LEARNING OUTCOMES BASED CURRICULUM
FRAMEWORK
(LOCF)
FOR
GEOGRAPHY
BA./B.Sc.(Hons.)

UNDERGRADUATE PROGRAMME
2020-21

DEPARTMENT OF GEOGRAPHY
FACULTY OF ENVIRONMENTAL SCIENCE
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Preamble

The UGC committee constituted for preparing the Learning Outcomes Based Curriculum Framework for BA/BSc. Hons. Geography/ B.A/B.SC (PROGRAMME), has been accepted by the Board of Undergraduate Studies (BUGS), subsequently approved in the 33rd Academic Council Meeting July 8 2021 and 39th Executive Council Meeting held on June 10 2021 of Rajiv Gandhi University, Rono Hills Doimukh. RGU has made minor modification to give regional touch to the syllabus and uniform pattern of coding of the paper has done. The UGC Committee hereby suggests the curriculum for the students considering the global, national, regional, local issues and programs for better learning outcomes. The LOCF is designed to emphasize the teaching-learning process at the undergraduate (B.A./B.Sc) level to sensitize and train the students to develop a sound and systematic approach regarding mechanism and processes of natural and human activities. The focus is to help the students to understand the latest tools and techniques, which would help in giving focused and precise understanding of geographical phenomenon. The purpose is to enhance the capability of the students in perceiving, creating and analyzing sound geographical bases and concepts.

This Learning Outcome based Curriculum Framework is designed to emphasize the teaching and learning process at the undergraduate (B.A./ B.Sc) from teacher centric to student centric by strengthening the quality of teaching and learning in the present day real life scenario of global, regional and local level. It is considered learning as an activity of creativity of innovations and analyzing geographical phenomena. The committee prepared the major learning outcomes, which would help the students to understand and critically analyze various dimensions of the geographical issues.

The following objectives would be achieved:

- To orient the students towards identification and analysis of various facets of geographical features and processes.

- To develop students’ aptitude for acquiring basic skills of carrying out field work.

- To facilitate the students to learn skills of map making.

- To guide students to learn the science and art of collecting, processing and interpreting the data.

- To expose the students to the use of the updated technologies of remote sensing, IRNSS, GNSS, Geographical Information System (GIS) and GIScience.
The Committee suggests that the following remarks may be taken in to consideration by the faculty members, departments/schools, Boards of studies in Geography Institutes/colleges and Universities, while incorporating the recommendations for utilization:

- The learning outcomes are designed in such a way to assist the students to understand the objectives of studying BA/BSc (H) in Geography, which is to understand, appreciate and critically evaluate and associate with various time and space aspects.
- It is paramount to consider here BA/BSc (H) in Geography under CBCS remains the point of reference for LOCF recommendations. As it is a field-based learning, all stakeholders may make suitable alterations with suitable justifications while preparing the courses, finalization of objectives keeping in view global, national, regional and local issues and challenges. Accordingly, BUGS of RGU has made minor modification. A paper on “Geography of North East Region: special Reference to Arunachal Pradesh” has been incorporated in order to enable the learners to the Geography of place where they stay.
- To this end, the themes, units in the LOCF documents are confirmative. Similarly the organization of themes/units should consider the spatial dimensions and references.
- The Organization of units/courses is worked into semesters/years considering the credit loads in a given semester with the ultimate end of outcomes of the courses /programs. However, it is essential to incorporate the courses applied in nature which focus attention of the students especially in the second and third years of the given courses.
- Learning outcomes are modifiable considering the social, cultural and physical heterogeneity of the country and time scales, accordingly, themes and text units are taken into account considering all the stakeholders.
- The understanding of the LOCF Committee of Geography is to have well defined and justifiable course outcomes and their realization at the end of the course and programs.
- The department/institute/college/university is expected to encourage the faculty to inculcate the best teaching skills with innovative ideas and methods to make students to learn subjects based on field knowledge and updated spatial information.
PART 1

INTRODUCTION

Learning Outcomes based Curriculum Framework (LOCF) for Geography under CBCS

• Introduction
  Geography has been broadly accepted as a bridge discipline between human and physical sciences. In the beginning, Geography focused on the physical aspects of the earth but the modern Geography is an all-encompassing discipline that seeks to understand the earth and all of its human and natural processes as integrating elements. Geography has emerged through time as a trans-disciplinary subject integrating the regional diversity with the concepts of the timing of space and the spacing of time. It provides broad, human and place-centered perspectives on the transformation of rural ecology to globalized urban landscape at different levels, from the local/regional/national to global. Geography is transformed through:

  • Journey from Village Ecology to Urban Regional Studies
  • Qualitative Techniques to Spatial Information Technology
  • Global to Micro-level Community Perception Approach

  It is essential to focus on the current socio-spatial problems, issues and challenges to make the students aware of the application of Geography to sort out the societal upcoming problems. It is also essential to rejuvenate the ancestral geographical knowledge to address the current local and global problems. In the light of exponential changes in the field of arts, science and technology, it is to be studied from multifaceted angles.

  It is important for the policy makers to consider the geo-spatial aspects with references to the location and in context of the best utilization of public utilities. It is further expected that if the above said spatial aspects are considered, it will certainly develop the lagging regions and people living therein.

2. Learning Outcomes based Approach to Curriculum Planning

Learning Outcomes based Curriculum Framework (LOCF) for Geography curriculum revision incorporates dynamic processes including fundamental and modern techniques, contemporary paradigms such as global initiatives like Sustainable Development Goals.
(SDGs), Disaster Risk Reduction (DRR), Paris Climate Action and national initiatives like smart cities, Securities of food, water, energy, human health and livelihood, biodiversity, and disaster management. The approaches are to make geography more scientific and societal-need oriented that could be the panacea of India’s developmental challenges. Geography uses scientific knowledge with the current focus that includes spatio-temporal analysis, skill development, GIScience, sustainable development and human security.

2.1 Nature and Extent of the B.A./B.Sc. (Hons.) Programme

Geography curriculum inculcates knowledge of essential concepts of Physical and Human Geography together with appropriate techniques using lectures, tutorials, group discussions, presentations, assignment evaluation, lab work and field visits. Thus, pedagogy process includes:

- Identifying and explaining the physical and cultural characteristics globally and processes at varied spatio-temporal contexts.
- Understanding human-environment and nature-society interactions as well as various global environmental challenges.
- Analysing geographic information by using geo-spatial technologies.
- Responding towards the global and national challenges and initiatives.

2.2 Aims of B.A./B.Sc. (Hons.) Programme

Four distinct and new learning outcomes have been incorporated from each Course such as:

- Appreciate the relevance of geographical knowledge to everyday life.
- Demonstrate the ability to communicate geographic information by utilising both lecture and practical exercises.
- Inculcate the ability to evaluate and solve geographical problems effectively.
- Demonstrate the skills in using geographical research tools including spatial statistics, cartography, remote sensing, GIS, IRNSS and GIScience.
- Based on the field knowledge and advanced technologies, the students should be able to understand the on-going geographical problems in different regions and levels with appropriate pragmatic solutions.

3. Graduate Attributes in Geography

Some of the characteristic attributes of an Honors graduate in Geography include:
3.1 **Disciplinary Knowledge:** Students gains in-depth knowledge of basic and applied areas of geography. Core and discipline courses train them in fundamental branches of the subject. Technical and skill courses help them to learn tools and technics. Geography student gets a unique opportunity to experiment and observe on the field.

3.2 **Communication Skills:** Students develops effective communication skills through oral presentations, and group discussions on the subject content. Besides interviewing people, field surveys and public dealing with different cadre of people makes him/her confident in communication. The compiling, processing and analyzing the information from the field;and presenting in the form of reports enhances written communication skills.

3.3 **Critical Thinking:** Geography subject creates scientific logic aptitude and approaches a problem through critical reasoning. The course content is enabled to stimulate the questioning capacity for what, where, who, when and how. The papers like Environmental Geography, Disaster Management, Global Economic System, Resource Management to name a few.

3.4 **Problem Solving:** The understanding about surroundings, the issues that concerns life, climate or to that matter water crisis etc makes students yearn to look for solutions. Geography discipline has the flair which connects to everyday living and survival thus generates problem solving aptitude.

3.5 **Analytical Reasoning:** The geography course teaches variety of tools, techniques and data handling which develop analytical reasoning to solve the issues. In fact the training in all these courses is meant to develop the analytical reasoning, mining the data from satellite images, aerial photographs and observations to arrive at interpretations and inferences.

