | 3 | 6 | Part..1. Language – Tamil | 3 | 6 | 5.1 Core Course –\CC IX | 4 | 5 | 6.1 Core Course –  CC XIII | 4 | 6 |
| Part.2 English | 3 | 6 | Part..2 English | 3 | 6 | Part..2 English | 3 | 6 | Part..2 English | 3 | 6 | 5.2 Core Course – CC X | 4 | 5 | 6.2 Core Course –  CC XIV | 4 | 6 |
| 1.3 Core Course – CC I | 5 | 5 | 2..3 Core Course – CC III | 5 | 5 | 3.3 Core Course – CC V | 5 | 5 | 4.3 Core Course – CC VII  Core Industry Module | 5 | 5 | 5. 3.Core Course CC -XI | 4 | 5 | 6.3 Core Course –  CC XV | 4 | 6 |
| 1.4 Core Course – CC II | 5 | 5 | 2.4 Core Course – CC IV | 5 | 5 | 3.4 Core Course – CC VI | 5 | 5 | 4.4 Core Course –  CC VIII | 5 | 5 | 5. 4.Core Course –/ Project with viva- voce  CC -XII | 4 | 5 | 6.4 Elective -VII Generic/ Discipline Specific | 3 | 5 |
| 1.5 Elective I Generic/ Discipline Specific | 3 | 4 | 2.5 Elective II Generic/ Discipline Specific | 3 | 4 | 3.5 Elective III Generic/ Discipline Specific | 3 | 4 | 4.5 Elective IV Generic/ Discipline Specific | 3 | 3 | 5.5 Elective V Generic/ Discipline Specific | 3 | 4 | 6.5 Elective VIII  Generic/ Discipline Specific | 3 | 5 |
| 1.6 Skill Enhancement Course SEC-1 | 2 | 2 | 2.6 Skill Enhancement Course SEC-2 | 2 | 2 | 3.6 Skill Enhancement Course SEC-4,  (Entrepreneurial Skill) | 1 | 1 | 4.6 Skill Enhancement Course SEC-6 | 2 | 2 | 5.6 Elective VI Generic/ Discipline Specific | 3 | 4 | 6.6 Extension Activity | 1 | - |
| 1.7 Skill Enhancement -(Foundation Course) | 2 | 2 | 2.7 Skill Enhancement Course –SEC-3 | 2 | 2 | 3.7 Skill Enhancement Course SEC-5 | 2 | 2 | 4.7 Skill Enhancement Course SEC-7 | 2 | 2 | 5.7 Value Education | 2 | 2 | 6.7 Professional Competency Skill | 2 | 2 |
|  |  |  |  |  |  | 3.8 E.V.S. | - | 1 | 4.8 E.V.S | 2 | 1 | 5.8 Summer Internship /Industrial Training | 2 |  |  |  |  |
|  | **23** | **30** |  | **23** | **30** |  | **22** | **30** |  | **25** | **30** |  | **26** | **30** |  | **21** | **30** |
| **Total – 140 Credits** | | | | | | | | | | | | | | | | | |

**Choice Based Credit System (CBCS), Learning Outcomes Based Curriculum Framework (LOCF) Guideline Based Credit and Hours Distribution System**

**for all UG courses including Lab Hours**

**First Year – Semester-I**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **No. of Hours** |
| Part-1 | Language – Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Courses & Elective Courses [in Total] | 13 | 14 |
| Part-4 | Skill Enhancement Course SEC-1 | 2 | 2 |
| Foundation Course | 2 | 2 |
|  |  | **23** | **30** |

**Semester-II**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **No. of Hours** |
| Part-1 | Language – Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Courses & Elective Courses including laboratory [in Total] | 13 | 14 |
| Part-4 | Skill Enhancement Course -SEC-2 | 2 | 2 |
| Skill Enhancement Course -SEC-3 (Discipline / Subject Specific) | 2 | 2 |
|  |  | **23** | **30** |

**Second Year – Semester-III**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **No. of Hours** |
| Part-1 | Language - Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Courses & Elective Courses including laboratory [in Total] | 13 | 14 |
| Part-4 | Skill Enhancement Course -SEC-4 (Entrepreneurial Based) | 1 | 1 |
| Skill Enhancement Course -SEC-5 (Discipline / Subject Specific) | 2 | 2 |
| E.V.S | - | 1 |
|  |  | **22** | **30** |

**Semester-IV**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **No. of Hours** |
| Part-1 | Language - Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Courses & Elective Courses including laboratory [in Total] | 13 | 13 |
| Part-4 | Skill Enhancement Course -SEC-6 (Discipline / Subject Specific) | 2 | 2 |
| Skill Enhancement Course -SEC-7 (Discipline / Subject Specific) | 2 | 2 |
| E.V.S | 2 | 1 |
|  |  | **25** | **30** |

**Third Year**

**Semester-V**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **No. of Hours** |
| **Part-3** | Core Courses including Project / Elective Based | 22 | 26 |
| **Part-4** | Value Education | 2 | 2 |
| Internship / Industrial Visit / Field Visit | 2 | 2 |
|  |  | **26** | **30** |

**Semester-VI**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **No. of Hours** |
| **Part-3** | Core Courses including Project / Elective Based & LAB | 18 | 28 |
| **Part-4** | Extension Activity | 1 | - |
| Professional Competency Skill | 2 | 2 |
|  |  | **21** | **30** |

**Consolidated Semester wise and Component wise Credit distribution**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Parts** | **Sem I** | **Sem II** | **Sem III** | **Sem IV** | **Sem V** | **Sem VI** | **Total Credits** |
| **Part I** | 3 | 3 | 3 | 3 | - | - | 12 |
| **Part II** | 3 | 3 | 3 | 3 | - | - | 12 |
| **Part III** | 13 | 13 | 13 | 13 | 22 | 18 | 92 |
| **Part IV** | 4 | 4 | 3 | 6 | 4 | 1 | 22 |
| **Part V** | - | - | - | - | - | 2 | 2 |
| **Total** | 23 | 23 | 22 | 25 | 26 | 21 | **140** |

**\*Part I. II, and Part III components will be separately taken into account for CGPA calculation and classification for the under graduate programme and the other components. IV, V have to be completed during the duration of the programme as per the norms, to be eligible for obtaining the UG degree.**

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| **Methods of Evaluation** | | |
| **Internal Evaluation** | Continuous Internal Assessment Test | 25 Marks |
| Assignments |
| Seminars |
| Attendance and Class Participation |
| **External Evaluation** | End Semester Examination | 75 Marks |
|  | Total | 100 Marks |
| **Methods of Assessment** | | |
| **Recall (K1)** | Simple definitions, MCQ, Recall steps, Concept definitions | |
| **Understand/ Comprehend (K2)** | MCQ, True/False, Short essays, Concept explanations, Short summary or  overview | |
| **Application (K3)** | Suggest idea/concept with examples, Suggest formulae, Solve problems,  Observe, Explain | |
| **Analyze (K4)** | Problem-solving questions, Finish a procedure in many steps, Differentiate | |
|  | between various ideas, Map knowledge | |
| **Evaluate (K5)** | Longer essay/ Evaluation essay, Critique or justify with pros and cons | |
| **Create (K6)** | Check knowledge in specific or offbeat situations, Discussion, Debating or  Presentations | |

**First Year**

**Semester-I**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **H** |
| Part-1 | Language -Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Course – CC I **Fundamentals of Geomorphology** | 5 | 5 |
| Core Course – CC II **Cartography** | 5 | 5 |
| Elective Generic/ Discipline Specific Elective-I  **Earth and its Systems** | 3 | 4 |
| Part-4 | Skill Enhancement CourseSEC-1 (NME)  Basic Geography for Non Geographers | 2 | 2 |
| Skill Enhancement **Mapping Techniques** | 2 | 2 |
|  |  | **23** | **30** |

**First Year**

**Semester-II**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **H** |
| Part-1 | Language -Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Course – CC III **Climatology** | 5 | 5 |
| Core Course – CC IV  **Human Geography** | 5 | 5 |
| Elective Generic/ Discipline Specific Elective-II | 3 | 4 |
| Part-4 | Skill Enhancement Course -SEC-2 (NME) **Trends in Geography** | 2 | 2 |
| Skill Enhancement Course –SEC-3 **Representation of Relief Features** | 2 | 2 |
|  |  | **23** | **30** |

**Second Year**

**Semester-III**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **H** |
| Part-1 | Language -Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Course – CC V **Economic Geography** | 5 | 5 |
| Core Course – CC VI **Oceanography** | 5 | 5 |
| Elective Generic/ Discipline Specific Elective-III | 3 | 4 |
| Part-4 | Skill Enhancement Course-SEC-4 (Entrepreneurial Skill) | 1 | 1 |
| Skill Enhancement Course SEC-5  **Representation of Socio Economic and Climatic Data** | 2 | 2 |
| Skill Enhancement Course  **Basic Meteorologist Project (Observing weather elements for a month and Preparation of Weather Chart and Report)** | - | 1 |
| E.V.S | **-** | **1** |
|  |  | **22** | **30** |

**Second Year**

**Semester-IV**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **H** |
| Part-1 | Language -Tamil | 3 | 6 |
| Part-2 | English | 3 | 6 |
| Part-3 | Core Course – CC VII **Geography of India** | 5 | 5 |
| Core Course – CC VIII Population and **Settlement Geography** | 5 | 5 |
| Elective Generic/ Discipline Specific Elective-IV | 3 | 3 |
| Skill Enhancement CourseSEC-6  **Statistical Applications for Geography** | 2 | 2 |
| Skill Enhancement Course SEC-7  **Surveying and Projections for Geography** | 2 | 2 |
| Skill Enhancement Course Soft Skill-4  Preparation of chart as Rural and Urban Activities | 2 | 1 |
| E.V.S | **25** | **30** |
|  |  |  |  |

**Third Year - Semester-V**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **H** |
| **Part-3** | Core Course – CC IX **World Regional Geography** | 4 | 5 |
| Core Course – CC X **Geography of Tamilnadu with special reference to specific region** | 4 | 5 |
| Core Course CC –XI **Basics of GIS** | 4 | 5 |
| **Core Course –/ Project with viva- voce CC -XII** | 4 | 5 |
| Elective Generic/ Discipline Specific Elective –V Geography of Health | 3 | 4 |
| Elective Generic/ Discipline Specific Elective –VI  Bio Geography | 3 | 4 |
| **Part-4** | Value Education | 2 | 2 |
| Summer Internship /Industrial Training  Industrial Training and Internship | 2 |  |
|  |  | **26** | **30** |
|  |  |  |  |

**Third Year**

**Semester-VI**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **List of Courses** | **Credit** | **No. of Hours** |
| **Part-3** | Core Course – CC XIII **Remote sensing and GNSS** | 4 | 6 |
| Core Course – CC XIV **Social and Cultural Geography** | 4 | 6 |
| Core Course – CC XV **Political Geography** | 4 | 6 |
| Elective Generic/ Discipline Specific Elective –VII Geography of Tourism | 3 | 5 |
| Elective Generic/ Discipline Specific Elective -V III Transport Geography | 3 | 5 |
| **Part-4** | Extension Activity | 1 |  |
| Professional Competency Skill | 2 | 2 |
|  | **Cartographic Appreciation and Interpretation of Maps and Images** |  |  |
|  | **Geo Spatial Techniques** |  |  |
|  |  | 21 | 30 |

**Credit Distribution for all UG other than B.Com, BBA and BCA**

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| --- | --- | --- | --- |
| **S.No** | **Part** | **Course Details** | **Credit** |
| **1** | **III** | Core(15x4) | 60 |
| **2** | Elective Generic/ Discipline Specific Elective(8x3=24) | 24 |
| **3** | I& II | Language & English  (Lang-4x3=6  Eng-4x3=6) | 24 |
| **4** | IV | NME(2x2) | 4 |
| **5** | EVS(1x2) | 2 |
| **6** | Value Education(1x2) | 2 |
| **7** | Extension Activity(1x1) | 1 |
| **8** | * Ability Enhancement [AECC]- Soft Skill(4x2=8) * **Skill Enhancement Course [7 Courses]** * Professional Competency Skill | 8  13  2 |
|  |  |  |  |
|  |  | **Total Credits** | **140** |