3.6 **Research Related Skills:** The course content trains students to learn basic research design, data collection process, and ethics to conduct research work through field work. The specially developed course on research methodology and field work acquaint them to prepare questionnaires, selecting sample plans, identifying right kind of objectives, data collections methods, field exposure, mental mapping, reproducing the observations, analysis and finally to prepare reports.

3.7 **Cooperation/ Teamwork:** The course enables to develop skill to work with students of diverse backgrounds and cooperation on same topic will increase better understanding. The group assignments and presentations are essential elements in the course design that will inculcate the team spirits. The field excursions help develop great bonding; working and executing the plans on ground. They also learn to work as team in case any emergency with group member away from institution/home/or city.

3.8 **Scientific Reasoning:** Course will develop critical analysis of theories and models, raising critical questions about the theories and models, developing hypothesis and learning their
testing. Many of the courses in geography are truly scientific in nature which will generate scientific reasoning aptitude and also skills to look towards new approaches.

3.9 Reflective Thinking: A graduate who successfully completes his/her course should be able to reflect on the assimilated knowledge so as to apply these skills at different levels. Whether they go for masters in pure or applied disciplines, it will inculcate a sense of understanding of the world to manage real world problems. Any teaching learning process is incomplete without clear reflection of the theoretical, practical and applied knowledge of the subject. A degree in geography has ample scope in other field of studies too as the subject with its interdisciplinary approach helps the learners to think in a more comprehensivemanner.

3.10 Information and Digital Library: The student of geography is always encouraged to explore beyond the basic textbooks. Besides availability of all types of reading material, a student needs to invest in learning and consulting from various open source library to expand the vista of their knowledge acquiring capability. Since it is a subject that does not completely rely on traditional text book oriented studies but has to delve deeper and research enough to keep pace with the ever-changing world. Thus the World Wide Web has proved to be very useful in keeping oneself apprised and continuously update ones knowledge base. The usage of open source software, tools and open access reading material are part of the curriculum which will train them for digital world.

3.11 Self Directed Learning: A graduate in the discipline of geography has to engage continuously in a learning process that can give a sense of direction to him/her. Different types of project work and field oriented papers encourages the pupil to take up self-directed task so as to widen their research horizon and ultimately look beyond the basic course book. Anyone with a mindset to move beyond the curriculum has to go for self-learning as the teaching content is fixed and defined. Under the supervision of the teacher one can easily involve themselves in fruitful learning. This will enable the students to take up task that is well understood and adapting themselves to the changing curriculum needs.

3.12 Multicultural Competence: Geography is a discipline which is not limited to any specific place or space. Its identity is based on multi-plural, multi-cultural and multi sited ethnography. As a subject it emphasizes on regional and cultural studies which involves detailed understanding of places and perceptions. Also as a disciplinarian, it allows the learner to learn about both their own culture as well as those of their distant counterparts. This diversified knowledge also helps them to respect all fellows following varied community norms, traditions and practices. Field studies have been much helpful in introducing multicultural competencies to students of geography.
3.13 **Moral and Ethical awareness:** In the age of fast technological changes and in the attempt to obtain an increased level of comforts. Today is the age in which the social order of the national state, class, ethnicity and traditional family needs more attention. In this scenario, Geography curriculum attempts to explain rights and duties not only towards working and fellow citizens but also towards nature and resources. The student will appreciate the balanced interactions, personal space, and common/community space. Geography will play its part in nurturing values and ethics in future citizens of the world.

3.14 **Leadership Readiness/ Quality:** A good leader needs to have the knowledge, rational thinking and ready to act at the time of need. Geography encourages to have descriptive and explanatory knowledge of one’s surroundings and the globe as a whole, it develops rational thinking and prepares the students to think about alternative social, economic and environmental futures. So a geography student will be a good leader and will contribute in different capacities.

3.15 **Lifelong learning:** Lifelong learning is a seamless process of learning from primary education to higher levels and even during one’s profession through formal or informal modes. The core of the Geography is the man-environment interaction, which remains relevant for all at all stages of human life. So the basic knowledge and the tools Geographer learns help them in their future life and the process of learning will continue throughout life.

The curriculum uses CBCS framework and organises under Core Course, Skill Enhancement Course, Elective - Discipline Specific and Elective - Generic Courses. The core courses cover key areas of geography about which all students should have basic knowledge. These courses are grouped as follows:

A. **Theory** – These courses build up the theoretical and conceptual foundations of geography.

B. **Practical** – Three courses on Statistical Techniques in Spatial Analysis; Remote Sensing and Geographical Information System, GIScience and Research Methods and Fieldwork in Geography will strengthen the methodological and practical foundations of geography.

C. **Regional Approach** – Such courses focus on World Geography, Geography of India / different states.

D. **Application Oriented** – This includes disaster management, climate change, tourism geography, health and wellbeing, etc.

Each Course has one objective, three learning outcomes, five uniform contents and reading list incorporating a few Hindi books also wherever possible.
4. Qualification Description for B.A./B.Sc. (Hons.) Programme

The qualification descriptors for the B.A./B.Sc. (Hons.) programme in Geography shall have the learning attributes such as field knowledge, use of advance tools and techniques for better comprehension of space and society etc. It also involves awareness among the students regarding the issues of different regions and socio-cultural aspects. The main qualification descriptors for the Geography B.A./B.Sc. (Hons.) students are to develop the critical evaluation and understanding. Each Honour student in Geography should be able to;

- Demonstrate systematically geographical knowledge and understanding the theoretical as well as practical applications with understanding of various aspects.
- Demonstrate the ability to understand the significance of geographical aspects in relation to development of the regions and minimizing regional inequalities.
- Demonstrate the ability and geographical thinking critically regarding rural and urban spaces and their day to day problems with the application of geographical knowledge.
- Students have to demonstrate their geographical knowledge acquired in the class and apply the same in real world.
- Recognize the scope of geography in terms of exploring the career opportunities, employment and life-long engagement in teaching and utilise the knowledge for publication for the future academic endeavors.

The students have to develop the ability through the theoretical and practical means for realising the Sustainable Development Goals (SDG) both in rural and urban spaces to minimize the differentials in developmental aspects.

5. The Programme Learning Outcomes B.A./B.Sc. (Hons.) Programme

The programme learning outcomes relating to B.A./B.Sc. (Hons.) Programme in geography:

- Demonstrating the understanding of basic concepts in geography.
- Demonstrating the coherent and systematic knowledge in the discipline of geography to deal with current issues and their solution.
- Display an ability to read and understand maps and topographic sheets to look at the various aspects on the space.
- Cultivate ability to evaluate critically the wider chain of network of spatial aspects from global to local level on various time scales as well.
- Recognize the skill development in Geographical studies programme as part of career avenues in various fields like teaching, research and administration.
It is also suggested that after the completion of B.A./B.Sc. (Hons.) Programme, students should be able to demonstrate the knowledge obtained in such way so that they can explore the employability options and service to the society.

5.1 Learning Outcomes

Three distinct and new learning outcomes have been incorporated from each course such as to:

1. Understand the relevance of geographical knowledge to everyday life.
2. Getting the ability to communicate geographic information utilizing both lecture and practical exercises.
3. Inculcate the ability to evaluate geographical problems effectively.
4. Exhibit the skill in using geographical research tools including spatial statistics, cartography, remote sensing, GIS, IRNSS and GIScience.

5.2 Course Level Learning Outcomes

The course level learning outcomes includes:

1. Basic Concept: The fundamental concepts and philosophical foundation of each course need to be discussed.
2. Understanding Landscape: An understanding of landscape at different levels needs to be discussed and understood for a thorough knowledge of spatial dimensions.
3. Understanding Ecosystem Structure and Potential: To comprehend the dynamic dimensions of human and ecosystem relationships.
4. Human Perception and Behaviour: Learning human perception and behaviour to acquire the geographical knowledge evolved over time, is essential to improve decision making process.
5. Identification of Critical Problems and Issues: Detection and identification of the critical problems and spatial issues are essential for sustainable development.
6. Field Based Knowledge: Field based knowledge is essential to understand the ground reality, spatial patterns and processes.
7. Spatial Tools and Techniques: The basics and applications of spatial tools and techniques are essential to make the studies more scientific and applicable.
8. Statistical Techniques: Use of statistical tools and techniques is essential for precise and objective geographic analysis and interpretation of complex phenomena.
9. Applied Dimensions: Identification of the critical problems and spatial issues form the core of the modern geography for various applications and decision making, including
Resources, Environment & Disaster Management, Land Use Planning, and Urban and Regional Development together with Climate Change Mitigation and Adaptation, etc.

10. **Case Study based Analysis:** There is a need to understand the specificities of the problems in specific areas for their in-depth comprehension and solution. The case studies are essential, especially to find out the solutions to the lagging regions for their solutions based on first-hand information.

11. **Public Policy and Management:** Spatial aspects and dimensions are the integral parts in the policy making for sustainable regional development. Geographical knowledge needs to be inculcated for application and solutions of the various local, regional and national problems.

12. **Communication Skills:** Communication through models, maps, images and other geographical tools form the sound base for the dissemination of geographical information.
### 1. Course-Level Learning Outcomes Matrix

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<tr>
<th>Outcomes</th>
<th>Core Subjects</th>
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<tr>
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<td>1</td>
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<tr>
<td>Basic Concept</td>
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<tr>
<td>Understanding Landscape</td>
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<td>Understanding Ecosystem structure and Potential</td>
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<td>Human Perception and Behaviour</td>
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<td>Identification of Critical Problems and Issues</td>
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<td>Field Based Knowledge</td>
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<td>Spatial Tools and Techniques</td>
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<td>Statistical Techniques</td>
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<td>Applied Dimensions</td>
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<td>Case Study based Analysis</td>
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<tr>
<td>Public Policy and Management</td>
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<tr>
<td>Communication Skills</td>
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Notes:
- "x" indicates that the outcome is relevant for the subject.
- "X" indicates that the outcome is not relevant for the subject.
7. GEOGRAPHY COURSE OUTCOMES AND SDGs
The global community has adopted the Sustainable Development Goals to ensure holistic and multifaceted development of human societies across the world. These goals adopted in 2015 were an ambitious upgradation of millennium development goals.
The Indian Geographical community aims to harness the trans-disciplinary nature of the subject and link it with sustainable development goals through a range of multi-dimensional core and elective papers

7.1. B.A. (HONS) GEOGRAPHY- CORE PAPERS: CONTRIBUTION TOWARDS SDGs

<table>
<thead>
<tr>
<th>Paper</th>
<th>SDG 1</th>
<th>SDG 2</th>
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Rajiv Gandhi University
Pensicola, Andhra Pradesh
8. (a) Teaching Learning Processes

Learning Outcomes based Curriculum Framework (LOCF) for geography incorporates dynamic processes including fundamental and modern techniques, contemporary paradigms such as global initiatives like Sustainable Development Goals (SDGs), Disaster Risk Reduction (DRR), Paris Climate Action and national initiatives like smart cities, food security, water security, energy security, biodiversity, disaster management, human health and wellbeing and livelihood security. The approaches are to make geography more scientific and societal-need oriented that could be the panacea of India’s development. Geography uses scientific knowledge with the present focus that includes spatio-temporal analysis, skill development, GIScience, sustainable development and human security.

Learning is a challenging, engaging, and enjoyable activity. Learners should be encouraged to engage in a rigorous process of learning and self-discovery by adopting a highly focused and yet flexible approach to education. Each day learners should be encouraged to focus on key areas of the course and spend time on learning the course fundamentals and their application in life and society. In teaching and learning pedagogy, there should be a shift from domain or conclusions based approach to the experiential or process based approach.
Geography curriculum inculcates knowledge of essential concepts of physical and human geography together with appropriate techniques using lectures, tutorials, group discussion, presentation, assignment evaluation, lab work and field visits. Thus, pedagogy process includes:

- Identifying and explaining the physical and cultural characteristics globally and processes at varied spatio-temporal contexts.
- Understanding human-environment and nature-society interactions as well as various global environmental challenges.
- Analysing geographic information by using geo-spatial technologies.
- Responding towards the global and national initiatives.

Broad framework for teaching in the class includes:

1. Theory courses should have 6 hours per week for courses carrying 6 credits.
2. Tutorial group of each theory course should have a group size of 15 students.
3. Practical courses should have 12 hours per week for a group of 15 students.
4. Practical courses will not have tutorials.
5. There is no practical paper in B.A./BSc. Programme

The faculty should promote learning on a proportionate scale of 20:30:50 principle, where lectures (listening/hearing) constitute 20 per cent of the delivery; visuals (seeing) 30 per cent of the learning methods; and experience (doing/participating) 50 per cent. This ratio is subject to change as per institutional needs.

In order to achieve its objective of focused process based learning and holistic development, the Institution/University may use a variety of knowledge delivery methods:

1. Lectures

Lectures should be designed to provide the learners with interesting and fresh perspectives on the subject matter. Lectures should be interactive in a way that students work with their teachers to get new insights in the subject area, on which they can build their own bridges to higher learning.

2. Discussions

Discussions are critical components of learning, and can be used as a platform for students to be creative and critical with old and new ideas. Besides developing critiquing skills, arriving at consensus on various real life issues and discussion groups lead to innovative problem solving and, ultimately to success.
3. Life Skills:
Life skills provide students opportunities to understand real life situations and scenarios (i.e. coping with disaster), and solve challenges in a controlled environment or make use of them in simulating cultural experiences by locating/transposing them in new (local, regional, national and international) situations.

4. Case Studies:
Case studies, wherever possible, should be encouraged in order to challenge students to find creative solutions to complex problems of individual, community, society and various aspects of knowledge domain concerned.

5. Role Playing
Assuming various roles, as in real life, is the key to understanding and learning. Students are challenged to make strategic decisions through role-plays, and to analyze the impact of these decisions. For this purpose, incidents from literary texts may also be used.

6. Team Work
Positive collaboration in the form of teamwork is critical in the classroom environment, for which it is necessary to transcend one’s prejudices and predilections so as to achieve the desired outcomes. In the process of teamwork, learners will acquire the skills of managing knowledge acquisition and other collaborative learners, thereby understanding how to incorporate and balance personalities.

7. Study Tours/Field Visits:
Study Tours/ Field trips provide opportunities to the learners to test their in-class learning in real life situations as well as to understand the functional diversity in the learning spaces. These may include visits to sites of knowledge creation, preservation, dissemination and application. Institutions may devise their own methods to substitute/modify this aspect.

8. Academics-Industries Interface:
The course curriculum of B.A/BSc. (Hons.) should encourage students for closer interaction with industries/corporate/research institutes, etc. for at least one week internship and training.
8 (b) Assessment Methods:
The assessment of students’ achievement in Geography will be aligned with course/program learning outcomes and the academic and geographical skills that the program is designed to be developed. Different assessment methods that are appropriate within the discipline of Geography will be used. Learning outcomes will be assessed through continuous evaluation using the oral and written examinations, cartographic and computer based exercises (GIS), practical assignments, observations of practical skills, project and field work reports, seminar presentations, viva voce, output from collaborative work activities and attendances, etc.

PART II: STRUCTURE OF B.A / B.SC GEOGRAPHY

9. Introduction
The curriculum uses CBCS framework and organise under Core Courses, Skill Enhancement Course, Elective Discipline Specific and Elective Generic Courses. The core courses cover key areas of geography about which all students should have basic knowledge. These courses are grouped as follows:

- **Theory** – These courses build up the theoretical and conceptual foundations of geography.
- **Practical** – Three courses on Statistical Techniques in Spatial Analysis; Remote Sensing and Geographical Information System, GIScience and Research Methods and Fieldwork in Geography will strengthen the methodological and practical foundations of geography.
- **Regional Approach** – Such courses focus on Geography of India / different states.
- **Application Oriented** – This includes disaster management, climate change, tourism geography, health and wellbeing etc.

Each Course has three learning outcomes, five uniform contents and references incorporating a few Hindi books wherever possible.
## 10. STRUCTURE OF B.A./B.Sc. (HONS) IN GEOGRAPHY

**Note:** For the structure of BA/B.Sc Hons. Geography, the UGC Committee has followed the number of credits per course as suggested in the CBCS document, that is, six and four credits per course as follows. The core and elective papers are of six credit and Ability Enhancement Compulsory Course and Skill Enhancement Course hve 4 credit

<table>
<thead>
<tr>
<th>Semester</th>
<th>Core Course 14 papers, 6 credit each</th>
<th>Ability Enhancement Compulsory Course 2 papers, Credit-4 each</th>
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**Note:**
- GEO (Geography)
- C (Core paper)
- ENG-A (English for arts)
- HIN-A (Hindi for arts)
- EVS-A (EVS for arts)
- GEO-S (Skill enhancement)
- GEO-E (Discipline specific elective)
- GEO-G (Generic elective for other discipline)
- 111 (First year, first semester and first paper. 362 (Third year, sixth semester and paper two)
# SEMESTERWISE PAPERS & DISTRIBUTION OF CREDIT HOURS

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## Pattern of Question Paper and Marking: For 80 marks

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# B.A. I SEMESTER

## Core Courses

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**NB- For learning outcome for each paper following may be referred**

*Course Level Learning Outcomes Matrix at page- 13*
*Geography Course Outcome and SDGs at page - 14*
*Geography Core papers contribution towards SDGs at page- 14*
*Geography Elective papers contribution towards SDGs at page – 15*
*Questions and marking pattern may be seen at page 23*
GEO-C-112- Geomorphology
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination=20)

Course Objectives:
1. To understand the associations between geomorphologic landforms, concepts and processes.
2. To critically evaluate and connect information about geomorphic processes.
3. To provide a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes.