**Remarks: English Soft Skill Two Hours Will be handled by English Teachers**

**(4+2 = 6 hours for English).**

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| **SEMESTER-I** | | | |
| **COURSE CORE - CC I** | | | |
| **FUNDAMENTALS OF GEOMORPHOLOGY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand scope and content of Geomorphology; and explains the Rocks and types of rocks. | | |
| **CO2** | To Explains the continental drift theory, classify Endogenic and Exogenic forces. Discuss the fold, fault and volcano types. | | |
| **CO3** | To illustrate the factors affecting weathering and its types | | |
| **CO4** | To compare and classify Glacier and its types and types of landforms | | |
| **CO5** | To explain the work of wind waves | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Geomorphology – Meaning – Scope and Content (Structure of the earth) – Rocks-Rocks types (Igneous Rock, Metamorphic Rock, and Sedimentary Rock) | 12 | CO1 |
| **II** | Wegner’s continental drift theory – Sea floor spreading – Plate tectonics- Earth movements (Endogenic and Exogenic) - Fold and its types – Fault and its types - Earthquake and its types - Types of Volcanoes. | 12 | CO2 |
| **III** | Weathering: Factors affecting Weathering-Types of Weathering Mass Wasting and its types- Agents of Gradation – Normal Cycle of Erosion – Davis cycle (structure, stage, process) Work of Rivers- Erosion –Transportation- Deposition –Erosional Landforms -Depositional Landforms. | 12 | CO3 |
| **IV** | Work of Glaciers– Types of Glaciers – Glacial Landforms- Erosional Landforms Underground Water – Water Table – Aquifer- Spring and its types – Karst Landforms – Erosional Landforms and Depositional Landforms | 12 | CO4 |
| **V** | Work of Wind- Erosional Landforms and Depositional Landforms. Work of waves- Erosional landforms- Depositional landforms of Sea waves and Types of coasts. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recall** the meaning, Scope and Content **of Geomorphology. Summarise** the interior structure of the earth, differentiate the types of rocks their formation, and the Rock cycle, **understand** the formation of major landforms and Knows the distribution of Land and Sea, Are able to identify the formation and type of rocks | | |
| **II** | **Relates** Wegner’s continental drift theory, Sea floor spreading, Plate tectonics and Earth movements (endogenetic and exogenetic) to the formation of mountain, plateau, plains and lakes with its types | | |
| **III** | **Differentiates** the weathering process and mass wasting and their types, **understands** Normal Cycle of Erosion of Davis (structure, stage, process). **identifies** Work of Rivers. | | |
| **IV** | **Understands** and **appreciates** the formation of various landforms by Glacier, underground water, Aquifer and karst topography. | | |
| **V** | **Understands** and **appreciates** the formation of various landforms formed by wind and waves | | |
| **VI** | Assessment Unit | | |
| TEXT BOOK: | | | |
| 1 | Savindra Singh (2012) :Physical Geography | | |
| 2 | Siddhartha.K&Mukherjee.R (2008): The Earth’s Dynamic Surface | | |
| 3 | Majid Hussain (2004): Fundamentals of Physical Geography | | |
| 4 | Richard .H.Bryant (2006): Physical geography made Simple | | |
| 5 | Dayal P.A. (2001):Text book of Geomorphology | | |
| WEB SOURCE: | | | |
| 1 | En.wikipedia.org/wiki/Geomorphology | | |
| 2 | En.wikipedia.org/wiki/volcano | | |
| 3 | <http://www.geographynotes.com/articles/applied-geomorphology-meaning-two-main-lines-specific-applications-and-techniques/779> | | |
| 4 | En.wikipedia.org/wiki/Geomorphology | | |

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

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| **SEMESTER-I** | | | |
| **COURSE CORE - CC II** | | | |
| **CARTOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the development and history of Cartography, with the types of maps. | | |
| **CO2** | To illustrate and examine the components of Maps | | |
| **CO3** | To elaborate on the representation of mapping techniques | | |
| **CO4** | To enrich the development of remote sensing in the cartography | | |
| **CO5** | To summarize the recent technologies in digital Cartography | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Definition - History and Development of Cartography - Maps - Types of Maps based on Scale Purpose, Relief and Thematic Maps Qualitative and Quantitative uses of Maps in Geography | 12 | CO1 |
| **II** | Components of a Maps - Scale - Direction - Projection- Conventional Signs andSymbols - Lettering, Symbolization. | 12 | CO2 |
| **III** | Techniques of Map Representation - Isopleth - Interpolation of Contours - Mapping of Socio-Economic Data - Dot Maps Circle - Sphere- Square - Choropleth - Choro schematic - Choro Chromatic Maps. | 12 | CO3 |
| **IV** | Development of Remote Sensing - Aerial Photography, Aerial Photo Interpretation- Satellite Imageries - Advantage of Digital Maps over Conventional Maps | 12 | CO4 |
| **V** | Recent Technologies in Cartography - CAD- GIS- ARC GIS- QGIS - GPS | 12 | CO5 |
| **VI** | Assessment Units |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Understanding** the basic concepts of cartography, scope of the study, its history and development in Geography. It is important to **explore studen**t’s knowledge in maps and its types.  **Explore** the Purposes in creation of thematic maps, weather maps, special purpose maps and Topographic maps. **Acquire** the knowe through shape and size of the earth. **To develop** the skills to work on cartographic process and analyse the concept of earth as a cartographic problem to construction | | |
| **II** | **Appreciate** the goals of map design. Construct the elements of map design like scale and its types, direction, **understanding** True north, Grid, magnetic north, and legend. **Develop** the in depth knowledge of geographic co ordinate system. | | |
| **III** | **Understanding** of facts and ideas of representation of physical data through contour diagram, making profiles and block diagrams to get idea of topographical structure**. Define** the techniques of thematic mapping, and its types of simple,complex and semi) **explains and explore** the Mapping of terrain (contouring, layer tinting, hill shading, Hachures) | | |
| **IV** | **Understands** the role of cartography in the development of remote sensing techniques, learns to interpret aerial photograph, satellite imagery and differentiate the digital cartography and traditional cartography. | | |
| **V** | Learns the recent technologies in Cartography | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Judith A.Tyner (2010):Principles of Map Design, The Guilford press, New York , London. | | |
| 2 | Misra,P. and A. Ramesh.(2006).*Fundamentals of Cartography.* McMillan Co. Publishing, New Delhi. | | |
| 3 | Misra, R.P. and Ramesh A. (2002) :Fundamentals of Cartography, concept publishing company | | |
| 4 | Robinson, H. (1995). *Elements of Cartography.* (6th Edition). John Wiley and Sons, New York | | |
| 5 | Tyner,Judith.(1992).*Introduction to thematic Cartography.*  Prentice Hall, New Jersey.  Border, D. (1990).*Cartography : Thematic map design.* WCB WMC Brocan Pub | | |
| **WEB SOURCE:** | | | |
| 1 | http://en.wikipedia.org/wiki/carography | | |
| 2 | http://www.geography.wisc.edu/histcart | | |
| 3 | http://www.map-symbol.com/sym\_lib.htm. | | |

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| CO/PO/PSO | PO | | | | | | | | | |
| 1  Disciplinary knowledge and skills | 2  Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8  Ethical awareness/  Reasoning | 9  National and International perspective | 10  Life long learners |
| CO1 | 3 | 1 |  |  |  |  | 1 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 1 |  |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| AVG | 3 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| TOTAL | 15 | 7 | 7 | 5 | 3 | 3 | 5 | 5 | 5 | 5 |

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| **SEMESTER-I** | | | |
| **ELECTIVE GENERIC/ DISCIPLINE SPECIFIC ELECTIVE-I** | | | |
| **EARTH AND ITS SYSTEMS** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the basic concept of Universe and its origin and the theories of Evolution : Nebula, Kant and Big Bang Theory | | |
| **CO2** | To understand Earth and Universe- Solar systems , Milky way Galaxy and Black hole theory and Meteorites | | |
| **CO3** | To explain the Earth Internal Structure the Core, Mantle, Crust and also the Earth’s Magnetism | | |
| **CO4** | To illustrate about the Earth’s Size, Rotation and Revolution, causes for Seasons, Eclipses and Solstice | | |
| **CO5** | To explain the latitude and longitude, Cardinal points, Greenwich Meridian and Indian Standard Time. To given an understanding on the Time calculation | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | The Universe and its Origin- Theories of Evolution: Nebula, Kant, and Big Bang Theory | 12 | CO1 |
| **II** | Earth and Universe - Solar system- Galaxy ( Milky way) – Cosmobody - Black hole – Meteorites | 12 | CO2 |
| **III** | Earth’s internal structure – Earth’s crust, mantle, and core – Discontinuity- Isostasy – Earth’s magnetism | 12 | CO3 |
| **IV** | Earth and its Size -Earth Rotation and Revolution – Inclination Causes – (Seasons Day and Night) – Summer and Winter Solstice - Eclipses | 12 | CO4 |
| **V** | Latitudes and Longitudes– Cardinal Points - Greenwich Meridian – Indian Standard time- Time Calculation | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Understands the origin of various theories in geography over the period identifying geographical proven theories on origin of the sun and assess the recent trend in geography and bringout the historical perspective of geography ,discuss the merits and demerits of quantitative revolutio | | |
| **II** | Understands the changes over the universe periodically , distinguish the earth rotation and revolution and its causes explain how day and night cause, evaluates the logic behind the time calculation discuss the location of Greenwich and calculate the Indian standard time **Critically evaluate -causes of day and night,** | | |
| **III** | Recalls and Understands the size and position of planets, summarise with importance of direction in Geographical location | | |
| **IV** | **4** evaluate the size and position of planets, summarise with importance of direction in Geographical location**(Interactive session with questions)** | | |
| **V** | Identifies the earth rotation and revolution and its causes explain how day and night cause,evaluate the logic behind the time calculation discuss the location of Greenwich and calculate the Indian standard time.Distinguish the concept of climate and weather, discuss the earth size and its shape in various period, assess explain the importance of latitudes and longitudes. Define the importance of direction and explain the cardinal points | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Savindra Singh (2012) : Physical Geography | | |
| 2 | Hussain Majid (2007): Evolution of Geographical concepts | | |
| 3 | K.Siddhartha and S.Mukherjee (2006) The Dynamics of Earth Surface | | |
| 4 | Gochenleong(2001): Certificate Physical and Human Geography | | |
| **WEB SOURCE:** | | | |
| 1 | [**https://www.universetoday.com/**](https://www.universetoday.com/) | | |
| 2 | <https://www.universetoday.com> | | |
| 3 | [**https://geography.name/regionalism/**](https://geography.name/regionalism/) | | |
| 4 | [**https://www.rawatbooks.com/geography/**](https://www.rawatbooks.com/geography/) | | |

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| CO/PO/PSO | PO | | | | | | | | | |
| 1  Disciplinary knowledge and skills | 2  Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8  Ethical awareness/  Reasoning | 9  National and International perspective | 10  Life long learners |
| **CO1** | **3** | 1 | 2 | **1** |  |  | **2** | 1 | 1 | 1 |
| **CO2** | **3** | 1 | 2 | **1** | 1 |  | **1** | 1 | 1 | 1 |
| **CO3** | **3** | 2 | 2 | **1** | 1 | 1 | **1** | 1 |  | 1 |
| **CO4** | **3** | 2 | 1 | **1** | 1 | 1 | **1** |  | 1 | 1 |
| **CO5** | **3** | 2 | 1 | **2** | 1 | 1 | **1** | 1 | 1 |  |
| **AVG** | **3** | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **TOTAL** | **15** | 8 | **8** | 7 | 4 | 3 | **6** | 5 | 5 | 5 |

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| **SEMESTER-I** | | | |
| **SKILL ENHANCEMENT COURSESEC-1 (NME)** | | | |
| **BASIC GEOGRAPHY FOR NON GEOGRAPHERS** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To enrich the basic knowledge of the Earth, and its composition, enhance the knowledge of the structure of the atmosphere. | | |
| **CO2** | To explore the different the zones of Ocean with varying water depths, acquire knowledge on the deposits of Ocean | | |
| **CO3** | To illustrate the Natural regions of the world | | |
| **CO4** | To elaborate the Evolution of humans and races | | |
| **CO5** | To understand the distribution and patterns of Population | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Earth – Origin, Interior, Age, size, shape of the Earth- Rocks and its Types - Atmosphere: Origin and nature, Composition and Structure of the atmosphere. | 12 | CO1 |
| **II** | Continental Shelf, Continental Slope, Continental Rise and Trenches - Bottom relief of Ocean – Distribution of Salinity – Ocean Currents – Ocean Deposits- Tides | 12 | CO2 |
| **III** | Regions- Natural regions of the world- Equatorial, Tropical and temperate grasslands, tropical and temperate deserts, Tundra regions | 12 | CO3 |
| **IV** | Evolution of humans – Determinism and Possibilism – Major races of the world- Major religions of the world – Major Languages of the world – Major Tribes of India with Special Reference to Tamilnadu | 12 | CO4 |
| **V** | Population Distribution - Density and growth –Population Problems – Migration and its types | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Analyse the changes over the universe periodically , distinguish the earth rotation and revolution and its causes explain how day and night cause, **Recall** Climatic elements **explain** the composition and Structure of the Atmosphere **define** Insolation **examine** the Heat Balance **compares** Horizontal and Vertical Distribution of Temperature. | | |
| **II** | **explains** distribution of Land and Sea **describes the structure and composition of** the Ocean floor the oceanic crust, Group Activity **makes a model o**f Ocean Bottom relief. | | |
| **III** | **Develop** the in depth knowledge of natural resource and its importance. **classify** the resources and human intervention and development **Applying acquired knowledge** marking the region in the map | | |
| **IV** | **Recall**  the Natureand Scope of Human geography, compare with the other branch of Geography , **Understand** the significance of Human geography, **analyse** the Man and environment relationship**,**  **examine** the population data | | |
| **V** | **Understanding the** basic concepts and significance of population geography, scope of the study, its history and development in Geography. It **is important to explore student’s knowledge in** world population distribution | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Thornbury, W. D. (I960): Principles of Geomorphology, John Wiley and Sons, New York. | | |
| 2 | Savindra Singh (2002): Physical Geography, PrayagPustakBhawan, Allahabad. | | |
| 3 | D. S. Lal: Climatology. ShardaPustakBhawan | | |
| 4 | D. S. Lal: Climatology. ShardaPustakBhawan ,11 , University road Allahabad- 211002 Edition 2003. | | |
| **WEB SOURCE:** | | | |
| 1 | [https://letstalkscience.ca/educational-resources/stem-in-context/processes-shape- landforms](https://letstalkscience.ca/educational-resources/stem-in-context/processes-shape-%20%20%20%20%20landforms) | | |
| 2 | [**https://www.universetoday.com/**](https://www.universetoday.com/) | | |
| 3 | [**https://www.yourarticlelibrary.com/population/theories-of-population-malthus-theory-marxs-theory-and-theory-of-demographic-transition/31397**](https://www.yourarticlelibrary.com/population/theories-of-population-malthus-theory-marxs-theory-and-theory-of-demographic-transition/31397) | | |