Learning Outcomes:
After the completion of course, the students will have ability to:
1. Understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms
2. Distinguish between the mechanisms that control these processes
3. Assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.

Course Content:

References:
GEO-C-113- Cartographic Techniques (Practical)

Credit 6- (Credit Hours in a week: Lecture-0, Practical-12, Tutorial-0)
Total Marks: 100

i. End term examination = 60 (5 Questions 12 Marks each)
ii. internal examination =20
iii. Record Book =15
iv. Viva Voce =05

Course Objectives:

1. Create professional and aesthetically pleasing maps through thoughtful application of cartographic conventions;
2. Develop an understanding of the concepts regarding scale, map projections to suit map purposes;
3. Better understand the techniques of interpretation of topographical and weather maps

Learning Outcome:

After the completion of course, the students will have ability to:

1. Read and prepare maps.
2. Comprehend locational and spatial aspects of the earth surface.
3. Use and importance of maps for regional development and decision making.

Course Content:

1. Cartography – Nature and Scope; Scales – Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales.
2. Map Projections – Classification, Properties and Uses; Merits and Demerits of Polar Zenithal, Stereographic, Bonne’s and Mercator’s Projections.
4. Topographical Maps- Interpretation (one each- hilly/plain area) and Slope Analysis (Wentworth’s method).
5. Interpretation of Weather Maps (at least one of summer, winter and monsoon seasons)

Practical Record:

A Project File in pencil comprising one exercise each, on scale, map projection, profile, interpretation of topographic sheet and weather maps.

References:

ENG-111- Communicative English

Course Level Learning Objectives

The course will seek to achieve the following objectives:

- to make students understand basic rules of Grammar
- to make students use the rules of Grammar for various composition exercises
- to make students appreciate rules of Grammar as used for model in various literary compositions
- to make students enjoy and appreciate literary pieces
- to expose students to literary pieces to develop their creativity

Course Learning Outcomes

At the end of the course students will be able to:

- convey their ideas in English using simple and acceptable English in writing
- understand Fundamentals of Grammar
- describe a diagram or elaborate information contained in a graph, chart, table etc, write areview of a book or a movie
- write a précis writing, paragraph writing( 150 words), Letter writing – personal, official,Demi-official, Business, Public speaking, soft skills, Interviews, preparing curriculum vitae, Report(Meetings and Academic ) writing

Course Content

Module – I: Poetry

William Shakespeare – All the World is a stage.

Module – II: Short stories

R.K. Narayan – Lawly Road/Mulk Raj Anand – Barbar’s Trade Union.
Manoj Das – The Submerged Valley.

Module – III: One- Act plays and Short fiction

(A) Norman Mckinnell - The Bishop’s Candle Sticks/Anton Chekov – A MarriageProposal
Eugene Ionesco – The Lesson /August Strandberg – Miss
JullieFritz Karinthy – Refund

(B) Harper Lee – To kill a Mocking Bird.
   Or

Module – IV: Fundamentals of Grammar
   Parts of speech, articles and intensifiers, use of tense forms, use of
   infinitives, conditionals, adjectives and adverbs, prepositions, making
   affirmative, negative and interrogative, making question tag.

Module – V: Composition Practice
   (A) Comprehension, précis writing, paragraph writing (150 words),
   reviewing movies and books, Letter writing – personal, official, Demi-
   official, Business, Public speaking, soft skills, Interviews, preparing
   curriculum vitae, Report (Meetings and Academic) writing.
   (B) Communication Practice –
   Introducing yourself, introducing people to others, meeting people,
   Exchanging greetings, taking leave, answering the telephone, asking
   someone for some purpose, taking and leaving messages, call for
   help in Emergency, e-mails writing, explaining a graph, chart, table
   etc.

Suggested Topics for Background Reading and Class Presentation
Short selections from the works prescribed in Modules I, II and III – reading, re-telling, role-playing, explaining with reference to contemporary social experiences
Practical writing work on Modules IV and V

Suggested Reading:
1- For reading the texts available sources of texts and help of the Web source may be
   Press. 4- Bakshi, R. N. A course in English Grammar, orient Longman
5- Krishnaswamy, N. Modern English – A Book of Grammar, usage and composition.
   MacMillan India Ltd.
DUE TO NON AVAILABILITY OF HINDI SOFTWARE, A SEPARATE PAGE IS ATTACHED IN A PDF IN A SEPARATE PAGE. IN HARD COPY IT IS INCLUDED.
GEO-G-114- Disaster Management
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives
1. Understanding the basic concepts of disaster management.
2. Detailed analysis about the different types of disasters in India.
3. Evaluating the role of institutional frameworks to mitigate the disasters in the country.

Learning Outcome:
After the completion of course, the students will have ability to:
1. Gain a perspective of disasters and various dimensions of disaster management
2. Have comprehensive knowledge of various natural and manmade disasters in India
3. Examine the response and mitigation measures of disasters

Course Content:
1. Disasters: Definition and Concepts; Risk and Vulnerability; Classification
2. Disasters in India: (a) Flood: Causes, Impact, Distribution and Mapping; Landslide:
   Causes, Impact, Distribution and Mapping; Drought: Causes, Impact, Distribution and Mapping
3. Disasters in India: (b) Earthquake and Tsunami: Causes, Impact, Distribution and Mapping; (c) Cyclone: Causes, Impact, Distribution and Mapping.
4. Manmade disasters: Causes, Impact, Distribution and Mapping
5. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do’s and Don’ts During and Post-disasters.

References:
GEO-G-115- Geography of Tourism and Pilgrimage
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objective:

1. To Understand the various dimensions of geography of tourism and pilgrimage.,
2. To make aware the students with national and international trends and patterns of tourism with its impacts.
3. To critically evaluates the infrastructure in tourism in India focusing with having cases studies along with the reviewing the tourism policy in country.

Learning Outcome:

After the completion of course, the students will have ability to:

1. Equip with a basic understanding of nature and scope, trends and patterns of various types of tourism.
2. Have sound knowledge on geographical, environmental and socio-cultural aspects of tourism in India.
3. Apply the principles of Geo-tourism and analyse the prospects and problems associated with pilgrimage tourism.

Course Content:

1. Scope and Nature: Concepts and Issues, Tourism, Recreation and Leisure Inter-Relations; Geographical Parameters of Tourism by Robinson.
2. Trends and Patterns: Nature Tourism, Cultural Tourism, Medical Tourism, Pilgrimage, Geo-tourism.
3. Recent Trends of Tourism: International and Regional; Domestic (India); Eco-Tourism, Sustainable Tourism, Meetings Incentives Conventions and Exhibitions
4. Impact of Tourism: Economy; Environment; Society
5. Tourism in India: Tourism Infrastructure; Case Studies of Himalaya, Desert and Coastal Areas; India’s World Heritage Sites and National Geological Monuments National Tourism Policy

References:

# B.A II. SEMESTER

## Core Courses

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<td>GEO-G-125</td>
<td>Coupled Human and Environmental System</td>
<td>6 HRS</td>
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**NB- For learning outcome for each paper following may be referred**

Course Level Learning Outcomes Matrix at page- 13
Geography Course Outcome and SDGs at page - 14
Geography Core papers contribution towards SDGs at page- 14
Geography Elective papers contribution towards SDGs at page – 15
Questions and marking pattern may be seen at page 23
GEO–C-122- Geography of Human and Cultural Landscape

Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:

1. Various dimensions of human geography and cultural landscape.
2. Detailed analysis of population growth and distribution.
3. Understanding of the relationship between population and resource.

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Know the changing human and cultural landscape at different levels.
2. Understand patterns and processes of population growth and its implications.
3. Appreciate the nature and quality of human landscapes.