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

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| **SEMESTER-I** | | | | |
| **ABILITY ENHANCEMENT COMPULSORY COURSE(AECC) SOFT SKILL-I** | | | | |
| **MAPPING TECHNIQUES** | | | | |
| **TEACHING HOURS : 60** | | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the components of Maps and Scale Measurements | | |
| **CO2** | To illustrate and examine the Representation of the directionon Maps | | |
| **CO3** | To elaborate on the need for conventional signs and symbols in Maps | | |
| **CO4** | To enhance techniques applied in the Representation of relief on maps. | | |
| **CO5** | To introduce the mapping techniques applied to interpret contours | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Map components – Maps- Types of Maps- Scales – Representative fraction and Statement of the scale- Types of scales – Plain scales – Pace scale – Time scale – comparative scale- Diagonal scale. | 12 | CO1 |
| **II** | Representation of direction on maps : Directions-True north, Grid, Magnetic north – Magnetic declination – Bearings – True bearing and magnetic bearing - Latitude and Longitude – International dateline – International Time Calculation - Map setting in the field – Map reading. | 12 | CO2 |
| **III** | Conventional signs and symbols- Measurement of distance (Thread- Divider- Opisometer) and Measurement of area (Graphical and strip method)-Enlargement and Reduction of maps -Combination of Maps. | 12 | CO3 |
| **IV** | Representation of relief on maps: Spot heights, bench mark, triangulation station -layer shading- Hachuring, hill shading and Contours- Interpolation of contours. | 12 | CO4 |
| **V** | Contour section drawing-Types of slopes (Uniform, Concave and Convex)-(Hill-Plateau-Ridge- Escarpment-V-shaped Valley-Waterfalls and Sand dunes) - Profiles (Serial- Superimposed -Projected– Composite). | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recalls**. Map components – Maps- Types of MaScale–and Statement of the scale- Types – how it is important to explore their knowledge Representative fraction and Statement of the scale- Types of scales – Plain scales – Pace scale – Time scale | | |
| **II** | **Understanding** of facts Representation of direction on maps – Explain the Directions-True north, Grid, Magnetic north – Magnetic declination and Identify the- Latitude and Longitude – International dateline – **Explian**the International Time Calculation - Map setting in the field – Map reading | | |
| **III** | **Define** the Conventional signs and symbols- calculate the Measurement of distance (Thread- Divider Opisometer) and Measurement of area (Graphical and strip method)-Enlargement and Reduction of maps -Combination of Map | | |
| **IV** | **T**he Representation of relief on maps, Spot heights, , bench mark, triangulation ,station - layer shading- and calculate the Interpolation of contours. | | |
| **V** | **Understands** the Contour section drawing-Types of slopes (Uniform, Concave and Convex)-(Hill Plateau-Ridge- Escarpment V-shaped Valley-Waterfalls and Sand dunes)- draw a Profiles (serial- superimposed-projected – composite). | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | | |
| 1 | Saha, Pijushkanti (2010): Advanced Practical Geography. Books and Allied pvt Ltd. | | |
| 2 | Bagulia A.M (2006): Practical Geography, Anmol Pyblishers. | | |
| 3 | Khan , M.D .Zulfequar Ahmed (1997) : Text book of Practical Geography. Concept Publishing Company , New Delhi. | | |
| **WEB SOURCE:** | | | | |
| 1 | <http://www.worldatlas.com/aatlas/imageg.> | | |
| 2 | <http://en.wikipedia.org/wiki/mapscale.> | | |
| 3 | [http://en.wikipedia.org/wiki/international](http://en.wikipedia.org/wiki/international%20)dateline | | |
| 4 | <http://en.wikipedia.org/wiki/mapscale>. | | |

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

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| **SEMESTER-II** | | | |
| **CORE COURSE – CC III** | | | |
| **CLIMATOLOGY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the basic concepts and scope of climate and differentiate the weather and climate and assess the composition of atmosphere. | | |
| **CO2** | To classify the Atmospheric Pressure and Winds | | |
| **CO3** | To illustrate the types of air masses and fronts | | |
| **CO4** | To elaborate the Atmospheric Moisture and climatic regions | | |
| **CO5** | To understand the basic concepts of Cyclone and its mechanism | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Scope and Content – Weather and Climate – Climatic Elements- Atmospheric Composition and Structure– Insolation and Temperature: Factors and Distribution, Heat Budget, Temperature Inversion. | 12 | CO1 |
| **II** | Atmospheric Pressure and Winds: Planetary Winds, Forces affecting Winds, General Circulation of Air, Jet Streams. | 12 | CO2 |
| **III** | Air Masses- Classification of Air Masses- Fronts- Classification of Fronts. | 12 | CO3 |
| **IV** | Atmospheric Moisture: Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions. | 12 | CO4 |
| **V** | Cyclones: Tropical Cyclones, Temperate Cyclones, Monsoon - Origin and Mechanism, El Nino – LA Nina. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recall** Climatic elements **explain** the composition and Structure of the Atmosphere **define** Insolation  **examine** the Heat Balance **compares** Horizontal and Vertical Distribution of Temperature. | | |
| **II** | **Defines** Atmospheric Pressure, C**ompares** Horizontal and Vertical Distribution of Pressure **draw** the major Pressure Belts D**ifferentiates** Planetary Winds, Periodic and Local Winds, Group Activity Make a Model on Major pressure Belts and Planetary winds. | | |
| **III** | **illustrate** the formation of Jet Streams **summarise**the formation of Air Masses and Fronts.C | | |
| **IV** | **Defines and differentiate** Humidity (absolute humidity, Relative humidity) **explains** Fog and its Types **identifies** Clouds (High, Medium and Low) **narrates** Forms of precipitation and Types of Rainfall (Convectional, Orographic and Cyclonic) **discuss** and **debate** on Issues in Global Climate Changes**.** | | |
| **V** | **draw map for** Circulation of Ocean Currents and the distribution **Discuss and debate** on ElNino – LaNina | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Lal D.S (2006): Climatology, Chaitanya Publishing House, New Delhi. | | |
| 2 | Roger. G. Barry & Richard J. Choley, (2002): Atmosphere, Weather and Climate, Seventh Edition, Methunen& co Ltd, New York. | | |
| 3 | Gochenleong (2001): Certificate Physical and Human Geography, Oxford university press, New Delhi. | | |
| 4 | Siddhartha. K , (2000): Atmosphere, Weather and Climate, Kisalaya publications Pvt Ltd Delhi. | | |
| **WEB SOURCE:** | | | |
| 1 | en-wikipedia.org/win/physical-geography | | |
| 2 | www.physical geography.net/about.html | | |
| 3 | www.4shared.net/physical+geography. | | |
| 4 | books.google.com>science>earth sciences>geography | | |

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

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| **SEMESTER-I** | | | |
| **CORE COURSE – CC IV** | | | |
| **HUMAN GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the basic concepts of Human Geography and assess the relationship between Man and Environment. | | |
| **CO2** | To elaborate the school of thoughts | | |
| **CO3** | To discuss the distribution of Major Human Races in World | | |
| **CO4** | To illustrate the World Major Religions | | |
| **CO5** | To compare and distinguish the World Major Languages and Language groups | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Human Geography – Nature, Scope and Significance of Human Geography – Man and Environment Relationship. | 12 | CO1 |
| **II** | Schools of Thoughts: Determinism, Neo Determinism ,Possibilism - French – German – British – UK – Humanism – Behaviorism. | 12 | CO2 |
| **III** | Major Human Races in World – Classification of Major Races – Caucasoid - Mongoloid – Negroid – Racial Parameters and indices. | 12 | CO3 |
| **IV** | World Major Religions: Religion distribution – Hinduism - Buddhism – Jainism - Christianity- Islam- Religions in India. | 12 | CO4 |
| **V** | World Major Languages and Language groups – Tamil, Chinese, English – Hindi - Arabic – German- French and Portuguese. | 12 | CO5 |
| **VI** | Assessment Unit |  | CO6 |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recall** the Nature and Scope of Human geography, compare with the other branch of Geography , **Understand** the significance of Human geography, **analyse**the Man and environment relationship**, explain** the theories of population, **examine** the populationdata | | |
| **II** | Understands the basis of the study of Geography through the elaborate understanding of the School of thoughts | | |
| **III** | **Explain** the distribution of Major human races in the world, compare World Distribution of Races, **analyse**Racial parameters and indices( Shape, Skull, Face, Nose, Stature,, **examine**White (Caucasian), **Classifying**Asian(Mongoloid), outline the Black(Negroid  Group discussion Classification of Races | | |
| **IV** | **Recall** the Major Religions, explain Hinduism, Buddhism, Jainism, Christianity, Islam, **examine** the Religious distribution around the world, **compare** Languages, Vernacular and Dialectics. | | |
| **V** | estimate the distribution of Language groups ( Chinese, Spanish, English, Hindi, Arabic German, French and Portuguese | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Majid Hussain (2011) Human geography, Rawat publications, New Delhi | | |
| 2 | Lekh raj singh (2009): Fundamentals of human geography, Sharda pustakbhawan,publishers | | |
| 3 | Majid Hussain (2009): Concise geography, Tata mc graw hills education private limited, New Delhi. | | |
| **WEB SOURCE:** | | | |
| 1 | http://jizaberg.tumblr.com/post/24880131860/download-researching-human-geography-pdf-ebook | | |
| 2 | http://walkgeographies.files.wordpress.com/2009/03/gregoryetal\_dictionary\_human\_geography\_2009.pdf | | |

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

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| **SEMESTER-II** | | | |
| **ELECTIVE GENERIC/ DISCIPLINE SPECIFIC ELECTIVE-II** | | | |
| **BIO GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the content of Bio-Geography and components of biosphere. | | |
| **CO2** | To identify elements and types of biodiversity | | |
| **CO3** | To illustrate the different types of Biomes of India | | |
| **CO4** | To understand the ecosystem balance and biosphere reserves | | |
| **CO5** | To elucidate the association between biodiversity and sustainable development. | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Bio Geography- Nature, Scope and Content – branches of Biogeography -types of biogeography, Evolution of flora and fauna with geological time scale-Biosphere- components of the biosphere – Ecology and Environment. | 12 | CO1 |
| **II** | Biodiversity – Meaning – Definition – Elements and Types of Biodiversity –Biodiversity- Hot Spots – Value and Importance of Biodiversity – Biodiversity | 12 | CO2 |
| **III** | Biomes of India – Terrestrial Biomes, Freshwater Biomes, Marine biomes– Biosphere Reserves of India. Anthropogenic Biome. | 12 | CO3 |
| **IV** | Ecosystem balance -Species Extinction (nature of extinction, threatened species, species conservation, Gene banks, and Botanical Gardens, Zoological Gardens and Captive Breeding Centres, Biosphere Reserves, National Parks and Wildlife Sanctuaries | 12 | CO4 |
| **V** | Bio diversity and Sustainable Development -Global Environmental Policies – EIA - Environmental Education and Legislation- Treaties and laws to protect endangered species, SDG- 17 Goals. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Define** Biogeography the content and scope of bio geography a**ppreciate** evolution of fauna and flora **Recall** components of biosphere -**explain**Structure, Functions, Units and Types of Ecosystems **Differentiate** ecosystem, ecology and environment Group activity based on this web reference | | |
| **II** | **Lists** Factors influencing the distribution of flora and fauna-**compares**the factors and their influence on flora Physiographic factors (Topography, waterbodies, sunlight, salinity)-Climatic factors (Temperature, Rainfall, Wind, Humidity)- Edaphic factors (soil air, soil moisture, soil texture, soil Ph) – Bio factors (competition, predation, diseases, humans) | | |
| **III** | **Define**Biogeographical Regions of Plants and Animals -**appreciates**Biogeographic realms of the world - Nearctic, Palearctic, Afrotropic, Indomalaya, Australasia, Neotropic, Oceania and Antarctic- **understands** WWF classification of Biomes-Terrestrial, freshwater and marine biomes- **compares**Biogeochemical cycles **Group Activity** -model making for biomes. | | |
| **IV** | **Lists**Influence of Man on Environment –**defines and lists** the types of Ecological Succession**realizes** the impact of influence **analyze**Ecological change and Imbalances – (Pollution, soil degradation, deforestation, desertification, acid rain, ozone depletion)**Discuss** on Environmental Degradation and Environmental Management. **Activity** Debate | | |
| **V** | **Analyzing and interpret** National and International Policies and programmer on Animal Conservation (Biosphere Programmer 1971, Environmental Education Conference EEC 1975, UNESCO, The Earth Summit – Rio-de Jineiro, 1992, UNESCO, Project Elephant, 1992, Project Tiger, Conservation of Rhinos in Assam, 1987) –**develop** India Wild life Protection Acts- Bio Diversity Bill. | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | S.P. Mishra and S,P. Pandey : Essential Environmental Studies; Ane Books Pvt. Ltd, 2010 | | |
| 2 | George Simonds Bougler (2009):The Science Teaching of Forestry | | |
| 3 | Savindrasingh (2008 ):Environmental Geography | | |
| 4 | Bhattacharyya N.N ( 2003): Bio Geography, Rajesh Publication New Delhi. | | |
| **WEB SOURCE:** | | | |
| 1 | [www.botany.wisc.edu/](http://www.botany.wisc.edu/) | | |
| 2 | [www.biogeography.com](http://www.biogeography.com) | | |

BIO GEOGRAPHY -I

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| CO/PO/PSO | PO | | | | | | | | | | |
| 1 Disciplinary knowledge and skill | 2 Skilled communicator | 3 Critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8 Ethical awareness/  Reasoning | 9 National and International perspective | 10 Life long learners |
| CO1 | 3 | 2 | 1 | 1 |  |  | 1 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 |  |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 1 |
| Average | 3 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total | 15 | 10 | 7 | 8 | 5 | 3 | 6 | 6 | 5 | 5 |

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| **SEMESTER-II** | | | |
| **SKILL ENHANCEMENT COURSE -SEC-2 (NME)** | | | |
| **TRENDS IN GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To enhance the students in gaining knowledge of concepts and components using Remote Sensing | | |
| **CO2** | To get an idea of Aerial Photographs and their uses in topographical mapping in planning and execution | | |
| **CO3** | To enhances the quality of data collection and avoid the possibility of error at the point of field data collection | | |
| **CO4** | To display the new technology used and analyze spatial data, it combines the advantages of both the Internet and GIS | | |
| **CO5** | To enrich the knowledge about the data acquired and study of major Satellite Systems in world | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Remote sensing: Components of remote sensing – Electro Magnetic Spectrum - Energy interaction with atmosphere and Earth - Resolutions (Spectral, Spatial, Temporal & Radiometric) - Optical Remote Sensing: Basic concepts - Optical sensors and scanners. | 12 | CO1 |
| **II** | Aerial photography: Types of aerial photography and uses - Stereoscopic parallax - Aerial triangulation– ground control for aerial photography - Digital Photogrammetry- Planning and execution. | 12 | CO2 |
| **III** | Digital Data: Basic Characteristics of digital image - data type and file format- Data acquisition and interpretation- Use of multiple images- multi-station – multi-band- multi-stage – multi-polarization – multi-spectral- Digital Image Processing. | 12 | CO3 |
| **IV** | Web GIS: components of Web GIS - concept of maps and software -Open source Software-– GRASS – ILWIS – Openstreet map - QGIS - SagaGIS - Map window-cloud GIS. | 12 | CO4 |
| **V** | Thermal Remote sensing & Microwave remote sensing - data formats and systems, - Major satellite systems: Sensors and data products of IRS, LANDSAT, SPOT, ERS, IKONOS, Quick Bird, ORBVIEW, ASTER, MODIS, WORLD VIEW, AVIRIS, CASI, MODIS and Hyperion. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Defines** remote sensing, **lists** the types of remote sensing, **summarize** development of Space Programs **explores** Organizations Associated with Remote Sensing in India and in other Countries.**Lists** the Sources of Energy, **defines** Electromagnetic Radiations (EMR), **Categorize** Electromagnetic Spectrum, **identifies** Atmospheric Windows, **explains** Energy Interaction with Atmosphere and Earth. | | |
| **II** | **Lists** the Components of Aerial Camera, **differentiates t**ypes of Aerial Photographs, **examines** Marginal Information of Aerial Photographs, **summarizes** Elements of Photo Interpretation. **Activity Each student Prepare five questions for a quiz related to the above sub topics**. | | |
| **III** | **Define** the components of Slope, Aspects, overlay operations and statistical analysis. **Understands** Vector data – topological and non-topological vector data, **Identifies** map scale, spatial resolution, spatial data accuracy, **Explains and Examines** the vector data sources. **Distinguish and Compare** between raster and  vector data. | | |
| **IV** | **Recalls and Understands** GNSS and GIS Integration: **Identifies** Integration techniques - **Distinguishes** Data focused integration, position focused and technology focused integration; **Explains** Technology convergence for data use; Hardware and software platforms; GPS, GIS. | | |
| **V** | Board | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Schowengerdt, R. A., Remote sensing - Models and methods for image processing. Academic press. London.1997. | | |
| 2 | Richards,J.A, Remote Sensing Digital Image Analysis., Springer-Verlag, London 1986. | | |
| **WEB SOURCE:** | | | |
| 1 | [www.gdmc.nl/oosterom/PoGISHyperlinked.pdf](http://www.gdmc.nl/oosterom/PoGISHyperlinked.pdf) | | |
| 2 | gisgeography.com › GIS Analysis | | |
| 3 | [www.gisresources.com](http://www.gisresources.com) | | |
| 4 | www.researchgate.net | | |

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| CO/PO/PSO | 1 Disciplinary knowledge and skill | 2 Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8 Ethical awareness/  reasoning | 9 National and International perspective | 10 Life long learners |
| CO1 | 3 | 1 | 1 |  |  |  | 1 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 1 | 2 |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 1 | 1 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 3 | 2 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| Average | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| Total | 15 | 8 | 7 | 7 | 5 | 6 | 5 | 5 | 5 | 5 |

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| **SEMESTER-II** | | | |
| **SKILL ENHANCEMENT COURSE –SEC-3** | | | |
| **REPRESENTATION OF RELIEF FEATURES** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To enhance the students in gaining knowledge of concepts and components using Drainage basin and network morphometry | | |
| **CO2** | To get an idea of Calculation of runoff | | |
| **CO3** | To enhances the Calculation of hydraulic geometry equations. | | |
| **CO4** | To display the new technology used to analyze Measurement of channel cross-section | | |
| **CO5** | To enrich the knowledge about the Calculation of velocity | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Drainage basin and network morphometry - Longitudinal profile - Hack’s stream gradient index. | 12 | CO1 |
| **II** | Calculation of runoff - sediment load - sediment yield | 12 | CO2 |
| **III** | Calculation of hydraulic geometry equations. | 12 | CO3 |
| **IV** | Measurement of channel cross-section in the field - study of erosional and depositional features in the field Creating sketch maps. | 12 | CO4 |
| **V** | Calculation of velocity - discharge using Manning equation - Estimation of unit stream power - shear. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Morphometric analysis And Gradient analysis. **Explain the** Smith, Robinson, Wentworth method. **Assume** Hypsometric curves .**Simplify** the Terrain classification and Altimetric, Frequency curve. | | |
| **II** | Hydrology, Water level fluctuation using ground water data ,**Explain** Mapping Rainfall, distribution | | |
| **III** | The Contour drawing and **explain** the Serial Profiles, Superimposed, Projected and composite profile . **Compile** the Block Diagram | | |
| **IV** | **Solve** Theissen Polygon Method, Isohyets method, **Analyse** water balance graph | | |
| **V** | Understanding the Estimation of unit stream power | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Charlton, R. (2008): Fundamentals of Fluvial Geomorphology, Routledge, Oxon. | | |
| 2 | Kondolf, G. M. and Piegay, H. (2003): Tools in Fluvial Geomorphology, Wiley, Chichester. | | |
| 3 | Robert, A. (2003): River Processes - An Introduction to Fluvial Dynamics, Arnold, London | | |
| 4 | Schumm, S. A. (1977): Fluvial Systems, Wiley, New York | | |
| **WEB SOURCE:** | | | |
| 1 | agilemodeling.com/artifacts/physicalDataModel.htm | | |
| 2 | <https://en.wikipedia.org/wiki/Morphometrics> | | |
| 3 | <https://www.wou.edu/las/physci/taylor/g322/drainage_anal.pdf> | | |
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| **CO/PO/PSO** | **PO** | | | | | | | | | |
| **1** Disciplinary **knowledge**  **and skill** | **2 Skilled communicators** | **3 critical thinkers**  **and problem solver** | **4 Sense of**  **inquiry** | **5 Team players/**  **worker** | **6 Skilled project managers** | **7 Digitally**  **efficient** | **8 Ethical**  **awareness/**  **reasoning** | **9 National and International perspective** | **10 Life long**  **learners** |
| CO1 | 3 | 1 | 1 | 1 |  |  | 1 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 1 |  |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **CO-PO-Avg** | 3 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **CO-PO\_Total** | **15** | **7** | **7** | **6** | **6** | **3** | **5** | **5** | **5** | **5** |

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| **SEMESTER-III** | | | |
| **CORE COURSE – CC V** | | | |
| **ECONOMIC GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To recall the Scope and content of Economic Geography and observe the Resource classification | | |
| **CO2** | To examine the factors of agriculture and to describe the distribution of Crops | | |
| **CO3** | To differentiate and classify the Mineral Resources and distribution of Power Resources | | |
| **CO4** | To Compare and distinguish the Industries and Industrial Regions | | |
| **CO5** | To infer and integrate the transport and major importing and exporting trade | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Economic Geography- Definition- Scope and content- the significance of Economic Geography– Classification of resources – Renewable and Non-Renewable Resources - Exhaustible and Inexhaustible resources, Conservation of resources-Major Economic activity | 12 | CO1 |
| **II** | Agriculture – Factors affecting Agriculture –Agriculture Region - Food crops and Non -food crops – Distribution and Production of Rice, Wheat, Sugarcane, Pulses - Horticultural crops - Fiber crops (Cotton and Jute)- Beverage crops(coffee, tea, cocoa) spices. | 12 | CO2 |
| **III** | Mineral Resources- Types of Minerals – Metallic Minerals, Non-Metallic Minerals- Fuel Distribution of minerals Iron ore, copper, Manganese, aluminum, Mica, Gypsum, Limestone Coal, Petroleum, Natural gas Power resources – Hydel power, Thermal, Atomic power, Geothermal energy. | 12 | CO3 |
| **IV** | Industries – Localization factors for Industries –Agro-based – (Textile Industry, Cotton, Jute) - Mineral Based-(Iron and Steel, Engineering Industries)-Shipbuilding, Automobile- Chemicals Industries – Fertilizer Industry, Industrial region. | 12 | CO4 |
| **V** | Transport and Trade: Transport – Types of Roadways (National Highways, State, District, Express Highway)- Railways (Broad Gauge, Narrow gauge, Meter Gauge)- Waterways and Major Sea Routes. -Trade - National and international – Trade blocs - Major importing and exporting countries. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recall** the concepts of Economic Geography with its **definite** scope and content outline the significance of Economic Geography , Infer the importance of resources and its **Classification** in India and at global level. **Extend the explanation** of renewable and non- renewable resources. **Contrast** the Conventional and Non-conventional- Exhaustible and Inexhaustible resources | | |
| **II** | Understands the Agricultural activities and Factors affecting Agriculture. **Define** the role of Agriculture in Developmental scenario. **Classify** the crops in to Food crops and non food crops. **Summarize** the Distribution and Production of Rice, Wheat, Sugarcane, Pulses Horticultural crops - Fibre crops (Cotton and Jute)- Beverage crops(coffee, tea, cocoa) spices. | | |
| **III** | **Recall** the Mineral Resources and **classify** the Types of Minerals Categorize the Metallic Minerals, Non Metallic Minerals.- **list out** the Distribution of minerals Iron ore, copper, Manganese, aluminum, Mica, Gypsum, Limestone Coal, Petroleum , Natural gas Power resources. Hydel power, Thermal, Atomic power, Geothermal energy at national level | | |
| **IV** | Industries,Localization. **Outline** the factors for Industries Agro based – (Textile Industry, Cotton, Jute) **– List out** the Mineral Based industries(Iron and Steel and Engineering Industries). **Compare** the Shipbuilding, Automobile- Chemicals Industries – Fertilizer Industry. | | |
| **V** | **Recall** and relate the Transport and Trade: Transport . **Compare and** **Illustrate** the Types of Roadways (National Highways, State, District, Express Highway) and Railways (Broad Gauge, Narrow gauge, Meter Gauge). List out the Waterways and Major Sea Routes**. Elaborate** the Trade National and international. **Distinguish** the Trade blocs and Major importing and exporting countries of the world. | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Sharma, Siya Ram (2008) :Economic Geography ,Murari Lal Publications. | | |
| 2 | Hussain, Ahmad (2006) : Economic Geography, Vishvabharthi Publications. | | |
| 3 | Singh.I (2006) :Economic Geography, Alfa publications. | | |
| **WEB SOURCE:** | | | |
| 1 | [www.wikipedia.org/wiki/](http://www.wikipedia.org/wiki/) Economic Geography | | |
| 2 | joeg.oxford journals.org/ | | |