Course Content:

1. Human Geography: Definition, Scope and Principles; Contemporary Relevance.
2. Population: Population Growth and Distribution; Population Composition; Malthusian and Demographic Transition Theories.
3. Space and Society: Cultural Regions; Race; Tribes, Religion and Language.
4. Settlements: Types of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization.
5. Population-Resource Relationships and Regional Resource Development

References:

GEO-C-123- Statistical Methods in Geography (Practical)

Credit 6- (Credit Hours in a week: Practical-12)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives

1. The concept of quantitative information in general and Geographical data in particular. The importance of data analytics. The ways data is collected or data is taken from different sources. The sampling methods’ application for data collection purposes.
2. The ways to handle the collected data through classification, tabulation and stigmatization. The data presentation using graphical and diagrammatic ways.
3. To calculate different averages on data and to identify the variations in data.
4. To compute relations and impacts among the data series.
5. The concept of probability particularly normal curve.

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the basics of data collection and processing for the meaningful outcomes.
2. Comprehend the representation and interpretation of the results.
3. Put into practice results obtained in representation as well as day-to-day life.

Course Content:

1. Use of Data in Geography: Significance of Statistical Methods in Geography; Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval and Ratio).
2. Tabulation and Descriptive Statistics: Frequencies (Deciles, Quartiles), Cross Tabulation, Central Tendency (Mean, Median and Mode, Centro-graphic Techniques, Dispersion (Standard Deviation, Variance and Coefficient of Variation).
5. Association and Correlation: Rank Correlation, Product Moment Correlation, and Simple Regression.

Class Record:

Each student will submit a record containing five exercises:

1. Construct a data matrix (of about 10 x 10) with each row representing an areal unit (districts or villages or towns) and about 10 columns of relevant attributes of the areal units.
2. Based on the above table, a frequency table, measures of central tendency and dispersion would be computed and interpreted for any two attributes.

3. Histograms and frequency curve would be prepared for the entire data set and attempt to fit a normal curve and interpreted for one or two variables.

4. From the data matrix a sample set (20 per cent) would be drawn using random-systematic and/or stratified methods of sampling and locate the samples on a map with a short note on method used.

5. Based on the sample set and using two relevant attributes, a scatter and regression line would be plotted and residual from regression would be mapped with a short interpretation

References:

2. Berry, B. J. L. and Marble, D. F. (eds.): Spatial Analysis–A Reader in Geography.
EVS-121-A- ENVIRONMENTAL STUDIES

Credit 4- (Credit Hours in a week: Lecture-3, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objective:
1. To know the basic components of environment and functioning of ecosystem.
2. To know the common environmental problems, causes and consequences and solutions.

Learning Outcome:
1. To develop a sense of responsibility and attitude towards conservation of environment.
2. To develop basic skill of solving environmental problem at local level.

Course Content

I Introduction to Environmental Studies
   i. Development of Environmental Studies
   ii. Meaning of environment
   iii. Concept of Environment
   iv. Scope of Environmental Studies

II Understanding the Environment
   i. Biosphere
   ii. Ecosystem
   iii. Habitat
   iv. Cultural Landscape

III Environmental Hazards
   i. Natural Hazards:
      a) Flood, Drought
      b) Cyclone
      c) Earthquake
      d) Landslide
   ii. Man Made Hazards:
      a) Deforestation
      b) Pollution (land, water, soil)
      c) Climate change

IV Environmental conservation
   i. Awareness about the importance of Environment
   ii. Monitoring
   iii. Conservation
   iv. Sustainable Development

V- Environmental Hazards in Arunachal Pradesh
   i. Landslides
   ii. Deforestation
   iii. Flood
   iv. Earthquake
   v. Cloud Burst
Reference:

2. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India, Email:mapin@icenet.net (R)
7. Down to Earth, Centre for Science and Environment (R)
9. Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
18. Survey of the Environment, The Hindu (M)

(M) Magazine
(R) Reference (TB) Textbook
GEO-G-124-Geospatial Information Technology

Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:

1. The main objective of this course is to give students an insight on the concepts of spatial information technology.

2. The paper discusses the concept, historical developments, functioning and application of spatial information technology in detail.

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Appreciate the basic concepts and historical development of geographical information technology

2. Acquire knowledge on data structure, interpolation, modelling, functions and working of geographical information technology

3. Apply the geographical information technology for sustainable development of the nation

Course Content:

1. Introduction: Definitions, Concept and Historical Development of geospatial technology.

2. Geospatial Data: Web data sources; Registration and projection; Data structures; Data interpolation and modelling

3. Working on spatial information system

4. Functions of Geospatial Information System: Information retrieval; Topological modelling; Networks; Overlay; Data output

5. Application of Geospatial Information Technology for sustainable development

References:


(http://www.cs.umd.edu/~hjs/pubs/sandprog.ps.gz)


http://www.cs.umd.edu/~hjs/pubs/kim2.ps

GEO-G-125- Coupled Human and Environment System

Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:

1. Various dimensions of concepts, components and theories of coupled human environment system.
2. Detailed analysis of different biogeochemical cycles.
3. Understanding of the concept of lowland and highland interaction.

Course Learning Outcome:

After the completion of course, the students will have ability to:

1. Understand the fundamental concepts of coupled human-environment system.
2. Assess the vulnerability, risk and resilience issues associated with the human-environment system.
3. Develop possible solutions for addressing the contemporary sustainability challenges.

Course Content:

2. Biogeochemical cycles: Interactions and impact between human and natural systems.
3. Global and regional case studies: Himalaya-Ganga system; Atmosphere-water system; Surface and ground water and Coastal-water interaction.
4. Integrated Assessment of Vulnerability Risk; Resilience and Sustainability.

References:

B.A. III SEMESTER

Core Courses

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<td>Climatology</td>
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<td>GEO-C-232</td>
<td>Fundamental of Remote Sensing (Practical)</td>
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<td>GEO-C-233</td>
<td>Geography of India</td>
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Skill Enhancement Course (any 1)

| GEO-S-234  | Geographic Information System (Practical) | 4 HRS  | 3             |
| GEO-S-235  | Spatial Statistic Techniques              | 4 HRS  | -             |

Generic Elective (any 1)

| GEO-G-236  | Climate Change: Vulnerability and Adaptation | 6 HRS  | 5             |
| GEO-G-237  | Rural Development                           | 6 HRS  | 5             |

NB- For learning outcome for each paper following may be referred

Course Level Learning Outcomes Matrix at page- 13
Geography Course Outcome and SDGs at page - 14
Geography Core papers contribution towards SDGs at page- 14
Geography Elective papers contribution towards SDGs at page – 15
Questions and marking pattern may be seen at page 23
GEO-C-231- Climatology and Oceanography
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination=20)

Course Objectives:

1. Various dimensions of climatology like structure and composition.
2. Detailed analysis of global atmospheric pressure and wind system.
3. Understanding of the concept of oceanic topography.

Learning Outcomes:
After the completion of course, the students will have ability to:

1. Understand the elements of weather and climate and its impacts at different scales.
2. Comprehend the climatic aspects and its bearing on planet earth.
3. Understand the oceanic process and availability of resources.

Course Content:

1. Atmospheric Composition and Structure: Variation with Altitude, Latitude and Season; Insolation and Temperature: Factors and Distribution, Heat Budget, Temperature Inversion.
5. Ocean Salinity and Temperature: Distribution and Determinants; Coral Reefs and Marine Deposits and Ocean Resources.

References:

GEO-C-232-Fundamentals of Remote Sensing (Practical)
Credit 6- (Credit Hours in a week: Lecture-0, Practical-12, Tutorial-0)
Total Marks: 100
  i. End term examination= 60 (5 Questions 12 Marks each)
  ii. internal examination =20
  iii. Record Book =15
  iv. Viva Voce =05

Course Objectives:
1. This course shall introduce the basic concepts of remote sensing.
2. This paper shall elucidate about aerial photography, its basic principles and types, satellite remote sensing.
3. This course shall provide detailed understanding related to interpretation and application of remote sensing, GPS/GNSS.

Learning Outcomes:
After the completion of course, the students will have ability to:
1. Appreciate the strength and application of remote sensing
2. Map the resources, their location and availability
3. Apply this knowledge for sustainable development

Course Content:
1. Remote Sensing: Definition, Development, Platforms and Types
2. Aerial Photography and Satellite Remote Sensing: Principles, Types and Geometry of Aerial Photograph; EMR Interaction with Atmosphere and Earth Surface; Satellites – geostationary and remote sensing (Landsat and IRS) and Sensors, Resolution (spatial and temporal).
3. Introduction to Image Processing and Data Analysis: Geo-Referencing; Editing and Output.
4. Interpretation and Application of Remote Sensing: Land use/ Land Cover, Urban Sprawl Analysis.,

Practical Record:
A project file consisting of two exercises will be done from aerial photos and satellite images (scale, orientation and interpretation) and 3 exercises on using any Software on above mentioned themes.