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

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| **SEMESTER-III** | | | |
| **CORE COURSE – CC VI** | | | |
| **OCEANOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the term Ocenography definition, description of Ocean and Seas, Extent, surface configuration of the Ocean floor. To acquire wide knowledge on Hypsometric curve, Continental Shelf, Continental Slope, Abyssal Plain and Deeps, Trenches | | |
| **CO2** | To understand and illustrate on bottom relief of Pacific, Atlantic and Indian Ocean and Composition of sea water. | | |
| **CO3** | To illustrate the distribution of Salinity and factors affecting temperature | | |
| **CO4** | To describe the Circulation of Ocean Movements | | |
| **CO5** | To explain the distribution of Ocean deposits and resources | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Oceanography: Definition, Oceans and seas - Extent and distribution – Surface configuration of the Ocean floor, Hypsometric curve – Continental shelf – Continental slope – Abyssal Plain – Deeps and Trenches. | 12 | CO1 |
| **II** | Bottom Relief of the Pacific, Atlantic and Indian Oceans, Sea water – Composition of sea water. | 12 | CO2 |
| **III** | Ocean Temperature and Salinity: Distribution and factors – Horizontal and vertical - Factors affecting temperature and salinity distribution. | 12 | CO3 |
| **IV** | Ocean Water Movement – Waves – Tides: Types - Ocean Currents: Types - Currents of Pacific, Atlantic and Indian Oceans. | 12 | CO4 |
| **V** | Ocean Deposits: Types - Coral Reefs: Formation and types - Ocean resources and need for conservation - National Institute of Ocean Technology (NIOT). | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Define** oceanography**, explains** distribution of Land and Sea **describes the structure**. | | |
| **II** | **Understands composition of** the Ocean floor the oceanic crust, Group Activity **makes a model o**f Ocean Bottom relief | | |
| **III** | **Describes** the composition of sea water **list out** the factors Governing sea Temperature , **illustrate the variation** in Temperature distribution (Horizontal and Vertical Distribution) | | |
| **IV** | Distribution **distinguishes** the types of waves Waves – (Deep water waves – Long waves – Seismic sea waves – Tide waves – Transitional waves) **differentiate** Tides – (High tide and Low tide – Neap Tide – Spring tide) , **draw map for** Circulation of Ocean Currents and the distribution **Discuss and debate** on ElNino – LaNina | | |
| **V** | Analyses the different Ocean Deposits and identifies the Types of Coral Reefs-Formation and types describes the need for Ocean resources and need for conservation | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Savindra Singh, (2008), Oceanography, PrayagPushtak Bhawan, Allahabad. | | |
| 2 | Siddartha. K., (2005). Oceanography – A brief Introduction, Kisalaya Publications Pvt. Ltd., New Delhi. | | |
| 3 | Gupta, A and Kapoor A. N., (2001), Principles of Physical Geography, S.Chand& Company Ltd., New Delhi. | | |
| 4 | Lal D.S., (1990) Oceanography, Chatianya Publishing House, Allahabad | | |
| **WEB SOURCE:** | | | |
| 1 | books.google.com>science>earth sciences>geography | | |
| 2 | [**https://www.nios.ac.in/media/documents/316courseE/ch11.pdf**](https://www.nios.ac.in/media/documents/316courseE/ch11.pdf) | | |

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

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| **SEMESTER-III** | | | |
| **ELECTIVE GENERIC/ DISCIPLINE SPECIFIC ELECTIVE-III** | | | |
| **GEOGRAPHY OF HEALTH** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the relationship between health and geography and the driving force of health and environment. | | |
| **CO2** | To recall the history of disease and elaborate on the agents of disease | | |
| **CO3** | To illustrate the components of the influencing environment on health. | | |
| **CO4** | To differentiate the types of diseases like communicable and non-communicable diseases. | | |
| **CO5** | To elaborate on the health care planning and management of the World and India. | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Geography of Health – Definition – perspectives and Bio-Medical Approach –Psychological – Sociological – Economic – Geographic Approach - Driving Forces in Health and Environment. | 12 | CO1 |
| **II** | Concept of Diseases – History of Diseases – Agents of diseases – Control of Diseases, Transmission Triad and mode. | 12 | CO2 |
| **III** | Health and Diseases – Control of Diseases in Environmental context with special reference to India – types of Diseases and their regional Pattern – Communicableand Non-communicable diseases. | 12 | CO3 |
| **IV** | Environment and Health – Three components of the environment – Physical, Biological, and Social, Occupational Health, Mental health, Health Information, and Basic Medical Statistics – Mapping of Diseases. | 12 | CO4 |
| **V** | Health Care Planning and Management– Health Organization – Hierarchy of Public Health Care System in India, health planning in India– Health Policies and Schemesin India – International health -WHO, UNICEF, UNDP. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recalls** the importance of health., **Understands** the relationship between. Health and environment., **Define** health. **Distinguish**.-Development and health. **Realises**population dynamics with health | | |
| **II** | **Understands** the impact of Environmental Quality and health., **Analyses** the impact of human activities and environmental pressures., **Compare** the reasons and influence level of climatic change and human health. | | |
| **III** | **Learns** the disease patterns, **understand** the context of disease pattern with Indian setup**. Compare** the types of disease and **analyse**the types of disease with regional concepts. **Differentiate** the communicable and non-communicable diseases.**Summarises**the biological agents in the spread of diseases. | | |
| **IV** | Understands the relationship between the Environment and Health and also assess the influence of the various components of environments on health. | | |
| **V** | **Categorises,** the various healthcare planning. **Examines** the role of WHO show in the healthcare planning. **Understands**- healthcare centres in India. **Classifies** the importance of voluntary health agencies. **Evaluate** the need for the family and community healthcare planning. **Understands** and list the various health schemes of India. | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | K.Park XX edition, 2009Park’s Textbook of Preventive and Social Medicine.M/s Banarisdas.Bhanot Publishers, India | | |
| 2 | Avon Joan L. and Jonathan A Patzed.2001: Ecosystem Changes and Public Health,Baltimin,JohnHopling UNIT Press(ed). | | |
| 3 | Christaler George and HristopolesDionissios, 1998: Spatio Temporal Environment Health  Modelling, Boston Kluwer Academic Press. | | |
| 4 | Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford. | | |
| **WEB SOURCE:** | | | |
| 1 | https://jhpn.biomedcentral.com/ | | |
| 2 | https://www.researchgate.net/ | | |
| 3 | https://www.healthgeography/ | | |

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

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| **SEMESTER –III** | | | |
| **SKILL ENHANCEMENT COURSE SEC-5** | | | |
| **REPRESENTATION OF SOCIO ECONOMIC AND CLIMATIC DATA** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the representation of Climatic Data | | |
| **CO2** | To illustrate the Symbols used to interpret the Weather maps | | |
| **CO3** | To differentiate the Socio-economic data using the different methods of Mapping techniques. | | |
| **CO4** | To elaborate on the different methods and techniques of map representation | | |
| **CO5** | To summarize diagrammatic representation of mapping techniques using computer | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Representation of climatic data- Climatic graph –Taylor’s Climograph – Hyther graph – Ergo graph –simple wind rose diagrams. | 12 | CO1 |
| **II** | Weather symbols – Synoptic weather chart -Interpretation of Indian weather report - Weather In sat - Cyclonic track. | 12 | CO2 |
| **III** | Representation of socio-economic data- Distribution maps – Dot map – Mono- Circle-Square- Sphere- block pile - Simple pyramid – Flow diagram. | 12 | CO3 |
| **IV** | Maps - Isopleth – Choropleth – Choro-schematic – Choro-chromatic - Index of concentration – Rainfall dispersion diagram – co-efficient of variation- Lorenz curve-Gini coefficient. | 12 | CO4 |
| **V** | Diagrammatic representation using computer: Bar diagram ( Vertical –Horizontal- Compound and Multiple) – Graphs( simple and poly graph) -Pie –Pictorial-Star diagram. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Define** the climatic data and its representation in geography. **List out** its importance climatic data in Geography, and to **explore their knowledge** to plot graphical **representation** from climatic and socio economic data for all types of climatic graphs, ergo and hyther graph | | |
| **II** | **Understand the** Weather elements. **Outline** the Temperature. Distinguish the Pressure belts . **Illustrate** the significance of Wind. **Categories** the Humidity and **classify** the types of Rainfall. | | |
| **III** | **Understanding** of facts and basic concepts of socio economic data to represent the proper distribution maps. **Develop** the skills to develop apt map for the given data. | | |
| **IV** | **Understands** the Concept of socio economic data to choose apt map to depict. Index of concentration and dispersion diagram has different criteria., hence need to show unique way of drawing maps for each and every particular data. Lorenz curve and Gini coefficient has a close connection with comparing variable with grand total data. | | |
| **V** | **Explore** the Statistical Methods with connection of geographical study to **evaluate** the mean and median centre for locational **analysis and appreciate** the featured criteria elaborately | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | SahaPijushkanti (2010): Advanced Practical Geography, Books and Allied pvt Ltd. | | |
| 2 | Bagulia A.M (2006):Practical Geography, Anmol Publishers. | | |
| 3 | Zulfequar Ahmed Khan M.D (1997): Text book of Practical Geography, Concept Publishing Company , New Delhi. | | |
| **WEB SOURCE:** | | | |
| 1 | [**http://youtu.be/2hxUKRo1qQU**](http://youtu.be/2hxUKRo1qQU) | | |
| 2 | [**https://youtu.be/gmTXQFxwuLE**](https://youtu.be/gmTXQFxwuLE) | | |

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

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| **SEMESTER – IV** | | | |
| **CORE COURSE – CC VII** | | | |
| **GEOGRAPHY OF INDIA** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To elaborate on the Location and Physiography of India | | |
| **CO2** | To understand the climate and soil distribution of India | | |
| **CO3** | To illustrate the agricultural distribution of India and the need for geographical factors for crop production. | | |
| **CO4** | To distinguish the metallic and non metallic minerals, and understand the distribution of Indian Industries. | | |
| **CO5** | To elaborate the distribution of population and transport in India | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Location – Frontiers- Neighbouring Countries- Physiography -Himalayas, Western Ghats and the Eastern Ghats –Plateau - East Coastal Plain, West coastal plain and Islands - Rivers :Northern (Peninsular) and Southern (Non Peninsular). | 12 | CO1 |
| **II** | Climate –Seasons, Monsoons, Rainfall Pattern and Distribution of Rainfall. Soil- Types of Soil - Natural Vegetation- Tropical Forest, Sub Tropical Forest, Evergreen Forest, Mangrove, Thorny Forest. | 12 | CO2 |
| **III** | Agriculture – Geographical Requirements of Crops – Rice - Wheat – Oilseeds – Sugarcane – Cotton - Jute - Tea – Coffee – Rubber - Livestock – Fisheries- Irrigation – Types – Multipurpose Projects. | 12 | CO3 |
| **IV** | Minerals – Metallic and Non-Metallic Minerals - Iron – Manganese – Bauxite- Copper- Mica- Illuminate- Energy (Hydel, Thermal and Atomic) - Industries- Iron & Steel – Textiles – Paper –– Shipbuilding – Locomotives – Cement – Fertilizer- Major Industrial Regions of India. | 12 | CO4 |
| **V** | Population – Distribution - Density and growth –Population Problems - Transport – Roadways – Railways – Water ways – Air ways – Ports and Harbors - Trade – Export and Import. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recall** the geographic location and compare the neighbouring countries and compare its strategic importance, **classifying** the nature and extent of Himalayan rages, **identifying** the resource of various elevation, **compare the** northern perennial and southern non perennial rivers, assess the coastal stretch and its importance, estimate island resource Indian seas and oceans | | |
| **II** | **Distinguish** the concept of climate and weather **, explain** the intensity of Indian Monsoon , **Evaluate** the amount and pattern of rainfall, analyse the tropical cyclones over Indian coasts, | | |
| **III** | the agricultural regions, **classifying** the food crops and non food crops of India, **identifying** the cropping pattern and its distribution, **assess** the production based on rainfall **explain** the types of irrigation, **assess** the hydro electric power generation, | | |
| **IV** | **classifying** the minerals- metallic and non metalic, **estimates** the hydel power generation Assess the thermal power and atomic power generation **,** **Analyse** the major industrial regions and its importance in economic growth | | |
| **V** | Identifies the demography of India, estimate the amount and pattern of rainfall in India **,** **discuss the problems** of urbanization, **compare** the means of transport, **understand** the strategic importance of sea routes **evaluate** the imports and exports | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Khullar, D.R. (2014): India a Comprehensive Geography, Kalyani Publishers, Edition 03. | | |
| 2 | Umesh Kumar (2012): Geography of India,Global Vision pub. | | |
| 3 | Chandra Vijay Purty (2011) :Geography of India, ABD Publishers. | | |
| 4 | Rupali Chatterjee (2010): Geography of India, Global Vision publishers | | |
| **WEB SOURCE:** | | | |
| 1 | <https://www.mapsofindia.com/geography> | | |
| 2 | [www.indianmirror.com/geography/geography.html](http://www.indianmirror.com/geography/geography.html) | | |

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

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| **SEMESTER –IV** | | | |
| **Core COURSE – CC VIII** | | | |
| **POPULATION AND SETTLEMENT GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To Enrich the knowledge on Scope and Significance of Population Geography | | |
| **CO2** | To illustrate on the Components of Demography | | |
| **CO3** | To elaborate on Rural and Urban Settlements | | |
| **CO4** | To understand the Functional classification of towns and villages | | |
| **CO5** | To acquire knowledge on Housing and House Types, Factors influencing house types. | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Nature, Scope and Significance of Population Geography –Theories of Population Growth – Malthus theory, Optimum theory, theory of Demographic Transition. | 12 | CO1 |
| **II** | Components of Demography: Fertility, Mortality, Sex ratio - World Trend of Population Growth - World Population Distribution - Density Patterns. | 12 | CO2 |
| **III** | Rural and Urban Settlements : Site – Situation – Pattern – Forms and Functions Planned Settlement – Rank Size rule.Migration: Causes of Migration, Emigration versus Immigration, Laws of Migration. | 12 | CO3 |
| **IV** | Functional classification of towns and villages: Size of village, Size and distribution of hamlets, Character of villages and village sites; Functional classification of urban centers, Functional structure of cities, megacities and megapolis in India. | 12 | CO4 |
| **V** | Housing and House Types, Factors influencing house type – Relief, Climate, Socio economic and other factors, Building materials for House types – Walls, Roofing, Materials. Types of Houses in India-Types of rural and urban houses in India. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Understanding the** basic concepts and significance of population geography, scope of the study, its history and development in Geography. It **is important to explore student’s knowledge in** world population distribution-. the Theories of Population Growth – Malthus – Ricaedo Demographic Transition | | |
| **II** | **Acquires the knowledge** optimum population, over and under population. **To develop** the skills to work on factors affect in population distribution and-density patterns | | |
| **III** | Migration – Types – Determinants – Major consequences of Migration – **understanding** the major consequence of migration he Urbanization – CBD: Functions and characteristics -. **Understand** the urban Morphology:  Rural–Urban Fringe. Hierarchy  of urban centers - central place theory - Urban Problems - Slums - Urban  Planning | | |
| **IV** | Identifies the different functions of towns and villages, differentiates the structures of cities. Analyses the Functional structure of cities, megacities and mega polis in India. | | |
| **V** | Understands the different Housing and House Types, Factors influencing house type – Relief, Climate, Socio economic and other factors. | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | S.D.Maurya (2017) Population Geography ,Himalaya Publishing House, New Delhi. | | |
| 2 | Siddhartha, K & Mukherjee. S. (2016). *Cities, Urbanisation and Urban Systems(Settlement Geography).* Kitabmahal Publishers. | | |
| 3 | R.C.Chandana(2012) Geography of Population, Kalyani Publishing House, New Delhi. | | |
| 4 | Mandal, R.B.(2001).*Introduction to Rural Settlements*. Concept Publishing House, NewDelhi. | | |
| **WEB SOURCE:** | | | |
| 1 | https://www.e-education.psu.edu/geog597i\_02/node/814 | | |
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| CO/PO/PSO | **1 Disciplinary knowledge and skill** | **2 Skilled communicator** | **3 critical thinker and problem solver** | **4 Sense of inquiry** | **5 Team player/worker** | **6 Skilled project manager** | **7 Digitally efficient** | **8 Ethical awareness/**  **Reasoning** | **9 National and International perspective** | **10 Life long learners** |
| CO1 | 3 | 1 | 1 | 2 |  |  | 2 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 3 |  |  | 2 | 1 | 1 | 1 |
| CO3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 3 |  |  | 3 | 1 | 1 | 1 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 1 | 1 |
| Avg | 3 | 2 | 2 | 3 | 1 | 2 | 3 | 1 | 1 | 1 |
| **Total** | **15** | **9** | **9** | **14** | **6** | **4** | **12** | **5** | **5** | **5** |

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| **SEMESTER – IV** | | | |
| **ELECTIVE GENERIC / DISCIPLINE SPECIFIC ELECTION – IV** | | | |
| **REGIONAL PLANNING AND DEVELOPMENT** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire the conceptual and theoretical framework of Region | | |
| **CO2** | To Distinguish between the Physical regions, resource regions | | |
| **CO3** | To assess the approaches to delineation of different types of regions and their utility in planning | | |
| **CO4** | To illustrate the Regional development strategies | | |
| **CO5** | To differentiate the Concept of Multi-level planning | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Regional concept in geography - conceptual and theoretical framework, merits and limitations for application to regional planning and development -Types of regions: Formal and functional - uniform and nodal - single purpose and composite region in the context of planning- regional hierarchy - special purpose regions. | 12 | CO1 |
| **II** | Physical regions, resource regions, regional divisions according to variations in levels of socio-economic development- special purpose regions – river valley regions, metropolitan regions, problem regions – hilly regions, tribal regions, regions of drought and floods. | 12 | CO2 |
| **III** | Approaches to delineation of different types of regions and their utility in planning. Planning process – sectoral, temporal and spatial dimensions- short-term and long term perspectives of planning. Planning for a region’s development and multi-regional planning in a national context. | 12 | CO3 |
| **IV** | Regional development strategies – concentration vs. dispersal, case studies for plans of developed and developing countries, Regional plans of India. | 12 | CO4 |
| **V** | Concept of Multi-level planning- decentralised planning- peoples participation in the planning process- Panchayati Raj system- role and relationship of Panchayati Raj Institutions (Village, Block and District)/ Regional development in India- Problems and prospects. | 12 | CO5 |
| **VI** | Assessment Unit |  | CO6 |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Recalls** and memorize the framework of Regional planning, its concepts and principles in geographical perspective., it is important to **explore** their knowledge in changing concept of development which gives the real indication of economic, social, and environmental aspects | | |
| **II** | **Understands** the facts and ideas of regions and regionalism. **Compare** the various classification of regions and its hierarchy. Applying acquired knowledge of various resources and delineation of planning regions | | |
| **III** | **Acquire** through knowledge on regional planning in India. **Activity** given to list out the important development aspects in five-year plans and annual plans | | |
| **IV** | **Understands** the regional population analysis and population projection. Learn the impact of population on regional planning; learn the principles of location analysis | | |
| **V** | **Acquire** through knowledge on regional planning in India. **Activity** given to list out the important development aspects in five-year plans and annual plans. **Understands** the Concept of block level and district level planning in Tamil Nadu, infer the important ideology of panchayat raj and planning program to improve developing regions. | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Bhat, L.S. et al. Micro-Level Planning: A Case Study of Karnal Area, Haryana. K.B. Publications, New Delhi, 1976. | | |
| 2 | Abler, R., et al. Spatial Organization: The Geographer’s View of the World. Prentice Hall, Englewood Cliffs, N.J., 1971. | | |
| 3 | Chorley, R.J. and Hagget, P. Models in Geography, Methuen, London, 1967. | | |
| 4 | Christaller, W. Central Places in Southern Germany. Translated by C.W.Baskin, Prentice Hall, Englewood Cliffs, New Jersey, 1966. | | |
| **WEB SOURCE:** | | | |
| 1 | https://en.wikipedia.org/wiki/Regional\_planning | | |
| 2 | https://en.wikipedia.org/wiki/regionalism\_(international\_relation) | | |
| 3 | www.tn.gov.in/tcp/activities.htm | | |
| 4 | www.slideshare.net/charujaiswal/planning-regions-of-india | | |

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| CO/PO/PSO | **1 Disciplinary knowledge and skill** | **2 Skilled communicator** | **3 critical thinker and problem solver** | **4 Sense of inquiry** | **5 Team player/worker** | **6 Skilled project manager** | **7 Digitally efficient** | **8 Ethical awareness/**  **reasoning** | **9 National and International perspective** | **10 Life long learners** |
| CO1 | 3 | 2 |  | 2 |  |  |  | 1 | 2 | 1 |
| CO2 | 3 | 1 | 2 | 2 | 2 | 1 |  | 1 | 1 | 1 |
| CO3 | 3 | 2 | 2 | 2 | 2 | 1 | 3 | 2 | 1 | 1 |
| CO4 | 3 | 2 | 3 | 2 |  |  | 1 | 1 | 1 | 1 |
| CO5 | 3 | 2 | 2 | 3 | 2 | 1 | 1 | 2 | 1 | 1 |
| **CO**-**PO**-Avg | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 1 |
| **CO-PO-Total** | **15** | **9** | **9** | **11** | **6** | **3** | **5** | **7** | **6** | **5** |

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| **SEMESTER –IV** | | | |
| **Skill Enhancement CourseSEC-6** | | | |
| **STATISTICAL APPLICATIONS FOR GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire the basic knowledge of data collection | | |
| **CO2** | To understand the need of basic statistical methods | | |
| **CO3** | To get the knowledge diagrammatic representation of statistical methods | | |
| **CO4** | To explore the basic knowledge of Time series and moving average | | |
| **CO5** | To acquire the knowledge of statistical analysis | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Collection of data and formation of statistical tables- Importance of cross tabulation- | 12 | CO1 |
| **II** | Measures of Central Tendency: Mean- Median- Mode- Measures of Dispersion: Range- Mean Deviation-Standard Deviation-Rank Correlation- Coefficient of Variation. | 12 | CO2 |
| **III** | Diagrammatic Representation of Data- Bar, Histogram – Frequency Polygon and Curve - Ogives- Lorenz Curve- Gini Coefficient | 12 | CO3 |
| **IV** | Time Series – Graphical Method – Semi Average – Moving Average. | 12 | CO4 |
| **V** | Hypothesis Testing **–** ‘T’ Test – ‘F’ Test – Chi-Square Test. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | **Understands** the Purposes of data collection and its sources. Sampling is very essential to choose according to the types of data types and the purpose of the study. | | |
| **II** |  | | |
| **III** |  | | |
| **IV** |  | | |
| **V** | **Understands** of facts of hypothesis testing and need of hypotheses in research analysis. Explore the types of hypothesis and its significance and confidence level. **Examine** the relationship between Parametric and Non-parametric procedures through Chi-square test, ‘T’ test, ‘F’ test, Analysis of Variance (ANOVA). | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | SahaPijushkanti (2010): Advanced Practical Geography, Books and Allied pvt Ltd. | | |
| 2 | Bagulia A.M (2006): Practical Geography, Anmol Publishers. | | |
| 3 | Zulfequar Ahmed Khan M.D (1997): Text book of Practical Geography, Concept Publishing Company , New Delhi. | | |
| **WEB SOURCE:** | | | |
| 1 | <http://www.albert.io/blog/data-collection-methods-statistics/> | | |
| 2 | <http://sciencing.com/difference-between-cluster-factor-analysis-8175078.html> | | |
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| CO/PO/PSO | PO | | | | | | | | | |
| 1 Disp knowledge and skill | 2 Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8 Ethical awareness/  reasoning | 9 National and International perspective | 10 Lifelong learners |
| CO1 | 3 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 |
| CO2 | 3 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 |
| CO3 | 3 | 2 | 1 | 2 | 2 | 3 | 2 | 1 | 1 | 2 |
| CO4 | 3 | 2 | 1 | 3 | 1 | 1 | 2 | 1 | 1 | 2 |
| CO5 | 3 | 2 | 2 | 3 | 1 | 3 | 2 | 1 | 2 | 2 |
| Copc5635  CO/PO/PSO  Pc5635 Average  Correlation Average | 3  3 | 2  2 | 1  1 | 2  2 | 1  1 | 2  2 | 2  2 | 1  1 | 1  1 | 2  2 |

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| **SEMESTER - IV** | | | |
| **SKILL ENHANCEMENT COURSE SEC-7** | | | |
| **SURVEYING AND PROJECTIONS FOR GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire the knowledge of Conical Projection | | |
| **CO2** | To get the knowledge of properties of cylindrical projection | | |
| **CO3** | To get depth knowledge to construct international projection and Choice of Projection. | | |
| **CO4** | To acquire the basic knowledge of survey techniques | | |
| **CO5** | To get the knowledge of recent trends in Geographical Applications. | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Map projection - Construction – Properties and utilities- Conical Projection – One standard Projection - Two standard parallel Projection – Bonne’s projection and Polyconic projection. | 12 | CO1 |
| **II** | Construction of Cylindrical Projection - Equal area Projection – Equidistant Projection - Mercator’s Projection. | 12 | CO2 |
| **III** | Zenithal Projection (Polar case) Gnomonic, Stereographic – Orthomorphic world projection – Molleweide – Sinusoidal- International projection - Choice of projection. | 12 | CO3 |
| **IV** | Simple Plane table survey-Open and Closed Travers – Clinometer - Dumpy level methods of surveying – Chain (open and closed) – Prismatic compass (open and closed). | 12 | CO4 |
| **V** | GPS, Survey with GPS- Aerial and Satellite based survey techniques (Photogrammetry, RADAR, LiDAR) - Survey by GPS - Geographical applications such as Google maps and Google earth pro. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |

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

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

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| **SEMESTER V** | | | |
| **CORE COURSE – CC IX** | | | |
| **WORLD REGIONAL GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To have wide knowledge on the physical and political divisions of North America and South America | | |
| **CO2** | To have broad regional knowledge of Africa and its Cultural Aspects | | |
| **CO3** | To have depth regional knowledge of Australia and its Cultural Aspects | | |
| **CO4** | To acquire regional knowledge of Physical and political features of Europe | | |
| **CO5** | To acquire the regional knowledge of Asia and its Cultural Aspects | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | North America and South America: Political divisions– Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural Aspects. | 12 | CO1 |
| **II** | Africa: Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects. | 12 | CO2 |
| **III** | Australia: Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects. | 12 | CO3 |
| **IV** | Europe : Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects. | 12 | CO4 |
| **V** | Asia: Political divisions – Physical - Drainage – Soil – Agricultural – Natural Vegetation – Animal Life – Transport and trade Cultural aspects. | 12 | CO5 |
|  | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |

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

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

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| **SEMESTER V** | | | |
| **CORE COURSE – CC X** | | | |
| **GEOGRAPHY OF TAMILNADU WITH SPECIAL REFERENCE TO SPECIFIC REGION** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To enrich wide and depth knowledge of Political and Physiography of Tamil Nadu | | |
| **CO2** | To elaborate the Soil profile, natural vegetation and the significant understanding regarding wild life and bird sanctuaries | | |
| **CO3** | To elucidate the Distribution of Crops and the significance of livestock rearing and Fisheries | | |
| **CO4** | To explore the knowledge of Minerals and Industries | | |
| **CO5** | To distinguish the distribution of population and its problems | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Tamil Nadu: Location – Districts of Tamil Nadu - Physiography – Mountains, Plateaus, Plains - Climate – Seasons - South West and North East Monsoon - Cyclonic Rainfall - Distribution of Rainfall- Rivers of Tamil Nadu. | 12 | CO1 |
| **II** | Soils – Types of Soil - Natural Vegetation- Forest and its types- Flora and Fauna -Wild life sanctuaries - Bird sanctuaries - Botanical gardens. | 12 | CO2 |
| **III** | Distribution of Crops: Food Crops - Paddy, Millets, Pulses, Oilseeds- Cash Crops (Sugarcane, Cotton) - Plantation Crops (Tea, Coffee, Rubber and Spices ) – Livestock (cattle, sheep and dairying) – Fisheries( inland and deep sea fishing). | 12 | CO3 |
| **IV** | Distribution of Minerals and Industries-Metallic- Non-Metallic (Iron, Manganese, Bauxite, Copper, Mica, Illuminate and power resources**)** - Agro Based Industries-(Textile, Sugar, Paper) – Cement – Automobile. | 12 | CO4 |
| **V** | Population : Distribution – Growth – Density - Population Problems –Transportation- Roadways- Railways- Airports- Ports- Trade (Import and Export)- Special Economic Zones. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **VI** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Statistical Hand Book (2015) :Published by Tamil Nadu Government. | | |
| 2 | Geography of Tamil Nadu (2014) :Economic appraisal of Tamil Nadu | | |
| 3 | Sakthi Venkata Kumuraswamy (2003) :Tamilnadupuviyiyal, Sakthi Abirami printers, kumbakonam. | | |
| 4 | Negi, B.S. (1998) : Agricultural Geography, Kedarnath&Ramanath, New Delhi. | | |
| **WEB SOURCE:** | | | |
| 1 | <https://www.mapsofindia.com/geography> | | |
| 2 | [www.indianmirror.com/geography/geography.html](http://www.indianmirror.com/geography/geography.html) | | |
| 3 | [www.mheeducation.co.in](http://www.mheeducation.co.in) | | |

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

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| **SEMESTER \_V** | | | |
| **CORE COURSE – CCXI** | | | |
| **BASICS OF GEOGRAPHICAL INFORMATION SYSTEM** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire the knowledge on the development of GIS | | |
| **CO2** | To distinguish between the significance of Spatial and non-spatial data | | |
| **CO3** | To understand the importance of DBMS | | |
| **CO4** | To update the recent trends on GIS analysis | | |
| **CO5** | To explore the application of GIS and its softwares | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Geographical Information System: Definition –Historical development - Components of GIS- data storage and manipulation – data transformation – data output devices. | 12 | CO1 |
| **II** | Spatial and Non- spatial Data, Raster and Vector Data Structure. Comparison of raster and vector data.Geographical coordinate systems of earth: UTM. | 12 | CO2 |
| **III** | DBMS – components - query - digitization – editing – topology – layout preparation. | 12 | CO3 |
| **IV** | GIS analysis: Single layer analysis: butter – interpolation, multilayer analysis: overlay analysis, network analysis, WebGIS(A Basic Introduction). | 12 | CO4 |
| **V** | Application of GIS and GIS Softwares; Land use/ Land cover/ Urban sprawl /Agriculture and environment. Disaster; Arc view, Arc GIS, ILWIS, GRASS, QGIS, ENVIS. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **VI** | Assessment Unit | | |

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

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| CO/PO/PSO | 1 Disciplinary knowledge and skill | 2 Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8 Ethical awareness/  reasoning | 9 National and International perspective | 10 Life long learners |
| CO1 | 3 | 1 | 1 |  |  |  | 1 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 1 | 2 |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 1 | 1 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 3 | 2 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| Average | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| Total | 15 | 8 | 7 | 7 | 5 | 6 | 5 | 5 | 5 | 5 |

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| **SEMESTER - V** | | | |
| **ELECTIVE GENERIC / DISPLINE SPECIFIC ELECTIVE – V** | | | |
| **RESEARCH METHODOLOGY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To elaborate the need for research and its types | | |
| **CO2** | To elucidate the different types of data collection in the field of Geography | | |
| **CO3** | To have empirical knowledge on hypothesis testing | | |
| **CO4** | To assess the need for quantitative techniques in Geographical Research | | |
| **CO5** | To design the research proposal and methodological procedures to conduct the research | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Definition of Research - Aims and Objective of Research - Types of Research - Qualitative, Quantitative, Descriptive, Analytical, Applied, Fundamental, Conceptual, Empirical – Scientific method - Multi disciplinary and inter disciplinary approach. | 12 | CO1 |
| **II** | Data Collection: Primary and Secondary data - Field work - Aerial Photograph, Census data and satellite imageries as data sources - Sampling and sample survey - Designing Questionnaires and schedules. | 12 | CO2 |
| **III** | Hypothesis testing - formulation of Hypothesis - its importance - Scientific Hypothesis- Null Hypothesis - Alternative Hypothesis - Hypothesis Testing - X2 Test, ‘t ‘Test, ‘F’ Test. | 12 | CO3 |
| **IV** | Need for Quantitative Techniques - Measurement of Quantitative data - levels of measurement - Nominal, Interval, Ordinal and Ratio scales - Data transformation -Measures of central tendency and dispersion Correlation. | 12 | CO4 |
| **V** | Selection of a Problem-Design of Project – Research proposal - Scientific Writing - Methodological frame work - Chapter organization – Appendix- Bibliography. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |

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

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| CO/PO/PSO | 1 Disp knowledge and skill | 2 Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project managers | 7 Digitally efficient | 8 Ethical awareness/  reasoning | 9 National and International perspective | 10 Life long learners |
| CO1 | 3 | 2 | 2 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 2 | 3 |  | 2 | 2 | 1 | 1 | 1 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 3 | 2 |
| CO4 | 3 | 2 | 2 | 3 |  | 2 | 2 | 1 | 2 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 3 | 2 |
| PE5614/ Total  PE5614/Average | 15  3 | 12  2 | 12  2 | 14  3 | 6  1 | 11  2 | 9  2 | 5  1 | 10  2 | 8  2 |

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| **SEMESTER – V** | | | |
| **ELECTIVE GENERIC / DISPLINE SPECIFIC ELECTIVE – VI** | | | |
| **RESEARCH ANALYTICAL TECHNIQUES** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To understand the need of data sources and significance of sampling in research. | | |
| **CO2** | To have empirical knowledge on types of hypothesis testing and also parametric and non-parametric procedures. | | |
| **CO3** | To have depth understanding on the bivariate analysis | | |
| **CO4** | To assess the need for multivariate analysis in Geographical Research | | |
| **CO5** | To design and thorough understanding in trend surface and models | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Data Collection - Data Sources - Data Types - Primary, Secondary - Sampling - Simple Random - Stratified - Nesting. | 12 | CO1 |
| **II** | Hypothesis Testing - Needs and Types of hypotheses - Goodness of fit and significance and confidence levels - Parametric and Non-parametric procedures: Chi-square test, ‘T’ test, ‘F’ test, Analysis of Variance (ANOVA). | 12 | CO2 |
| **III** | Bivariate Analysis: Scatter diagram - Simple linear - Spearman’s Rank and Product Moment Correlation Coefficients, Regression - Residuals and their Mapping. | 12 | CO3 |
| **IV** | Multivariate Analysis: Basic Principles and elements of Factor Analysis - Principal - Cluster Analysis. | 12 | CO4 |
| **V** | Trend Surface and Models: Gravity Models- Population Potential - Index of Concentration- Growth rate- Scalogram. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | David Unwin, (1981) Introductory Spatial Analysis, Methuen, London. | | |
| 2 | Gregory, S. (1978) Statistical Methods and the Geographer, Longman, London. | | |
| 3 | Peter Haggett, Andrew D. Cliff, and Allan Frey, (1977) Location Methods Vol. I and II, Edward Arnold, London. | | |
| 4 | Maurice Yeats, (1974) An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York. | | |

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| **WEB SOURCE:** | |
| 1 | <http://www.albert.io/blog/data-collection-methods-statistics/> |
| 2 | <http://sciencing.com/difference-between-cluster-factor-analysis-8175078.html> |
| 3 | <http://transportgeography.org/?page_id=8565>. |
| 4 | [www.slideshare.net/parabprathamesh/primary-sec](http://www.slideshare.net/parabprathamesh/primary-sec) |

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| CO/PO/PSO | PO | | | | | | | | | | |
| 1  Disciplinary knowledge and skills | 2  Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project managers | 7 Digitally efficient | 8  Ethical awareness/  reasoning | 9  National and International perspective | 10  Life  long learners |
| CO1 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 |
| CO2 | 3 | 3 | 2 | 2 | 3 | 1 | 2 | 1 | 3 | 3 |
| CO3 | 3 | 2 | 2 | 2 | 2 | 1 | 3 | 2 | 1 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 3 | 1 | 3 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 2 | 3 |
| EDE-AVG | 3 | 2 | 2 | 2 | 3 | 1 | 3 | 2 | 2 | 3 |
| EDE TOTAL | 15 | 12 | 11 | 12 | 13 | 5 | 12 | 8 | 10 | 13 |

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| **SEMESTER \_VI** | | | |
| **CORE COURSE – CC XIII** | | | |
| **REMOTE SENSING AND GNSS** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To have basic knowledge on basics of Remote sensing | | |
| **CO2** | To elaborate on the fundamentals and significance of Aerial photographs and satellite types | | |
| **CO3** | To have the deep knowledge on the types of resolution and marginal information of Aerial photos and satellite images | | |
| **CO4** | To explore the application of Remote sensing | | |
| **CO5** | To have wide understanding on GNSS, Segments and Satellite tracking | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Remote Sensing – Definition and types- History of Remote Sensing in India – Remote Sensing Processes – Electromagnetic Spectrum, Atmospheric Window – Plat Forms and its types. | 12 | CO1 |
| **II** | Fundamentals of Aerial and Satellite Remote Sensing- Aerial Photography and Scale of Aerial Photographs and its types – types of Satellites. | 12 | CO2 |
| **III** | Resolution: Spectral, Spatial, Radiometric and Temporal- Marginal Information of Aerial Photographs and Satellite Images. | 12 | CO3 |
| **IV** | Application of Remote Sensing ; Land use/ Land cover/ Urban sprawl Agriculture and environment. | 12 | CO4 |
| **V** | Global Navigation Satellite System: Segments: space segment - GPS Satellite systems – New programmes – IRNSS - Control segment - Satellite tracking - User segment – Modern survey instruments – Error sources – Satellite augmented systems - DGPS - GNSS Applications. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Siddique M.A.(2006): Introduction to Geographic Information Systems, Sharda Pustak Bhawan, Allahabad. | | |
| 2 | Chandra A.M &S.M.Ghosh, (2006) Remote sensing and Geographical Information System, Alpha Science Int’l limited, New Delhi. | | |
| 3 | Panda B.C(2005): Remote sensing principles and applications, Viva books private limited. | | |
| 4 | Anji Reddy. M. (2001): Remote sensing and Geographical information system, BS publication, Hyderabad. | | |
| **WEB SOURCE:** | | | |
| 1 | [www.gdmc.nl/oosterom/PoGISHyperlinked.pdf](http://www.gdmc.nl/oosterom/PoGISHyperlinked.pdf) | | |
| 2 | RSgeography.com › RS Analysis | | |

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| CO/PO/PSO | 1 Disciplinary knowledge and skill | 2 Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8 Ethical awareness/  reasoning | 9 National and International perspective | 10 Life long learners |
| CO1 | 3 | 1 | 1 |  |  |  | 1 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 1 | 2 |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 1 | 1 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 3 | 2 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| Average | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| Total | 15 | 8 | 7 | 7 | 5 | 6 | 5 | 5 | 5 | 5 |