References:
GEO-C-233-Geography of India
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:
1. This course shall introduce the physical geography of India.
2. This paper shall elucidate about population trends and composition, and settlement system in India.
3. This course shall provide detailed understanding related to resource base and economic systems in India.

Learning outcomes:
After the completion of course, the students will have ability to:
1. Understand the physical profile of the country
2. Study the resource endowment and its spatial distribution and utilization for sustainable development
3. Synthesise and develop the idea of regional dimensions.

Course Content:
1. Physical: Location, Physiographic Divisions, Climate: characteristics and classification;
   Soil and Natural vegetation
3. Regionalisation of India: Physiographic (R. L. Singh), Socio-Cultural (Sopher), Economic (Sengupta)
5. Spatial Patterns of Industrial Development: Automobile and Information Technology

References:
Course Objectives:

1. The course aim is to give basic understanding of concept of GIScience, its definitions and principles;
2. To gain working experience collecting data, preparing and handling geographical data;
3. To do analysis and application of geographical data resource management and land use land cover study.

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Appreciate the basic principles and components of GIS;
2. Apply raster and vector data structure for GIS analysis;
3. Analyse the basic resources, land use and urban related data using GIS software for meaningful interpretation.

Course Content:

2. GIS Data Structures: Types (Spatial and Non-spatial), Raster and Vector Data Structure.
3. GIS Data Analysis: Input; Geo-Referencing; Editing and Output; Overlays.
5. Application of GIS in Urban Sprawl, Land use/Land-cover.

Practical Record: A project file consisting of 5 exercises on using any GIS Software (free software like QGIS, AGIS etc.) on above mentioned themes.

References:


GEO-S-235- Spatial Statistical Techniques
Credit 4- (Credit Hours in a week: Lecture-3 Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination=20)

Course Objectives:
1. Understanding the application of statistical data in the spatial analysis.
2. Detailed analysis of statistical techniques in geographical study
3. Understanding of statistical applications to analyse both spatial and non-spatial data

Learning Outcomes:
After the completion of course, the students will have ability to:
1. Understand the basics of data collection and, processing for the meaningful outcomes
2. Understand the selection of proper sampling techniques for the collection of data
3. Put into practice the results obtained for spatial analysis of results and to apply various statistical softwares for the study

Course Content:
1. Statistics and Statistical Data: Spatial and non-spatial;
2. Probability theory, probability density functions with respect to Normal, Binomial and Poisson distributions and their geographical applications.
3. Sampling plans for spatial and non-spatial data, sampling distributions; sampling estimates for large and small samples tests involving means and proportions.
4. Correlation and Regression Analysis: Rank order correlation and product moment correlation; linear regression, residuals from regression, and simple curvilinear regression; Introduction to multi-variate regression and correlation analysis.
5. Time Series Analysis: Time Series processes; Smoothing time series; Time series components.

Note: Any Statistical Software Package (SPSS, MS Excel, R, etc.) may be used for practice.

References:
Course Objectives:

1. Various dimensions of climate change and adaptability.
2. Detailed analysis of vulnerability and its impacts.
3. Understanding of the concept of mitigation and planning.

Learning Outcome:
After the completion of course, the students will have ability to:

1. Understand the foundational concepts of climate change and its impacts.
2. Assess the human and environmental vulnerability to climate change.
3. Learn the various adaptation and mitigation for reducing the impacts of climate change and national action plan.

Course Content:

1. Climate Change: Understanding Climate Change; Greenhouse Gases and Global Warming; Global Climatic Assessment- IPCC
2. Climate Change and Vulnerability: Physical Vulnerability; Economic Vulnerability; Social Vulnerability
3. Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health
5. National Action Plan on Climate Change; Local Institutions (Urban Local Bodies, Panchayats)

References:

GEO-G-237- Rural Development
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives

1. The main objectives of this course is to give students an insight into the concepts, approaches and planning process related to rural development in India.

2. The students will learn the rural economic base, rural development process and provision of services in rural areas.

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Appreciate the concepts, needs and various approaches to rural development;

2. Understand the strong economic bases of rural areas of India;

3. Appreciate the area based and target group based approaches and provision of services to rural development.

Course Content:


2. Rural Economic Base: Panchayati Raj System, Agriculture and Allied Sectors, Seasonality and Need for Expanding Non-Farm Activities, Co-operatives, PURA.

3. Area Based Approach to Rural Development: Drought Prone Area Programmes, PMGSY.

4. Target Group Approach to Rural Development: SJSY, MNREGA, Jan DhanYojana and Rural Connectivity.

5. Provision of Services – Physical and Socio-Economic Access to Elementary Education and Primary Health Care and Micro credit

References:

1. Anand, Subhash.,(2013): Dynamics of Rural Development, Research India Press, Delhi


## B.A. IV SEMESTER

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<td>Sustainable Resource Management</td>
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**NB- For learning outcome for each paper following may be referred**

Course Level Learning Outcomes Matrix at page- 13  
Geography Course Outcome and SDGs at page - 14  
Geography Core papers contribution towards SDGs at page- 14  
Geography Elective papers contribution towards SDGs at page – 15  
Questions and marking pattern may be seen at page 23
GEO-C-241- Introduction to Global Economic System
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:
1. To understand the concept and spatial distribution of economic activities in the world.
2. To analyse the factors affecting the economics activity focusing on Von Thunen and Weber theory.
3. To describe in the details the regionalization of different economic activities.

Learning Outcome:
After the completion of course, the students will have ability to:
1. Distinguish different types of economic activities and their utilities.
2. Appreciate the factors responsible for the location and distribution of activities.
3. Examine the significance and relevance of theories in relation to the location of different economic activities.

Course Content:
1. Introduction to Global Economic System: Concept and Classification of Economic Activities.
2. Theories: Agriculture (Von Thunen); Industry (Weber’s theory).
3. Primary Activities: Agriculture, Precision agriculture, Forestry, Fishing and Mining.
4. Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel), Concept of Manufacturing Regions, Special Economic Zones and Technology Parks.

References:
GEO-C-242-Environment and Natural Resource Management
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination=20)

Course Objectives:

1. Various dimensions of environment and natural resource management.
2. Detailed analysis of concept, structure and functions.
3. Understanding of the concept of appraisal and conservation of Environment and Natural Resources.

Learning Outcome:
After the completion of course, the students will have ability to:

1. Understand the dynamic interactive relationship between man and environment.
2. Have sound understanding on distribution, utilization and proper management of natural resources at global level.
3. Make assessment and review of planning and policies related to environment and natural resources.

Course Content:

1. Environment and Natural Resource Management: Concept, Human-Environment Relationships;
2. Ecosystem: Concept, Structure and Functions.
5. Appraisal and Conservation of Environment and Natural Resources and Sustainable Resource Development.
6. Environmental Programmes and Policies – Global, National and Local levels

References:

GEO-C-243
Remote Sensing (Practical)
Credit 6- (Credit Hours in a week: Lecture-0, Practical-12, Tutorial-0)
Total Marks: 100

i. End term examination= 60 (5 Questions 12 Marks each)
ii. internal examination =20
iii. Record Book =15
iv. Viva Voce =05

Course Objective:
1. This course shall introduce basic concepts of image processing.
2. This paper shall enable learners to interpret digital images.
3. Learners shall be taught the use of digital Remote sensing & its importance in land use, land cover & reading natural hazards like cyclone, flood.

Learning Outcomes:
After the completion of course, the students will have ability to:
1. Develop the skill so as to use digital satellite data using software
2. Prepare the maps based with satellite data to compare with the ground realities.
3. Classify digital data for the land use/land cover and urban studies

Course Content:
1. Image Processing (Digital and Manual): Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification (Supervised and Un-supervised)
2. Digital Image Processing and Interpretation.
5. Application of Remote Sensing in weather (cyclones) studies and natural hazards (e.g. floods)

Practical Record: A project file consisting of 5 exercises on using any method on above mentioned themes.

References:
Course Objectives:

1. The course aim is to give basic technical knowledge and practical experience in digital remote sensing.
2. Knowledge and practical experience in handling satellite images focusing on hands-on experience of image pre-processing, enhancement and classification; Better understand the techniques for the study of land use land cover and urban study

Learning Outcome:

After the completion of course, the students will have ability to:

1. Have comprehensive understand of GIS for the construction of maps and their use the development planning.
2. Have knowledge of using GPS & DGPS for the accurate location
3. Apply the GIScience platform for the monitoring and forecasting analysis

Course Contents:

1. Evolution of GIScience, Institutions and GI data sharing, GIS: Definition and Components
2. Global Positioning System (GPS) – Principles and Uses
3. GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure.
4. GIS Data Analysis: Input; Geo-Referencing; Editing, Query
5. Application of GIS: Land Use Mapping; Urban Sprawl Analysis; Forests Monitoring, Natural disasters

Practical Record: A project file consisting of 5 exercises on using any GIS Software on abovementioned themes.

References:

Course Objectives:

1. Create professional and aesthetically pleasing maps through thoughtful application of principles of map design;

2. Develop hands on skill of diagrammatic representation of geographical data; Better understand thematic map techniques, its cartographic representation and Interpretation

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Have sound knowledge regarding the classification and elements of maps.
2. Have proper utilization of maps for the development.
3. Appreciate the preparation of various thematic maps with the application of various techniques.

Course Content:

1. Maps – Classification and Types; Principles of Map Design.
3. Thematic Mapping Techniques – Properties, Uses and Limitations; Areal Data -- Choropleth, Dot, Proportional Circles; Point Data – Isopleths.
5. Thematic Maps – Preparation and Interpretation.

Practical Record: A Thematic Atlas should be prepared on a specific theme with at least five plates for any state in India.

References:

GEO-G-246- Industrial Development
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination=20)

Course Objective:
1. To understand the nature of industrial geography and appreciate the importance of Industrial Development
2. To analyze the industrial regions and associated impacts of industrialization and challenges.
3. To critically evaluate the industrial policy of India.

Learning Outcomes:
After the completion of the course, the students will have ability to:
1. Understand the factors responsible for location of an industry.
2. Differentiate various types of industries and industrial regions and policies of India.
3. Evaluate the socio, economic and environmental implications of various types of industries.

Course Contents:
1. Nature and Scope of Industrial Geography.
2. Types, Geographical Characteristics and Location of Industries (Weber’s Theory):
   Small and Medium
4. Mega Industrial Complexes: National Capital Region, Mumbai-Pune Industrial Region, Bengaluru-Chennai Industrial Region and Chota Nagpur Industrial Region
5. Impact of Industrialisation in India: Environmental; Social and Economic
6. Industrial Policy of India

References:
GEO-G-247-Sustainable Resource Management
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination=20)

Course Objective:
1. To learn the concepts related with Sustainable development and its role in reducing poverty and inequality in the world.
2. To get updated knowledge of Millennium Development Goals & SustainableDevelopment Goals.
3. To critically evaluate the global policies and programmes for sustainable development.

Learning Outcomes:
After the completion of course, the students will have ability to:
1. Understand difficulties in defining the components of sustainable development;
2. Distinguish the patterns of regional development of the world and the need for sustainable development plan;
3. Appreciate the efforts and initiatives of the Governments in reducing the levels of poverty and inequality among the people of various countries.

Course Content:
1. Sustainable Resource Development: Definition, Components and Limitations
2. The Millennium Development Goals: National Strategies and International Experiences
3. Sustainable Regional Development: Need and examples from different Ecosystems.
4. Inclusive Development: Poverty and Inequality; Education, Health; Climate Change: The role of higher education in sustainable resource development; The Challenges of Universal Health Coverage,
5. Sustainable Development Policies and Programmes: The proposal for SDGs at Rio+20; SDGs; Goal-Based Development; Financing for Sustainable Development; Principles of Good Governance; National Environmental Policy, CDM.

References:
## B.A. V SEMESTER

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<thead>
<tr>
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<td>Semester V</td>
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**Elective Discipline Specific (any two)**

**CONTENT**

NB- For learning outcome for each paper following may be referred

*Course Level Learning Outcomes Matrix at page- 13*

*Geography Course Outcome and SDGs at page - 14*

*Geography Core papers contribution towards SDGs at page- 14*

*Geography Elective papers contribution towards SDGs at page – 15*

*Questions and marking pattern may be seen at page 23*
GEO-C-351- GEOGRAPHY OF NORTH EAST INDIA
(with special reference to Arunachal Pradesh)
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:
1. To acquaint with the geographical set of the region and the associated problems and prospects of it.
2. To have a basic understanding of the demographic pattern and economy of the region.

Learning Outcome:
1. To develop ability to identify problems and prospect of their local area in conformity to geographical set up.
2. To realize the factors responsible for regional variations and also the importance of geographically unifying factors.

Course Content:

I Physical Geography of North East India:
   i. Physical setting: Physiographic divisions
   ii. Climate and its seasonal and regional
   iii. Soil types, Vegetation and its distribution
   iv. Environmental Hazards (Earthquake, Soil Erosion, Flood and siltation)

II Demography of North East India:
   i. Population: Trend of growth,
   ii. spatial variation in growth and distribution
   iii. Age and sex composition
   iv. Linguistic and religious composition

III Agriculture and Industry:
   i. Agriculture: Regional distribution and production patterns
   ii. Plantation sector of NE India : Tea and Rubber
   iii. Industry: Distribution and production
   iv. Role of transport system in industrial development

IV Geography of Arunachal Pradesh
   i. Physical Background; Location, physiography, climate, vegetation and locational disadvantages
   ii. Tribes of Arunachal Pradesh (Major and Sub Tribe, and their Distribution)
   iii. Economic Activities (Agricultural, hunting and fishing, trade & commerce)
   iv. Environmental Hazards (Deforestation, flood, Forest Fire, Earthquake)

Suggested Readings:
2. Das, H.P (1972): Geography of Assam
GEO-C-352- Field Techniques, Surveying and Research Methods (Practical)

Credit 6- (Credit Hours in a week: Lecture-0, Practical-12, Tutorial-0)

Total Marks: 100
i. End term examination= 60 (5 Questions 12 Marks each)
ii. Internal examination =20
iii. Record Book =15
iv. Viva Voce =05

Course Objectives:

1. This course shall introduce the basic concepts in field work in geographical studies.
2. This paper shall elucidate about defining the field and identifying the case studies, field techniques.
3. This course shall provide detailed understanding related to questionnaire development and preparation of the field report.

Learning Outcome:

After the completion of course, the students will have ability to:

1. Conduct proper field work for the collection of primary data to bring out grassroots realities.
2. Make use of proper tools and surveying methods for measurement in context of collection and processing of data.
3. Prepare a report based on field data.

Course Content:

1. Meaning, Significance, Types and Approaches to Research in Geography; Literature review; Field Work in Geographical Studies – Defining the Field and Identifying the Case Study.
2. Research Design: Identification of Research Problem; Research questions. Data Collection: Type and Sources of Data; Methods of Collection; Data Analysis, Data Representation Techniques.
3. Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non-Participant), Questionnaires (Open/ Closed / Structured / Non-Structured); Interview with Special Focus Group Discussions.
4. Surveying Use of Field Tools: Plain Table survey, Prismatic Compass, Theodolite.
5. Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report.

Practical Record:

1. Each student will prepare an individual report based on primary and secondary data collected during fieldwork.
2. The duration of the fieldwork should not exceed 10 days.
3. The word count of the report should be about 8000 to 12,000 excluding figures, tables, photographs, maps, references and appendices.
4. One copy of the report on A4 size paper should be submitted in soft binding.
References:

GEO-E- 353-Demography and Population Studies

Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:
1. It introduces the basic concepts of population Geography to the students.
2. An understanding of the importance and need of Demographic data.
3. Spatial understanding of population dynamics.

Learning Outcome:
After the completion of course, the students will have ability to:
1. Learn the role of demography and population studies as a distinct fields of human
   geography
2. Have sound knowledge of key concept, different components of population along with
   its drivers
3. Examine population dynamics and characteristic with contemporary issues

Course Contents:
1. Defining the Field – Nature and Scope; Sources of Data with special reference to India
   (Census, Vital Statistics and NSS).
2. Population Size, Distribution and Growth – Determinants and Patterns; Theories of
   Growth – Malthusian Theory and Demographic Transition Theory.
3. Population Dynamics: Fertility, Mortality and Migration – Measures, Determinants and
   Implications.
4. Population Composition and Characteristics – Age-Sex Composition; Rural and Urban
   Composition; Literacy.
5. Contemporary Issues – Ageing of Population; Declining Sex Ratio; HIV/AIDS.