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| **SEMESTER -VI** | | | |
| **CORE COURSE – CC XIV** | | | |
| **SOCIAL AND CULTURAL GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire basic knowledge on the social structure and society | | |
| **CO2** | To elaborate the spatial distribution of Ethnicity, Language, Caste and Religion | | |
| **CO3** | To discuss the social welfare and well being | | |
| **CO4** | To distinguish on the races and cultural diffusion of the world | | |
| **CO5** | To assess the Human development indicators and its Index | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Introduction: Nature and Scope of Social Geography – Concepts of Social Geography -Social Structure (Family, Marriage, Kinship) and Processes - Rural and urban society. | 12 | CO1 |
| **II** | Spatial distribution of Ethnicity, Tribe, Dialect, Language, Caste and Religion in the World with special reference to India. | 12 | CO2 |
| **III** | Welfare and Social Well being : Quality of Life – Health- Education – Economic Status – Gender – Wellbeing of Women. | 12 | CO3 |
| **IV** | Cultural geography :Concept of Culture, Evolution of Human beings – Major Races of the world- Culture Interaction and diffusion – Culture Exchange. | 12 | CO4 |
| **V** | Measurement of Human Development – Social, Economic and Environmental Indicators –Human Development Index. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |

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| **TEXT BOOK:** | |
| 1 | Jon Anderson, Taylor & Francis. (2021) Understanding Cultural Geography Places and Traces |
| 2 | S.D.Maurya (2016) Cultural Geography, Sharda pustak bhavan, Allahabad |
| 3 | G.S. Mohanty (2007) Social and Cultural Geography |
| 4 | Ajjazuddin Ahmad (2004) Social Geography, Rawat Publications, Jaipur |
| **WEB SOURCE:** | |
| 1 | https://en.wikipedia.org/wiki/Cultural\_geography |
| 2 | https://en.wikipedia.org/wiki/Race\_(human\_categorization) |
| 3 | https://en.wikipedia.org/wiki/Clothing\_in\_the\_ancient\_world |
| 4 | https://books.google.co.in/books?isbn=8180690741 |

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| CO/PO/PSO | PO | | | | | | | | | | |
| 1  Disciplinary knowledge and skills | 2  Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project managers | 7 Digitally efficient | 8  Ethical awareness/  reasoning | 9  National and International perspective | 10  Lifelong learners |
| CO1 | 3 | 2 |  | 2 |  |  | 3 | 1 | 2 | 2 |
| CO2 | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| CO3 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 2 |
| CO4 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 2 |
| CO5 | 3 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 1 | 2 |
| PC7628-AVG | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| PC-7628 TOTAL | 15 | 9 | 9 | 11 | 9 | 8 | 12 | 8 | 6 | 9 |

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| **SEMESTER -VI** | | | |
| **CORE COURSE – CC XV** | | | |
| **POLITICAL GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire basic knowledge on the Political Geography | | |
| **CO2** | To elaborate the spatial distribution of Core Areas of Political Geography | | |
| **CO3** | To discuss the importance of Boundaries and Frontiers | | |
| **CO4** | To elaborate on Geography of Elections | | |
| **CO5** | To illustrate the Political Geography of India | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Political Geography: Definition, Scope, Content and Development – Geopolitics - State: Categories -Powers and Functions - Nations and Nationalism. | 12 | CO1 |
| **II** | Core Areas: Types – Capitals: Types - Morphological classification - Factors of Development, Federal Capitals – New and Neutral Capitals – Capitals in Post -1945 federations. | 12 | CO2 |
| **III** | Boundaries and Frontiers: Definition – Classification: Genetic and Functional – Morphological Classification (Buffer Zone – Land locked Countries) – Border Disputes. | 12 | CO3 |
| **IV** | Electoral Geography: Geography of Elections – Election Campaigning - Voting Pattern - Voters’ Participation – Gerry Mandering – Election Commission. | 12 | CO4 |
| **V** | Political Geography of India: Integration of Indian States: Integration of Sikkim – India’s Bilateral Relationship with Pakistan and Sri Lanka – SAARC Countries - India’s Foreign Policies. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |
| **TEXT BOOK:** | | | |
| 1 | Dwivedi, R.L. (2014). *Fundamentals of Political Geography*. Chaitanya Publishing House, Allahabad. | | |
| 2 | Adhikari, Sudeepta. (2009). *Political Geography of India- A Contemporary Perspective*. Sharada Pustak Bhavan, Allahabad. | | |
| 3 | Sudeeptha Adhikari, (2004), Political Geography, Rawat publications, New Delhi. | | |
| 4 | Dikshit, R.D. (1982). Political Geography: A contemporary perspective, McGraw Hill Publishing co., New Delhi. | | |

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| **WEB SOURCE:** | |
| 1 | [www.geography.about.com/od/politicalgeography](http://www.geography.about.com/od/politicalgeography) |
| 2 | [www.electoralgeography.com/new/en/category/countries/i/india](http://www.electoralgeography.com/new/en/category/countries/i/india) |
| 3 | <https://en.wikipedia.org/wiki/Political_geography> |

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| CO/PO/PSO | PO | | | | | | | | | | |
| 1  Disciplinary knowledge and skills | 2  Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project managers | 7 Digitally efficient | 8  Ethical awareness/  reasoning | 9  National and International perspective | 10  Life long learners |
| CO1 | 3 | 2 |  | 2 |  |  | 3 | 1 | 2 | 2 |
| CO2 | 3 | 1 | 2 | 2 | 2 |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 2 | 2 | 2 | 2 |  | 3 | 2 | 1 | 2 |
| CO4 | 3 | 2 | 3 | 2 | 2 |  | 2 | 2 | 1 | 2 |
| CO5 | 3 | 2 | 2 | 3 | 3 |  | 3 | 2 | 1 | 2 |
| PE7613-AVG | 3 | 2 | 2 | 2 | 2 |  | 3 | 2 | 2 | 2 |
| PE- 7613 TOTAL | 15 | 9 | 9 | 11 | 9 |  | 12 | 8 | 6 | 9 |

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| **SEMESTER –VI** | | | |
| **ELECTIVE GENERIC / DISPLINE SPEICIFIC ELECTIVE – VII** | | | |
| **GEOGRAPHY OF TOURISM** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To elaborate the Concept of Leisure and Tourism | | |
| **CO2** | To discuss the history of tourism and discuss on the Determinants and Motivation of Tourism. | | |
| **CO3** | To elaborate on Elements of Tourism | | |
| **CO4** | To illustrate the Role of Transport in Tourism Development | | |
| **CO5** | To discuss the importance of Tourist Organization of India | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | 1. Concept of Leisure and Tourism – Principles and Purpose – Types of Tourism–Significance of Tourism development in Modern society – Tourism development in the World - Tourism development in India. | 12 | CO1 |
| **II** | 1. History of Tourism – Ancient, Medieval and Modern periods – Determinants and Motivation of Tourism | 12 | CO2 |
| **III** | 1. Elements of Tourism – Attraction, Accessibility and Amenities – Classification of Tourist spots - Accommodation – Primary and Supplementary Accommodation– Hotels, Inns and Motels. | 12 | CO3 |
| **IV** | Role of Transport in Tourism Development – Travel Formalities – Tour Itinerary– Travel Agency – Travel Restriction – Passport, Visa and Bank restriction - Traveler’s cheques – Credit and Debit cards – Tourism and Environment – Eco Tourism. | 12 | CO4 |
| **V** | Tourist Organization – WTO – ITDC and subsidiaries – Tourism promotion –Advertisement – Tourism planning and development –Tourist spots in India –Potential of Tourism in India – Problems of Tourism development – Field Trip (for 5 or 7 days). | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |

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| **TEXT BOOK:** | |
| 1 | A.K.Bhatia(2015), Sterling Publishers (P) Ltd. Sterling Publishers, New Delhi. |
| 2 | Girish, Revathy(2010): Tourism Product II, Wisdom Press, Daryagang, New Delhi |
| 3 | R.E.Sinha 1996 ‘Tourism Strategies, Planning and Development’, Common Wealth Publishers. |
| **WEB SOURCE:** | |
| 1 | <https://en.wikipedia.org/wiki/Hospitality_management_studies> |
| 2 | study.com/directory/category/Business/Hospitality\_Management.html |
| 3 | <http://www.wisegeek.org/> |

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

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| **SEMESTER – VI** | | | |
| **ELECTIVE GENERIC / DISPLINE SPEICIFIC ELECTIVE – VIII** | | | |
| **TRANSPORT GEOGRAPHY** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire basic knowledge and Scope of Transport Geography | | |
| **CO2** | To elaborate the Types of Transport | | |
| **CO3** | To discuss the importance of Network Characteristics of transport | | |
| **CO4** | To elaborate on Theories related to freight rate structure | | |
| **CO5** | To illustrate the Transport system in India | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Nature and Scope of Transport Geography - Importance of Transport - Development of Transport Geography – Associated factors - Transport Development - Physical, Economic, Technology. | 12 | CO1 |
| **II** | Types of Transport – Railways, Roads, Airways and Waterways, Pipelines. | 12 | CO2 |
| **III** | Network Characteristics – Topology - Graph Theory - Binary Matrix - Measures Of Connectivity and Accessibility. | 12 | CO3 |
| **IV** | Theories related to freight rate structure - Bases of Spatial interaction – Complementarily - Intervening Opportunity and Transferability. | 12 | CO4 |
| **V** | Transport system in India - Role of Transport in Regional development In India - Problems and prospects of Role of Transport in Regional development In India - Urban and Rural Transportation Planning and Management. | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |

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| **TEXT BOOK:** | |
| 1 | Transport and Developing Countries - Hillings, H., Routledge, 1996  Geography of Transportation, Naresh Kumar, Concept Publication, 1991. |
| 2 | White H.P. and Senior 1983 ‘Transport Geography’, Longman, London. |
| 3 | Transport for the Space Economy: A Geographical Study -Hay, A, Macmillan, 1973 |
| 4 | Transportation Geography: Comments and Readings - Eliot Hurst, M.E.,1971 |
| **WEB SOURCE:** | |
| 1 | [https://transportgeography.org/?page\_id=40,](https://transportgeography.org/?page_id=40,%20https://www.e-) |
| 2 | https://www.e-education.psu.edu/geog597i\_02/node/814 |

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

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| **SEMESTER -VI** | | | |
| **SKILL ENHANCEMENT** | | | |
| **GEO SPATIAL TECHNIQUES** | | | |
| **TEACHING HOURS : 60** | | | |
| **UNIT** | **LEARNING OBJECTIVES** | | |
| **CO1** | To acquire basic knowledge and Scope of Geoinformatics | | |
| **CO2** | To elaborate the sources of Spatial database | | |
| **CO3** | To discuss the importance of Software Sources and methods of acquiring Geo data | | |
| **CO4** | To elaborate on GIS and Spatial Decision Support | | |
| **CO5** | To illustrate the Application of Geo spatial data. | | |
| **CO6** | Assessment Unit | | |
| **UNIT** | **DETAILS** | **NO. OF HOURS** | **COURSE OBJECTIVES** |
| **I** | Meaning and Scope of Geoinformatics – Science and Technologies involved in producing Maps - Cartography- Remote Sensing- Photogrammetry - Digital Image Processing- Geographical Information System-Global Positioning System- GNSS. | 12 | CO1 |
| **II** | Spatial database: Survey of India – NRSC - BHUVAN - NATMO – Geological Survey of India - Census of India –National Informatics Centre - Cadastral maps – open street map – foreign sources of data - Physical surveying - GPS and Total station- GPR | 12 | CO2 |
| **III** | Software Sources and methods of acquiring geodata - user interfaces - application programs - Operating systems - network computing - Information Technology in Remote Sensing - GIS Applications of IT in Cartography - Applications of IT in Real Time GIS. | 12 | CO3 |
| **IV** | Spatial Process : Maps as output – Thematic Maps - non-cartographic outputs – spatial multimedia – GIS outputs delivery mechanism - GIS and Spatial Decision Support - map as a decision tool. | 12 | CO4 |
| **V** | Application of Geo spatial data: Rural Development, Geosciences, agriculture, Forestry, Soil Studies, Meteorology, Military, Transport, Environmental studies, Banking and Health Civil Engineering etc., | 12 | CO5 |
| **VI** | Assessment Unit |  |  |
| **UNIT** | **LEARNING OUTCOMES** | | |
| **I** | Assessment Unit | | |

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

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| CO/PO/PSO | 1 Disciplinary knowledge and skill | 2 Skilled communicator | 3 critical thinker and problem solver | 4 Sense of inquiry | 5 Team player/worker | 6 Skilled project manager | 7 Digitally efficient | 8 Ethical awareness/  reasoning | 9 National and International perspective | 10 Life long learners |
| CO1 | 3 | 1 | 1 |  |  |  | 1 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 1 | 2 |  | 1 | 1 | 1 | 1 |
| CO3 | 3 | 1 | 1 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 3 | 2 | 2 |  | 2 | 1 | 1 | 1 | 1 |
| Average | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| Total | 15 | 8 | 7 | 7 | 5 | 6 | 5 | 5 | 5 | 5 |

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