References:
   Publishing House.
3. Chanda, R. C. and Sidhu, M. S., (1980): An Introduction to Population Geography,
   Kalyani Publishers.
   Growth in the 21st Century, Earthscan
    Littlefield Publishers.
Course Objectives

1. To understand the basics of hydrological regime
2. To explain the integrated concept of water resource management
3. To describe the basic characteristics of soil resource

Learning Outcome

After the completion of course, the students will have ability to:

1. Understand the basic components of hydrological cycle and comprehend practices of integrated watershed management.
2. Evaluate the water balancing and river basin and water disputes.
3. Study the soil as a basic resource, focusing its distribution, problems and management.

Course Content:

1. Hydrological Cycle: Systems approach in hydrology, human impact on the hydrological cycle; Precipitation, interception, evaporation, evapotranspiration, infiltration, groundwater, runoff and overland flow;
2. Water Balance: input and output; water balance; floods and droughts; Integrated water resource management.
3. River Basin: Characteristics and problems of river basins, basin surface run-off, and measurement of river discharge. Watershed management
4. River Water Dispute; River linkages; Case studies

References:

GEO-E-355-Urbanization and Urban System
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objective
1. To introduce the students with concepts and approach to studying the urbangography.
2. To study with patterns and functional attributes of urban places.
3. To analyze the urban contemporary issues focusing on Indian mega cities.

Learning Outcome:
After the completion of course, the students will have ability to:
1. Understand the fundamentals and patterns of urbanization process
2. Learn the functional classification of cities and Central Place Theory
3. Know contemporary problems of Delhi, Mumbai, Kolkata and Chennai

Course Content:
2. Patterns of Urbanisation in developed and developing countries
3. Functional classification of cities: Quantitative and Qualitative Methods
4. Cities and Central Place Theory: Christaller and Losch
5. Urban Issues: problems of housing, slums, civic amenities (water and transport); Case studies of Delhi, Mumbai, Kolkata, Chennai.

References:
Course Objectives:
1. To understand the concept of land use/land cover classification and determinants of agriculture.
2. To familiarize the students with agriculture regions of India and various types of agriculture system in India.
3. To analyze the food security along with various agricultural revolutions and government policies in India.

Learning Outcome:
After the completion of course, the students will have ability to:
1. Conceptualise the agriculture and its determinants.
2. Get the overview of Indian and World agriculture regions and systems.
3. Have sound knowledge of agriculture revolutions and food security

Course Content:
1. Defining the field: Introduction, nature and scope; Land use/ land cover definition and classification.
2. Determinants of Agriculture: Physical, Technological and Institutional
3. Agricultural Regions of India: Agro-climatic, Agro-ecological & Crop Combination Regions.
4. Agricultural Systems of the World (Whittlesey’s classification) and Agricultural Land use model (Von Thunen, modification and relevance).
5. Food Security: Concept, approaches, pattern, Indian revolution and government policies.

References:
B.A. VI SEMESTER

<table>
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<th>Semester</th>
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<td>GEO- E-363</td>
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**NB- For learning outcome for each paper following may be referred**

*Course Level Learning Outcomes Matrix at page- 13*
*Geography Course Outcome and SDGs at page - 14*
*Geography Core papers contribution towards SDGs at page- 14*
*Geography Elective papers contribution towards SDGs at page – 15*
*Questions and marking pattern may be seen at page 23*

[Signature]

05-7-2021
GEO-C-361-Evolution of Geographical Thought

Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:
1. Understanding historical evolution of geographic thought
2. Detailed analysis of different paradigms in geography
3. Evaluating the contemporary trends in geographical studies

Learning Outcome:
After the completion of course, the students will have ability to:
1. Distinguish the paradigms in geography discipline through time
2. Understand the geographical thinking in different regions of world
3. Appreciate the past and future trends of world geography in general and Indian geography in particular

Course Content:
1. Paradigms in Geography

References:
GEO-C-362-Disaster Management Project Work (Practical)
Credit 6- (Credit Hours in a week: Lecture-0, Practical-12, Tutorial-0)
Total Marks: 100

i. End term examination= 60 (5 Questions 12 Marks each)
ii. internal examination =20
iii. Record Book =15
iv. Viva Voce =05

Course Objectives:

1. Understanding the basic concepts of disaster management
2. Detailed analysis about the different types of disasters in India
3. Evaluating the various dimensions of disaster management through field works

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand processes and impact of disaster
2. Understand both the natural and man-made disaster and human negligence in context of environment
3. Write a field work based report on Disaster Management to minimize the disaster risk/Risk from Disaster.

Course Content:

The Project Report based on any two fields based case studies among following disasters and one disaster preparedness plan of respective college/locality and district:

1. Flood
2. Drought
3. Cyclone and Hailstorms
4. Earthquake and Volcanoes
5. Landslides
6. Human Induced Disasters: Fire Hazards, Chemical, Industrial accidents

References:

Course Objectives:

1. Various dimensions of health geography and its linkages with environment.
2. Detailed analysis of environment and health quality and exposure to risk.

Learning Outcome:

After the completion of course, the students will have ability to:

1. Understand the key concepts related to health and its driving forces
2. Identify the linkages between the health, environment, exposure and risk.
3. Explain the relationships among health and disease pattern in environmental context with reference to climate change

Course Content:

1. Perspectives on Health: Definition; linkages with environment, development and health; driving forces in health and environmental trends - population dynamics, urbanization, poverty and inequality.
2. Pressure on Environmental Quality and Health: Human activities and environmental pressure land use and agricultural development; industrialisation; transport and energy.
3. Exposure and Health Risks: Air and water pollution; household wastes;; housing; workplace.
4. Health and Disease Pattern in Environmental Context with special reference to India, Types of Diseases and their regional pattern (Communicable and Lifestyle related diseases).
5. Climate Change and Human Health: Changes in climate system – heat and cold; Biological disease agents; food production and nutrition.

References:


GEO-E-364- Political Geography
Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination=20)

Course Objectives:

1. To critically understand the concepts of state, nation and nation state,
2. To develop the linkages between electoral geography and political geography
3. To interpret the politics of displacement focusing on Dams and SEZ.

Learning Outcomes:
After the completion of course, the students will have ability to:

1. Learn the concept of nation and state and geopolitical theories
2. Understand the different dimensions of electoral geography and resource conflicts
3. Have sound knowledge of politics of displacement, focusing on dams and SEZ

Course Content:

2. State, Nation and Nation State – Concept of Nation and State, Attributes of State – Frontiers, Boundaries, Shape, Size, Territory and Sovereignty, Concept of Nation State; Geopolitics; Theories (Heartland and Rimland)
3. Electoral Geography – Geography of Voting, Geographic Influences on Voting pattern, Geography of Representation, Gerrymandering.

References:

GEO-E-365- Biogeography

Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1) 
Marks: 100 (End term examination=80 and internal examination=20)

Course Objectives:

1. Various dimensions of biogeography and biodiversity.
2. Detailed analysis of energy cycles and their function.
3. Understanding of the concept of ecological succession and floral faunal biodiversity.

Learning Outcome:

After the completion of course, the students will have ability to:

1. Familiarise the dynamics of climate and related theories.
2. Understand of Vegetation as an index of climate.
3. Assess of different aspects of floral and faunal provinces.

Course Content:

2. World Climatic Patterns (Koppen) vis-à-vis biogeographical regions
3. Evolution of major groups of floral and faunal provinces.
5. Biodiversity; bio-diversity hotspots, biodiversity conservation.

References:

10. Mountain and Tree cover in Mountain Regions Report - 2002, UNEP-WCMC.


GEO-E-366- Geography of Social Wellbeing

Credit 6- (Credit Hours in a week: Lecture-5, Practical-0, Tutorial-1)
Marks: 100 (End term examination=80 and internal examination-20)

Course Objectives:

1. To familiarise the student with the theoretical foundations and conceptual grounding of unique geography of social well-being.
2. To appreciate the roles of geographic factors in socio-cultural diversity and well-being.
3. To analyse in details the social wellbeing, problems and welfare programmes and policies.

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the nature, scope and relationships of geography and human wellbeing;
2. Acquire knowledge on spatial dimensions of social diversity components;
3. Appreciate the social welfare programs related to inclusive and exclusive policies in India.

Course Content:

2. Social Diversity: Caste, Class, Religion, Race and Gender and their Spatial distribution
3. Social Wellbeing and Inclusive Development: Concept and Components – Healthcare, Housing and Education.
4. Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime.
5. Social welfare program and policies.

References:

