

NOIDA INTERNATIONAL UNIVERSITY

BACHELOR OF ARTS GEOGRAPHY (HONOURS)

(Semester Based Course)

Rules, Regulations and Course Contents



**B.A (Geography) Honors syllabus as per revised course structure to be
effective from**

Academic year 2018-2019 onwards

Preamble

The UGC 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) 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) 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 following objectives would be achieved from the framework

- 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.

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

1. 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-centred 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.

Aims of B.A (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.

Program Learning Outcomes B.A (Hons)

- 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 (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.

Learning Specific 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.

COURSE STRUCTURE OF UNDERGRADUATE PROGRAMME

The B.A (Hons.) course in Geography has been redesigned with the objective of making the entire programme more comprehensive and interdisciplinary in its approach so as to provide wide array of knowledge.

This programme also integrates teaching of other relevant sociological, political, historical, psychological and administrative concerns to enhance skill based and broader understanding of the social world we live in and to prepare them with a more pragmatic approach to deal with varied demands and challenges of occupational and social settings. It also prepares the students for higher order courses in a better way.

With this perspective, Subsidiary papers have been introduced in the first two years to facilitate the understanding of any two optional papers from sisterly disciplines that the student chooses to opt for. These papers provide a general overview to more specific and relevant concepts pertaining to that discipline.

Apart from this, few Common papers are also taught such as General English-I & II, Environmental Studies- I & II, Business Communication--I & II, Human Rights: Theory & Practice, and Gender & Women studies in India that all the students taking various Honors courses in the School of Liberal Arts.

The papers included in the curriculum will be based on Choice based credit system.

CHOICE BASED CREDIT SYSTEM (CBCS):

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move a cross institutions within India to begin with and a cross countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In

order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

Outline of Choice Based Credit System:

1. Core Course: A course which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.

2. Elective Course: Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/subject of study or which provides an extended scope or which enables an exposure to some other discipline/ subject/ domain or nurtures the candidate's proficiency/skill is called an Elective Course.

2.1 Discipline Specific Elective (DSE) Course: Elective courses may be offered by the main discipline/ subject of study is referred to as Discipline Specific Elective.

The University also offers discipline related Elective courses of inters disciplinary nature (to be offered by main discipline/subject of study).

2.2 Dissertation/Project: An elective course designed to acquire special/ advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/ faculty member is called dissertation/project.

2.3 Generic Elective (GE) Course: An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject maybe treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.

3. Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course: The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They (i) Environmental Science, (ii) English/MIL Communication) are

1	BGO - 201	Economic and Resource Geography	4		4	40	60	100
2	BGO - 202	Geography of India	4		4	40	60	100
3		Subsidry-1	4		4	40	60	100
4		Subsidry-2	4		4	40	60	100
5		Generic Elective	4		4	40	60	100
6	EVSB -201	Environmental Studies – II	4		4	40	60	100
		Total			24			600

3rd Semester

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	BGO - 301	Climatology & Oceanography	4		4	40	60	100	
2	BGO - 302	Statistical Geography	4		4	40	60	100	
3		Subsidry-1	4		4	40	60	100	
4		Subsidry-2	4		4	40	60	100	
5	GEB-301	General English	4		4	40	60	100	
6		Generic Elective	4		4	40	60	100	
		Total			24			600	

4th Semester

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	BGO - 401	Natural Hazards & Disaster Management	4		4	40	60	100	
2	BGO - 402	Fundamental of Remote Sensing	2		2	40	60	100	

3		Minor paper-1	4		4	40	60	100
4		Minor Paper-2	4		4	40	60	100
5	BABC-401:	Business Communication	4		4	40	60	100
6		Generic Elective	4		4	40	60	100
		Total			24			600

5th Semester

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	BGO - 501	Geography of Population	4	1		5	40	60	100
2	BGO - 502	Evolution of Geographical Thought	4	1		5	40	60	100
3	BGO - 503	Fundamental of (GIS & GPS)	2		2	5	40	60	100
4	BGO-504	Research Methods and Techniques	4	1		5	40	60	100
5	BACB CS-501	Human Rights; Theory and Practice	4	0		4	40	60	100
6		Generic Elective	2	0		4	40	60	100
		Total				28			600

6th Semester

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	BGO - 601	Regional Planning and Development	4	1		5	40	60	100
2	BGO - 602	Agricultural Geography	4	1		5	40	60	100

3	BGO - 603	Settlement and Urban Geography	4	1		5	40	60	100
4	BGO - 604	Project/Survey/ Case Study/ Research/ Literature Review	3	2		5	40	60	100
5	BACB CS- 601	Gender and Women Studies in India	4			4	40	60	100
6		Generic Elective	2			4	40	60	100
		Total				28			600

Grand Total - 3400

Total Credits-144

L: Lecture hours; T: Tutorial hours; P: Laboratory/ Practical hours; Internal Marks include class tests, Assignments, Presentations and Attendance

BGO-101

Course Name- Geomorphology

Course Credit- 04

Total Contact Hr- 60

Course Objective:-

The objectives of this course are to introduce the concepts in Geomorphology in adequate manner, many facets of surface relief features and to understand various aspects of their growth and evolution on the Earth.

Course Description:-

The course reviews topics within geomorphology and earth surface processes such as key concepts of geomorphology, landform development at different spatial and time scales, endogenic and exogenic processes, their controlling mechanisms, and their interaction to form the landscape, geomorphological research methods, denudation and long-term landscape evolution. It considers different geomorphic contexts such as fluvial, coastal, aeolian and periglacial and the interaction between these and climate. The course involves field and laboratory methods relevant to geomorphology.

Unit-I: Basics of Geomorphology

- Geomorphology: Nature and Scope
- Earth's Structure, Rocks and its classification

- Plate Tectonic Sea, -Floor Spreading
- Theory of Isostasy

Unit-II: Earth Movements

- Earth movements
- Major Landforms (Mountains, Plateaus, Plains)
- Earthquakes and Volcanoes
- Origin, Types, Distribution

Unit III. Geomorphic Processes

- Weathering (Mechanical, Chemical, Organic)
- Mass Movement (Soil Creep, Soil Flow, Landslides)
- Mass Wasting
- Erosion (Cycle of Erosion-Penck-Davis, Rejuvenation)

Unit IV. Evolution of Landforms

- Evolution of Landforms
- Fluvial Actions, Overland Flow Landforms made by Rivers
- Wind Erosion, Landforms made caused by Aeolian Actions
- Glacier, Classification of Glaciers, Landforms caused by Glacial Actions.

Course Outcomes (CO's):

CO1. To be aware how to describe the exogenous and endogenous processes in the landscape, their importance in landform development, and distinguish the mechanisms that control these processes.

CO2. To analyse how variations in climate, tectonics and environment affect the development of landforms.

CO3. To assess how different scales of time and space affect geomorphological processes.

CO4. To explain and apply geomorphological methods used in research today.

Text Books:-

- Chorley, R. J. (1972) - Spatial Analysis in Geomorphology, Meuthen London.
- Dayal, P. (1992) - Geomorphology, Shukla Book Depot, Patna
- Holmes, A. (1989) - Principles of Geomorphology, ELBS, London
- Small, R. J. (1970) - The Study of Landforms, Cambridge University Press.
- Steers, J. A. (1979) - The Unstable Earth, Kalyani Publishers, Ludhiana

Reference Books: -

- Stoddart, D. R. (ed.) (1996) - Process and Form in Geomorphology. Routledge, New York.
- Strahler, A. N. (1975) - Physical Geography, Wiley Int Edition, New York.
- Strahler & Strahler - Modern Physical Geography, Wiley Int Edition, New York.
- Skinner, B. J. & Potter, S. C. (1995) - The Dynamic Earth, John Wiley, New York.
- Sparks, B. W. (1960) - Geomorphology, Longman, London.
- Sharma, H. S. (eds) (1980) - Perspective in Geomorphology. Concept, New Delhi.
- Singh, S. (1998) - Physical Geography, Prayag Publication, Allahabad.
- Thornbury, W. D. (1960) - Principles of Geomorphology, John Wiley, New York.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO -102

Course Name - Cartographic Techniques (Practical)

Course Credit- 04

Total Contact Hr- 60

Course Objective:-

This course provides an introduction to the history of cartography and the new automated mapping techniques. Topics include a brief introduction to basic cartographic principles such

as maps scales, coordinate systems, map projections, raster and vector data structures, data sources and accuracy, cartographic design.

Course Description:-

Mapping is one of the important and essential aspects of geography, which has a separate branch i.e. Cartography. This paper describes about map making techniques, and their importance on the basis of multiple themes. The objective of this paper is to get hold on the representation of information in different way. As map making is the sole purpose of geographers, by going through this paper students can acquire good knowledge about different procedure of map making and various projection system of map making by developing broad knowledge about latitude, longitude, meridians, parallels etc

Unit-I: Introduction to Scale and Map

- Definition of scale; Methods of scale representation on a map
- Drawing of plane, comparative and diagonal scales
- Calculation of R.F. from arcs of meridians and parallels
- Map: Definition, Significance, Classification and Usefulness and Principles of Map Design.

Unit-II: Representation of Maps

- Representation of population distribution by Uniform and Multiple Dots.
- Representation of urban Population by spheres
- proportional circles
- cubes and Pyramid diagram.

Unit-III: Map Projections

- Drawing of Graphs; Poly graph, Bar graph, Climograph, Ergograph, Lorenze Curve
- Calculation of Composite Index and representation by Choropleth Map
- Drawing of Isopleth Map
- Traffic Flow Cartogram.

Unit-IV: Mapping Techniques

- Thematic Mapping Techniques – Properties, Uses and Limitations

- Theory of Map Projection, Properties of Map Projection
- Construction of Universal Transverse Mercator's Projection Conical with two Standard Parallel, Sinusoidal.
- Map Generalization, Symbolization, Interpretation skills of Topomap

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

Course Outcomes (CO's)

CO1. To familiarize student- teachers about the conceptions about the history of cartography and the new automated mapping techniques.

CO2. To develop a critical understanding of the principles such as maps, scales, map projection etc.

CO3. To develop an understanding of the different aspects about maps making techniques and their importance on the basis of multiple theme.

CO4. To acquaint them with respect to the representation of information in different way.

Text Books: -

- Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
- Gupta K.K. and Tyagi, V. C., 1992: *Working with Map*, Survey of India, DST, New Delhi.
- Mishra R.P. and Ramesh, A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.

References Books:-

- Cuff J. D. and Mattson M. T., 1982: *Thematic Maps: Their Design and Production*, Methuen Young Books
- Dent B. D., Torguson J. S., and Holder T. W., 2008: *Cartography: Thematic Map Design* (6th Edition), Mcgraw-Hill Higher Education
- Gupta K. K. and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
- Kraak M.-J. and Ormeling F., 2003: *Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall.
- Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
- Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
- Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
- Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
- Singh R L & Rana P B Singh (1991) *Prayogtmak Bhugolke MoolTatva*, Kalyani Publishers, New Delhi
- Sharma, J P (2010) *Prayogtmak Bhugolki Rooprekha*, Rastogi Publications, Meerut
- Singh, R L & Dutta, P K (2012) *Prayogatmak Bhugol*, Central Book Depot, Allahabad

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

- Assessment -1 - 05%
- Assessment -2 - 05%
- Assessment- 3 (Mid- Exam) - 05%
- Assessment- 4 -05%
- Total Internal Assessment - 40%

EVSB -101

Course Name – Environmental Studies-I

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

The objectives of environmental education are to increase public awareness about environmental issues, explore possible solutions, and to lay the foundations for a fully informed and active participation of individual in the protection of environment and the prudent and rational use of natural resources.

Course Description:-

This course provides basic scientific knowledge and understanding of how our world works from an environmental perspective. Topics covered include: basic principles of ecosystem function; biodiversity and its conservation; human population growth; water resources and management; water, air and soil pollution; climate change; energy resources, and sustainability.

Unit 1: Introduction to Environmental Studies

- Definition, Concept, Importance of environment
- Components of environment atmosphere, hydrosphere, lithosphere and biosphere.
- Scope and importance; Concept of sustainability and sustainable development.
- Environmental Education and Awareness.

Unit 2: Ecosystems

- Ecosystem, Structure and function of ecosystem
- Energy flow in an ecosystem
- Food chain, food web and ecological succession
- Major Ecosystems: Desert ecosystem, Forest ecosystem, Grassland ecosystem, Aquatic ecosystem (Pond, Lake, stream, rivers, oceans)

Unit 3: Natural Resources: Renewable and Non-renewable Resources

- Land Resources and land degradation
- Soil erosion and desertification, deforestation
- Causes and impacts due to mining, dam building on environment.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).

Unit 4: Biodiversity and Conservation

- Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot Spots.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value

Course Outcomes (CO's):

CO1. The objectives of environmental education are to increase public awareness about environmental issues, explore possible solutions.

CO2. To develop the foundations for a fully informed and active participation of individual in the protection of environment.

CO3. To develop an understanding of the different aspects of the prudent and rational use of natural resources.

CO4. To acquaint them with respect of the social problem and its related issues.

Text Books: -

- B. Erach, Textbook of Environmental Studies for Undergraduate Courses, Third Edition, Orient Blackswan Pvt Ltd.
- Kaushik Anubha, Perspectives in Environmental Studies, Third Edition, Book Age Publications.

References Books: -

- Agarwal KC, 2001. Environmental Biology, Nidi Publishers Ltd. Bikaner.
- Clark RS, Marine Pollution, Clanderson Press, Oxofrd (TB).

- Heywood VH, and Watson RT, 1995. global Biodiversity Assessment. Cambridge University Press .
- Jadhav H and Bhosale VM, 1995. Environmental Protection and Laws. Himalaya Publishing House, Delhi .
- Mckinney ML and Schoch RM, 1996. Environmental Science Systems and Solutions. Web enhanced edition.
- Mhaskar AK, Matter Hazardous, Techno-Science Publications (TB)
- Miller TG, Jr. Environmental Science, Wadsworth Publishing CO. (TB)
- Odum EP, 1971. Fundamentals of Ecology. WB Saunders Co. USA.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO -201

Course Name – Economic & Resource Geography

Course Credit- 04

Total Contact hr- 60

Course Objective:-

Economic & resource geography is the study of the resources and associated economic activities, which provide the knowledge of the available resources, its allied activities and services.

Course Description: -

This paper is specially focused on the factors and different models associated with activities and knowledge about the National and international level of development. The objective of this paper is to be more informative about the resources and its dimensions.

Unit 1. Introduction:

- Fundamental concepts of Economic Geography
- Economic Geography- Definition, Scope, Concept and Method.

- Concept of Economy, Classification of Economy
- Economic Development.

Unit 2. Primary Activities

- Definition of resource. Dynamic concept of Resource
- Types of Resources (Natural, Human, Cultural).
- Classification of Resources-Biotic & Abiotic, Exhaustible & Inexhaustible, Potential & Developed ,Agricultural & Pastoral
- Location of Economic Activity-Agricultural Location theory of Von Thunen.

Unit 3. Secondary Activities:

- Location of Secondary Activity- Industrial Location Theory of A. Weber and E. Hoover.
- Industry, Factors of industrial location; Mineral & Energy Resources
- Resource utilization - Patterns and problems
- Industrial Regions of World.

Unit 4. Tertiary & Quaternary Activities:

- Tertiary activities and Services
- Concept, classification and importance,
- Trade, International trade with reference to GATT and WTO
- Transport: concept of distance, accessibility and connectivity relative cost advantage of different modes of transport, advantage of different modes of transport

Course Outcomes (CO's):

CO1. To familiarize student- teachers about the conceptions about the Nature, Scope, approaches and classification of resource and economic activities.

CO2. To develop a critical understanding of the Sustainable use of resources, Natural resources: soil, forest and water.

CO3. To develop an understanding of the Relations of economic geography with economics and other branches of social sciences, Factors Affecting location of Economic Activity.

CO4. To acquaint them with respect to the representation of information in different way.

Reference Books:-

- Beningsons & Von Raoyan (1971) - Fundamentals of Economic Geography, Prentice Hall of India, New Delhi.
- Alexander, J.W. (1963) - Economic Geography, Prentice Hall Inc, USA
- Fryer, D.W. - World Economic Development, McGraw Hill Books.
- Jones, F.F. & Darkenward, G. C. (1967) - Economic Geography, Mc Millon, London.
- Isard, W. (1972) - Location & Space Economy: A general Theory relating to Industrial Location, Market Areas, Landuse, Trade and Urban Structure, MIT Press, London.
- Roopke (1967) - Readings in Economic Geography, John Willey, New York.
- Chorley& Hagget - Models in Geography.
- Hussain, M. - Models in Geography.
- Smith, D. M. (1961) - Industrial Location - An Economic Geographical Analysis. John Wiley & Sons, London.
- Smith, G. H. (eds.) (1969): Conservation of Natural Resources. John Wiley & Sons Inc. New York.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO -202

Course Name – Geography of India

Course Credit- 04

Total Contact Hr- 60

Course Objective:-

The paper describes geography of India, with special focus on physical, social, economic and the concept of regionalization. The main objective of this paper is to understand the Physiographic, socio-economic conditions prevailing in India from its evolution to current theories of regionalization. This paper provides ample facts about the India.

Course Description: -

The study includes geographical setting of the Natural features such as the changes in topography, various compositions of soils, geomorphologic patterns, basins of India, watershed, tributaries. The overall outcome of the course is to help the students to increase the deep understanding about the subject of Geography. The Study also includes climate systems, regional developments, irrigation systems, agricultural activities, rural-urban settlements, formation of demography and its migrations. Trades, Commodities, Industrial activities at various scales etc.

Unit -1: Physical

- Relief features and drainage systems
- Soil and vegetation, physiographic divisions
- Geological regions, geological history
- Ice Ages, climate (characteristics and classification)

Unit -2: Population

- Distribution and growth
- Population composition - caste, religion, language, tribes,
- Migration causes, consequences, streams.
- Population Policy

Unit -3: Economic

- Mineral and Energy resources distribution and utilization of iron ore, coal, petroleum, gas
- Agricultural production and distribution of rice and wheat
- Industrial development: automobile

- Information technology

Unit -4: Regionalization of India

- Concept of Regions
- Regionalization
- Physiographic (Spate and R. L. Singh)
- Socio – cultural (Sopher and A. Ahmed), Economic (Sengupta).

Course Outcomes (CO's):

- **CO1.** To familiarize student, with Indian Geography.
- **CO2.** To develop understanding of the Physical Features of India
- **CO3.** To develop an understanding of the Population aspects of India.
- **CO4.** To acquaint them with economical aspects and different aspects of regionalization.

Text Books: -

- Tirtha, Ranjit 2002: *Geography of India*, RawatPubl., Jaipur & New Delhi.
- Hussain. Majid, *Geography of India*, 9th Edition, 2020, McGraw Hill Education India.
- Deshpande C. D., 1992: *India: A Regional Interpretation*, ICSSR, New Delhi.

References Books:-

- Johnson, B. L. C., ed. 2001. *Geographical Dictionary of India*. Vision Books, New Delhi.
- Mandal R. B. (ed.), 1990: *Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective.*
- Sdyasuk Galina and P Sengupta (1967): *Economic Regionalisation of India*, Census of India
- Sharma, T. C. 2003: *India - Economic and Commercial Geography*. Vikas Publ., New Delhi.
- Singh R. L., 1971: *India: A Regional Geography*, National Geographical Society of India.

- Singh, Jagdish 2003: *India - A Comprehensive & Systematic Geography*, GyanodayaPrakashan, Gorakhpur.
- Spate O. H. K. and Learmonth A. T. A., 1967: *India and Pakistan: A General and Regional Geography*, Methuen.
- Bose, A. *et. al.* eds, 2001: *Population in India's Development, 1947-2000*, Vikas, New Delhi.
- Pathak, C. R. 2003: *Spatial Structure and Processes of Development in India*. Regional Science Assoc., Kolkata.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

EVSB - 201

Course Name – Environmental Studies-II

Course Credit- 04

Total Contact Hr- 60

Course Objective:-

Objective is to aim at the development of environmentally literate citizens who have the skills and knowledge and inclinations to make well informed choices concerning the environment, and who exercise the rights and responsibilities of the members of a community. It contributes to an understanding and appreciation of the environment and conservation of resources for future.

Course Description: -

Introduces basic concepts from policy studies and economics that help explain environmental challenges. Provides an overview of how government, non-governmental organizations, and the private sector are dealing with major environmental challenges. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity

and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues.

Unit 1: Environmental Pollution

- Environmental pollution
- Types, causes, effects and controls; Air, water, soil, chemical and noise pollution.
- Industrial waste management: Control measures of urban and industrial waste
- Solid waste management: Control measures of urban and industrial waste.

Unit 2: Environmental Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain
- Impacts on human communities and agriculture.
- Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC).
- Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context

Unit 3: Human Communities and the Environment

- Human population and growth: Impacts on environment, human health and welfares. National and International Legislations
- Disaster management: floods, earthquakes, cyclones and landslides.
- Environmental movements: Chipko, Silent valley, Environmental ethics: Role of Indian and other religions and cultures in environmental conservation
- Environmental communication and public awareness.

Unit 4: Field work

- Visit to an area to document environmental assets; river/forest/flora/fauna, etc.
- Visit to a local polluted site – Urban/Rural/Industrial/Agricultural.
- Study of simple ecosystems-pond, river, Delhi Ridge, etc.,

Course Outcomes (CO's):

CO1. The objectives of environmental education are to increase public awareness about environmental issues, explore possible solutions.

CO2. To develop the foundations for a fully informed and active participation of individual in the protection of environment.

CO3. To develop an understanding of the different aspects of the prudent and rational use of natural resources.

CO4. To acquaint them with respect of the social problem and its related issues.

References Books:-

- Agarwal KC, 2001. Environmental Biology, Nidi Publishers Ltd. Bikaner.
- Bharucha Erach, 2003. The Biodiversity of India, Mapin Publishing Pvt. Ltd, Ahmedabad – 380013, India.
- Brunner RC, 1989, Hazardous Waste Incineration, McGraw Hill Inc.
- Clark RS, Marine Pollution, Clarendon Press, Oxford (TB).
- Cunningham WP, Cooper TH, Gorhani E & Hepworth MT, 2001. Environmental Encyclopaedia, Jaico Publishing House, Mumbai, 1196pgs.
- De AK, Environmental Chemistry, Wiley Eastern Ltd.
- Gleick HP, 1993. Water in Crisis, Pacific Institute for Studies in Development, Environment and Security. Stockholm Environmental Institute, Oxford University Press.
- Hawkins RE, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
- Heywood VH and Watson RT, 1995. Global Biodiversity Assessment. Cambridge University Press.
- Jadhav H and Bhosale VM, 1995. Environmental Protection and Laws. Himalaya Publishing House, Delhi.

- Mckinney ML and Schoch RM, 1996. Environmental Science Systems and Solutions. Web enhanced edition.
- Mhaskar AK, Matter Hazardous, Techno-Science Publications (TB)
- Miller TG, Jr. Environmental Science, Wadsworth Publishing CO. (TB)
- Odum EP, 1971. Fundamentals of Ecology. WB Saunders Co. USA.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO - 301

Course Name – Climatology & Oceanography

Course Credit- 04

Total Contact hr- 60

Course Objective:-

This course is designed to provide the candidates a good understanding about the atmospheric and oceanographic phenomenon. The study of Elements of Climate and the factors influencing the distribution of temperature and pressure are the key aspects covered.

Course Description: -

Apart from that the Heat budget, Insolation, Air masses, Fronts, Ocean currents are other interesting topics which enlighten the candidates to have a complete picture about the atmosphere and hydrosphere. This paper also explains how closely these two are associated with each other to determine the world climate and there by the life on this earth.

Unit 1: Weather and Climate

- Weather and Climate
- Elements, Difference, Importance
- Structure and Composition of Atmosphere
- Types of Atmosphere

Unit 2: Insolation and Temperature

- Factors influencing temperature, Importance
- Vertical Distribution of Temperature: Adiabatic Changes
- Heat Budget
- Temperature Inversion.

Unit 3: Atmospheric Pressure and Wind

- Planetary Winds, Forces affecting Winds, Jet Streams
- Tropical Cyclones, Extra Tropical Cyclones
- Monsoon - Origin and Mechanism
- Climatic Classification, Climatic Regions (Koppen's & Thornthwaite's).

Unit 4: Oceanography

- Ocean Floor topography – India, Atlantic and Pacific Ocean, physical and Chemical Properties.
- Oceanic movements – Waves, Currents and Tides and their influences
- Coral reefs - Types and theories of Origin.
- Atolls – Types and Factors, Marine Deposits and Ocean Resources – Biotic, Mineral and Energy.

Course Outcome: -

CO1. The students should be able to describe the relationship between air pressure and wind direction in cyclonic and anticyclonic movement.

CO2. It should be able to describe tropical air masses and how they move and to describe what happens when different air masses meet..

CO3. The students should be able to explain how storms form, the relationship between jet stream position and storm movement, and make the distinction between warm fronts and cold fronts.

CO4. The students should be able to differentiate between weather and climate.

Text Books: -

- Baravkar. B, Geography Elements of Climatology and Oceanography, Success publications.
- Singh. Savinder, 2013, Oceanography, Pravalika publication.
- R. C. Sharma & M. Vatal, 2018, Oceanography for Geographers, Surajeet publications.
- Bhattacharya, Tapas. 2015, A textbook of Climatology, Wisdom Press.

References Books:-

- Barry, R. G. & Chrley, P. J. - Atmosphere, Weather & Climate.
- Hartmann, Dennis L., Global Physical Climatology, 1994, Academic Pr.
- Allen Perry, Dr Russell Thompson, Russell Thompson, 1997, Applied Climatology Principles and Practice, Routledge.
- Andreas Schmittner, 2017, Introduction to Climate Science, Oregon State University.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO -302

Course Name – Statistical Geography

Course Credit- 04

Total Contact Hr- 60

Course Objective:-

Statistics is the discipline which helps to understand the dynamics temperature, weather and climate, agriculture and other geographical study with the help of tabulation techniques, data representation. Sampling methods, measure of central tendency, dispersion, and association and correlation techniques helps in research involved in geography.

Course Description: -

This course will introduce participants to the importance of geography in the collection, production and use of statistics. The course also teaches the generic elements of geographic knowledge and understanding needed for good analysis and research. It combines classroom and computer-based activities. The central goal of this paper is to provide the data interpretation techniques with analytical skills.

Unit 1.Geographical Data:

- Use of Data in Geography: Geographical Data
- Data Matrix, Significance of Statistical Methods in Geography
- Sources of Data, Data Presentation
- Scales of Measurement (Nominal, Ordinal, Interval, Ratio).

Unit 2.Tabulation and Descriptive Statistics:

- Frequencies (Deciles, Quartiles)
- Cross Tabulation
- Measure of Central Tendency
- Measure of Dispersion

Unit 3.Sampling Techniques Theoretical Distribution:

- Sampling
- Purposive, Random, Systematic and Stratified.
- Probability and Normal Distribution
- Lorenz Curve.

Unit 4.Association and Correlation:

- Rank Correlation, Product Moment Correlation
- Simple Regression
- Residuals from regression
- Measurement of Spatial Patterns of Distribution.

Course Outcome:-

- CO1.** To familiarize student, about the concept and evolution of statistics in Geography.
- CO2.** To develop understanding of the organization of datasets in Descriptive statistics.

CO3. To develop an understanding of the analysis of association and their impishness.

CO4. To acquaint them with applications of statistical Geography.

Text Books: -

- Ebdon D., 1977: *Statistics in Geography: A Practical Approach*.
- Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
- King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall.

References Books :-

- Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
- Mahmood A., 1977: *Statistical Methods in Geographical Studies*, Concept.
- Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
- Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London.
- Spiegel M. R.: *Statistics, Schaum's Outline Series*.
- Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO -401

Course Name – Natural Hazards & Disaster Management

Course Credit- 04

Total Contact Hr- 60

Course Objective:-

Disaster is one of the vibrant disciplines to understand the natural calamities, anthropogenic activities and their result on physical, social, and economic region which further gives the

ideas or chance to students to study, understand, learn, think, and implementation of the knowledge to overcome the hazards in pace of fast growth and development a country in the approach of welfare.

Course Description: -

The course inspects the disaster cycle (mitigation, preparation, response and recovery) in relation to the interaction of natural hazards, such as floods, droughts and earthquakes, with human society. Students will discuss and propose solutions to complex problems in disaster risk reduction, where the disaster cycle is compared and critically analysed in relation to recent events.

Unit 1: Introduction

- Natural Hazards and Disasters
- Meaning and concept, types and occurrences
- Characteristics of natural hazards and disasters
- Earthquake, Flood, Cyclone, Drought, Volcanic eruption, Tsunami, Landslide, Bushfire, Epidemic.

Unit 2: Risk and Preparedness

- Concept of Risk and Vulnerability, Reduction of Risk, Techniques of Risk Assessment, People's Participation in Risk Assessment
- Major requirements for coping with disaster, Disaster policies.
- Disaster Preparedness; Concept and Nature; Community Based Planning
- Role of Various Agencies and Government Organizations.

Unit 3: Planning and Management

- Integral Development Planning for Disaster Management
- Pre-Disaster Planning and management; Early Warning and Prediction System.
- Post Disaster Management: Rescue, Relief, Rehabilitation; Public Awareness, Stress Management
- Role of National and International Agencies in Disaster Management.

Unit 4: Disaster Prone Areas

- National Perspective Disaster Prone Areas of India
- Seismic Zones, Areas prone to Floods and Droughts, Landslides and Avalanches
- Areas prone to Cyclones and Coastal Hazards, Industrial Disaster Areas
- National Disaster Policy of India.

Course Outcome (CO's):-

CO1. To understand the natural calamities, anthropogenic activities and their result on physical, social, and economic region.

CO2. To gives the ideas or chance to students to study, understand, learn, think, and implementation of the knowledge to overcome the hazards in pace of fast growth and development a country in the approach of welfare.

CO3. Through knowledge, experience and research build capacities that will reduce disaster risks and contribute to better and more targeted public health based relief following disasters.

CO4. To increase the knowledge and understanding of the International Strategy for Disaster Reduction (UN-ISDR) and to increase skills and abilities for implementing the Disaster Risk Reduction (DRR) Strategy.

Text Books: -

- Singh Ram Babu, 2006, Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat publications.
- Sulphey M. M, 2016, Disaster Management, PHI Learning Private Limited.

References Books:-

- Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K.
- Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila.
- Central Water Commission, 1987, Flood Atlas of India, CWC, New Delhi.
- Central Water Commission, 1989, Manual of Flood Forecasting, New Delhi.
- Government of India, 1997, Vulnerability Atlas of India, New Delhi

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
Assessment- 4	-05%
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO -401 Course Name – Fundamental of Remote Sensing (Theory & Practical)

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

With the advancement of technology, this paper is fully discuss the role of technology in geography. Here, Remote Sensing helps to acquire information through satellite data in all segments of geography, GIS and GPS provide the precise information with the handling capacity of bundles of dataset-meta data. The main theme of the paper is to endow technological skills in this present competitive era.

Course Description: -

This course introduces students to the basics of remote sensing, characteristics of remote sensors, and remote sensing applications in academic disciplines and professional industries. Emphasis is placed on image acquisition and data collection in the electromagnetic spectrum and data set manipulations. This course is designed for geographic information systems (GIS) students interested in imagery analysis.

UNIT 1: Principal of Remote Sensing

- Remote Sensing: Definition and Development
- Platforms and Types, Components
- EMR Interaction with Atmosphere and Earth Surface
- Types of RS Satellites (Case study: Landsat and IRS); Sensors, Resolution.

UNIT 2: Basics of Photogrammetry

- Photogrammetry: Definition and Development
- Aerial Photography, Types
- Planning for Aerial photographs
- Interpretation of Aerial photograph

UNIT 3: Digital Image Processing (DIP)

- Introduction of DIP
- Interpretation of Satellite Images
- Image Pre-processing
- Enhancement, Classification.

UNIT 4: Application of Remote Sensing:

- Application of RS Technology
- Importance of RS
- Land Use Land Cover
- Natural Resource Management (case studies)

Practical Record:

- A project file consisting of 7 exercises on using any method on above mentioned themes.

Course Outcome (CO's): -

CO1. To familiarize student, recent technology of RS, GIS and GNSS.

CO2. To develop understanding of various products of RS Satellite Data

CO3. To develop an understanding of the advanced analysis of RS Satellite Data with GIS.

CO4. To acquaint them with the clear understanding and update according to market

Text Books:-

- Bhatta , B. (2008) Remote Sensing and GIS, Oxford University Press, New Delhi.
- Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press
- Chauniyal, D. (2010) SudurSamvedanaAvamBhaugolikSuchnaPranali, ShardaPustakBhawan, Allahabad.

- Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall.
- Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.

References Books: -

- Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
- Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences CRC Press, Taylor and Francis, London
- Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.
- Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
- Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub

Web links:-

- <http://www.itc.nl/~bakker/rs>.
- html www.ccrs.nrcan.gc.ca/resource/tutor/fundam/index_e.php
- rst.gsfc.nasa.gov/
- <http://www.r-s-c-c.org/rsc/v1m1.html>
- www.isprs.org
- www.spaceimaging.com
- www.landsat.usgs.gov
- www.spotimage.fr
- www.nrsc.gov.in
- IRS 1C handbook: http://www.euromap.de/docs/doc_013.html
- IRS P6 Users handbook.
http://www.nrsc.gov.in/IRS_Documents/Handbook/Resourcesat-1_handbook_HTML
- asterweb.jpl.nasa.gov

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%

Assessment- 4 -05%

Total Internal Assessment - 40%

BGO -501

Course Name – Geography of Population

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

It is the study of the ways in which spatial variations in the distribution, composition, migration, and growth of populations are related to the nature of places. Population geography involves demography in a geographical perspective. It focuses on the characteristics of population distributions that change in a spatial context.

Course Description:-

The outcome of this paper lies in the field that students can develop their understanding regarding population and its various characteristics including population growth, density, fertility, mortality, death rate, birth rate etc. Through this he/she can understand the negative or positive effect of population growth in the society and can create awareness among the people of society regarding this.

Unit-I: Introduction to Population Geography

- Approaches, Definition, Nature and scope of Population geography
- Evolution of Population Geography
- Demography and population Geography
- Sources of Population Data: Census, Vital Statistics and National Sample Survey

Unit-II: Population Distribution and Growth

- Population Growth and change: Trends of Population Growth in the World; World Pattern of population distribution
- Factors affecting population distribution; Population Dynamics: Fertility, Mortality and Migration
- Theories of Population growth: Malthusian theory

- Theory of Demographic Transition

Unit-III: Population Composition

- Age and Sex Composition
- Rural and Urban Composition
- Economic Composition
- Literacy and Education; Religion/Caste/ Race etc.

Unit-IV: Population Problems and Policies-India

- Declining Sex Ratio
- Gender issues: Ageing, crime against Women
- Human Trafficking, Child Abuse; HIV/AIDS
- Population Policy of India.

Course Outcomes (CO's):

- CO1.** To understand the natural calamities, anthropogenic activities and their result on physical, social, and economic region.
- CO2.** To gives the ideas or chance to students to study, understand, learn, think, and implementation of the knowledge to overcome the hazards in pace of fast growth and development a country in the approach of welfare.
- CO3.** Through knowledge, experience and research build capacities that will reduce disaster risks and contribute to better and more targeted public health based relief following disasters.
- CO4.** To increase the knowledge and understanding of the International Strategy for Disaster Reduction (UN-ISDR) and to increase skills and abilities for implementing the Disaster Risk Reduction (DRR) Strategy.

Text Books: -

- Swain, A.K.P.C. (2008): A Text Book of Population Studies, Kalyani Publishers, New Delhi.
- Trewartha, G.T. (1969). A Geography of Population: World Patterns, John Wiley and Sons, New York.
- John R. 2005: Population: An Introduction to Concepts and Issues. 9th Edition, Belmont, C.A.: Wadsworth Publication.
- Wilson, M.G.A. (1968): Population Geography, Thomas Nelson, London.
- Mahendra K. Premi (2001) Population of India, In the New Millennium: Census, National book trust. New Delhi.
- Mahendra K. Premi, Dipendra Nath Das (2011) Population of India, B.R. Publishing Corporation, Delhi.

References Books:-

- Bhende, A. and Kanitkar T. (2000): Principles of Population Studies, Himalaya Publishing house.
- Bogue, Donald, J. (1969): Principles of Demography, John Wiley and Sons, New York.
- Chandana, R.C. (1986): A Geography of Population: Concepts, Determination and pattern, Kalyani publisher, New Delhi.
- Chandana, R.C. (2008): Geography of Population: Concepts, Determinants and Patterns, 7th Edition, Kalyani Publishers, New Delhi.
- Clarke, J.I. (1965): Population Geography, Pergamon press Ltd; Oxford.
- Clarke, J.I. (1972): Population Geography, Second Edition, Pergamon Press Ltd; Oxford.
- Clarke, J.I. (Ed.) (1984): Geography and Population: Approaches, Pergamon Press Ltd; Oxford.
- Demco, G.J; Rose, H.M. Schnell, G.A. (1970): Population Geography, McGraw Hill Book Co; New York.
- Jones, H.R. (1990): Population Geography, Sage.
- Jones, H.R. (2000): Population Geography, 3rd Edition, Paul Chapman, London.
- Peters, G.L. and Larkin R.P (1979): population Geography-Problems, Concepts and Prospects, Kendall Hunt Publication Co.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO - 502

Course Name – Evolution of Geographical Thought

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

This course covers a wide canvas of the story of geographical thoughts, ideas and knowledge right from the early Greek period to modern contemporary geography. Presenting an introduction to the philosophy, history and methodology of geography. Different theories of knowledge have shaped the practice of geography, framing how we make certain claims about the world, and how we decide that certain of these claims are more valid than others.

Course Description: -

The purpose of this course is to examine the historical and philosophical development of modern geography and geographical knowledge. The course will explore key discourses, debates, and controversies which shaped the modern discipline. A key aim of the course will be to place the development of geographical thought and practice within a broader societal and scientific perspective.

Unit-I: Geography in Classical Age

- Contributions of Greek and Roman scholars with special references to the works of Herodotus
- Eratosthenes and Hecateus
- Strabo and Ptolemy

Unit-II: Geography in Dark Age

- Dark Age in Europe

- Impact on the development of Geography
- Contributions of Arab Scholars with special reference to the works of Al-Masudi, Al-Biruni
- Ibn-e-Batuta and Ibn-e-Khaldun.

Unit-III: Scientific Geography

- The revival of scientific geography
- Work of Varenus and Kant
- Contributions of Humbolt and Ritter
- Darwin's impact on geography

Unit-IV: Quantitative Revolution and its Impact

- Contributions of Ratzel, Vidal de la blache, Richthofen and HartShrone
- The Quantitative Revolution in Geography
- Behaviouralism, Systems Approach, Radicalism, Feminism
- Post Quantitative Revolution trends: Welfare, Radical, Post Modernization.etc.

Course Outcomes (CO's): -

CO1. Understand the basics of Geographical Thought.

CO2. Acquire knowledge of Geographical Thought of Greek, Roman, Arab, German, French, British and American.

CO 3. Understand modern geographical thoughts and contribution of geography.

CO 4. To understand the trend of Indian Geography in Colonial and postcolonial period.

Text Books: -

- Dikshit R. D., 1997: Geographical Thought: A Contextual History of Ideas, Prentice–Hall India.
- Hartshone R., 1959: *Perspectives of Nature of Geography*, Rand MacNally and Co.

References Books:-

- Arentsen M., Stam R. and Thuijjs R., 2000: *Post-modern Approaches to Space*, ebook.
- Bonnett A., 2008: *What is Geography?* Sage.
- Holt-Jensen A., 2011: *Geography: History and Its Concepts: A Students Guide*, SAGE.
- Johnston R. J., (Ed.): *Dictionary of Human Geography*, Routledge.
- Johnston R. J., 1997: *Geography and Geographers, Anglo-American Human Geography since 1945*, Arnold, London.
- Kapur A., 2001: *Indian Geography Voice of Concern*, Concept Publications.
- Martin Geoffrey J., 2005: *All Possible Worlds: A History of Geographical Ideas*, Oxford.
- Soja, Edward 1989. *Post-modern Geographies*, Verso, London. Reprinted 1997: RawatPubl., Jaipur and New Delhi.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO - 503

Course Name – Fundamental of GIS & GPS (Theory & Practical)

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

With the study of RS, GIS, and GPS technology, it is requisite for a learner to continue handful knowledge in lab to understand the role of technology in geography. Remote Sensing helps to extract information through satellite data, GIS and GPS provide the precise information with the handling capacity of bundles of dataset-meta data. The main theme of the paper is to endow technological skills in continuation of the theoretical knowledge.

Course Description: -

GIS (Geographic Information Systems) is a computer-based tool that uses spatial (geographic) data to analyze and solve real-world problems. This course is designed to introduce the student to the basic principles and techniques of GIS. The lab material will emphasize GIS data collection, entry, storage, analysis, and output using ArcGIS.

UNIT 1: Fundamental of GIS

- Geographical Information System (GIS)
- Definition and Components, History
- An Overview of Hardware of GIS
- Software requirements of GIS

UNIT 2: GIS Data and its Quality

- GIS Data Creation and Components of Data Quality
- Sources of Errors
- Geo-Referencing
- Data Types (spatial and Non-spatial), Raster and Vector Data Structure.

UNIT 4: GPS and Its Application

- Global Positioning System (GPS)
- Principles and Uses; DGPS.
- Constellation of GPS Satellites
- Applications of GPS in Surveys, Mapping and Navigation

UNIT 3: Application of GIS

- DEM Derivatives, Network Analysis,
- Buffering, Interpolation Methods, Map Compilation
- Land Use/land Cover Mapping, Urban Sprawl Analysis, Urban Planning
- Health Information System

Practical Record:

- A project file consisting of 7 exercises on using any GIS Software on above mentioned themes.

Course Outcomes (CO's):

CO1. To familiarize student, about the application of RS, GIS and GNSS.

CO2. To develop understanding of working domain of RS Satellite Data

CO3. To develop an understanding of the analysis of RS Satellite Data and others Ancillary data.

CO4. To acquaint them with the clear understanding and update according to market

Text Books: -

- Nag, P. (2008) Introduction to GIS, Concept India, New Delhi.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
- Singh, R.B. and Murai, S. (1998) Space Informatics for Sustainable Development, Oxford and IBH, New Delhi.

References Books: -

- Bhatta, B. (2010) Analysis of Urban Growth and Sprawl from Remote Sensing, Springer, Berlin Heidelberg.
- Burrough, P.A., and McDonnell, R.A. (2000) Principles of Geographical Information System-Spatial Information System and Geo-statistics. Oxford University Press
- Heywoods, I., Cornelius, S and Carver, S. (2006) An Introduction to Geographical Information system. Prentice Hall.
- Jha, M.M. and Singh, R.B. (2008) Land Use: Reflection on Spatial Informatics Agriculture and Development, New Delhi: Concept.

Web links:-

- http://www.colorado.edu/geography/gcraft/notes/sources/sources_f.html
- <http://www.ncgia.ucsb.edu/giscc/units/u055/u055.html>.
- <http://www.trimble.com/>
- <http://www.pasda.psu.edu/tutorials/gisbasics.asp>
- <http://nptel.iitm.ac.in/video.php?subjectId=105107121>

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1

- 05%

Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO - 601

Course Name – Regional Planning & Development

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

In the competence of Geography, regions have their own self-motivated segment where it demands a separate bird eye-view to comprehend, entail and plan according to their origin, present significance, and future scope to the respective region. So, it becomes more descriptive, analytical and planning zone for the student.

Course Description: -

This paper pact the demand for the learner to avail proper awareness and enhancement in their skills. The key objective of the course is to equip the students with adequate skills required to comprehend urban and regional issues and to analyse physical, socio-economic, cultural, political and ecological dimensions of the human settlements. The course is designed to provide necessary exposure to various planning processes, emerging trends and other related advanced technical knowhow. It intends to contribute towards the creation of professionals in the field and hence to cater to the specific needs of the industry and academics. During the course, the students will be provided with ample opportunities to interact with the subject experts, relevant organisations, etc.

Unit –I: Region and Development

- Region, Development and Planning
- Definitions concepts and Types
- Methods of delineation of regions: flow analysis, gravitational analysis
- Weighted analysis method.

Unit –II: Regional Development and Regional Planning

- Regional devolvement: Concepts and indicators
- Regional Planning: Concepts and purpose;
- Process and Factors of Regional Development
- Levels of planning: local, regional and national.

Unit -III: Models, Theories of Development and Survey for planning

- Rostow’s model; Core-periphery model
- Christaller’s central place theory and Growth pole theory.
- Concepts and function, Types of Survey
- Technology in Survey

Unit- IV: National and Regional Plans and its Problems

- Planning in India: Five year plans – goals and achievements
- Regional imbalances and inequalities in India;
- Area Development plans: Tribal and Drought areas
- Case Study of a Metropolitan City. Problems in Planning.

Course Outcomes (CO’s):

CO1. To familiarize student, about the concept nature scope of Regional Planning and Development.

CO2. To develop understanding of the Regional Planning and Regional Development.

CO3. To develop an understanding of different theories and models postulated by different Scholars

CO4. To acquaint them with Planning and inequalities in society.

Text Books: -

- Urban and regional development in India, Baleshwar Thakur – 2005
- Regional development and planning in India, P. C. Tiwari – 1988
- Regional planning: concepts, techniques, policies and case studies, (1992) R P Mishra
- Regional planning in India, L. S. Bhat – 1972

References Books:-

- Introduction to Development and Regional Planning: With Special Reference to India, 2001, Jayasri Ray Chaudhuri
- Planning and regional development in India, Jagannath Mishra, ChakradharSinha – 1985
- India's development agenda: issues, challenges and policies, B. K. Prasad – 2005
- Regional Development And Planning In India selected Essays (2009) V. Nath, S.K. Aggarwal (Edited), Concept Publishing Company
- Regional Development and planning (1976) Paul A. Compton, MartonPecsi, AkademiaiKiado Publisher
- Regional planning in India 1983) Mahesh Chand and Vinay Kumar Puri
- Regional development: problems and policy measures, Abdul Aziz, Sudhir Krishna
- Decentralised planning and Panchayati Raj institutions, Sweta Mishra, Chaitali Pal – 2000

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO - 602

Course Name – Agricultural Geography

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

The main objective is the spatial distribution of crops, livestock and other agricultural activities. Apart from the given objectives, the agricultural geographers have to diagnose at the micro level (household and field level) the causes of existing agricultural backwardness,

and then to suggest suitable strategies to enhance productivity. This may go a long way in alleviating the marginal and small farmers above the poverty line in a given region.

Course Description: -

Agricultural Geography provides the basic information of various types of the agriculture on the earth surface viz., Subsistence, commercial, horticulture, specialised etc. Agricultural Geography as a sub-discipline of human and economic geography. The geography of human activities is called as 'economic geography' which examines the primary, secondary, tertiary and quaternary activities of man. Man in his primeval stage was a hunter and gather and during the Neolithic period he learned the art of cultivation of crops. Thus, agriculture had been the dominant economic activity in the past and it is still the mainstay of over two-third of the world population. The study of agricultural geography is thus of great social relevance among all the branches of human geography.

Unit-1:Introduction to Agricultural Geography

- Nature, scope and approaches, Origin and dispersal of agriculture
- Significance of Agriculture in World.
- Place of agriculture in Different Economies
- Factors affecting Agricultural Productivity and Importance of Agricultural Productivity.

Unit-2:Importance of Agriculture in the Indian Economy

- Determinants of Agricultural Patterns Influence of Physical
- Economic and Technological Factors. Relief, climate, soil.
- Agricultural Regions in India: Agroclimatic, Agro ecological Region
- Crop Combination Regions

Unit-3: Agricultural Types Subsistence and Commercial agriculture

- Types of Farming, Farming System in India: Shifting cultivation, Intensive subsistent farming, Mixed farming, Major Crops, Horticulture Crops, non- food Crops
- Types of Agriculture: Plantation agriculture, Commercial grain farming
- Agricultural region of India
- Agricultural region by Whittlesey, Agricultural Location model of Von Thunen's.

Unit- 4: Problems of Indian Agriculture

- Problems & Prospects of Indian Agriculture and their solution
- Salient features of Indian Agriculture
- Components of the Green Revolution, Impact of Green Revolution
- Demerits or problems of Green Revolution.

Course Outcome (CO's):

CO1. The main objective is the spatial distribution of crops, livestock and other agricultural activities.

CO2. To develop a critical understanding of the suitable strategies to enhance productivity of Agriculture.

CO3. To develop an understanding of the agricultural geographers have to diagnose at the micro level (household and field level) the causes of existing agricultural backwardness.

CO4. To acquaint them with respect to the long way in alleviating the marginal and small farmers above the poverty line in a given region.

Text Books: -

- Singh. J. and Dhillon S.S. (1994) – Agricultural Geography. Tata McGraw Hill, Publishing Co. Ltd.
- Symons, Leslie (1970) – Agricultural Geography, G. Belt and Sons Ltd., London.

References Books:-

- Grigg. D.G.(1964) – An Introduction to Agricultural Geography Hutchinson &Co.Ltd.,
- Morgan. W.B. & S.C. Monton (1971) – Agricultural Geography Methuen, London.
- Tarrent, J.R. (1970) – Agricultural Geography, David and Charles, Newton Abbot.
- Grigg. D.G. (1974) – The Agricultural Systems of the world An Evolutionary Approach.

- Illbery, B.W. (1985) – Agricultural Geography, Social & Economic Analysis, Oxford University Press.
- Aiyer, A.K.Y.N.(1949) – Agricultural and Allied Arts in Vedic India.
- Randhawa, M.S. (1980) – An History of Agriculture in India Vols. I, II, III,IV ICAR, New Delhi.

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>

BGO - 603

Course Name – Settlement and Urban geography

Course Credit- 04

Total Contact Hr- 60

Course Objective: -

The main objective of the course is to show that the residential problems experienced in the urban area selected for the study is reflection of the urban poverty and that the public authorities in many ways are helping to widen the existing gap between urban affluence and poverty. Land allocated for dwelling purposes and provision of neighborhood facilities and utility services by different public authorities has been selected to bring out that bias.

Course Description: -

This course is a general introduction to Urban Geography. More than half the world's population currently lives in cities, and the proportion continues to increase. The study of urban settlements - their internal organization, links to each other, and relationship with non-urban areas - has therefore become a major sub-field of Human Geography. This course covers the historical and contemporary processes of urbanisation, the internal structure and characteristics of cities, and the nature of urban systems.

Unit- 1: Introduction

- Meaning, Objectives of Settlement Geography
- Scope of Settlement Geography
- Factors Affecting the Origin & Growth of Settlements
- Types & patterns of settlements

Unit-II: Urban Land Use

- Origin & Growth of urban settlement, Morphology of urban settlement
- Function of urban settlement, Functional classification of Cities.
- Planned Cities: A Case Study of Chandigarh – Site and Situation.
- Change in the urban land use & land use Planning.

Unit- III: Rural Settlements

- Origin of Rural Settlements Spatial Characteristics of rural settlements. (Distribution, Size, form, morphology & house types)
- Social & Infrastructural attributes in Rural Settings
- Rural settlements in India.
- Determinants of rural settlements, Morphology of rural settlements: site and situation.

Unit-IV: Urban Settlements

- Rural-Urban Continuum, Urban Sphere of influence (Um land, Hinterland, Urban Fringe)
- Urban Hierarchy, Rank- Size rule, City
- Metropolis and City Region, Urban agglomeration
- Urban morphology: Classical models-Burgess, Homer Hoyt, Harris and Ullman.

Course Outcomes (CO's):

CO1. Build an idea about urban and rural settlements, and its relationship with environment and also different theories related to settlement geography.

CO2. Know about classification and morphology of settlements.

CO3. Understand the trends and patterns of world urbanization.

CO4. Know about different theories of urban growth.

Text Books: -

- Chishlom M., 2007: *Rural Settlement and Land Use*, Transaction Publishers.
- Daniel, P. 2002: *Geography of Settlement*, RawatPubls., Jaipur & New Delhi.
- Ghosh, Santwana 1999: *A Geography of Settlements*, Orient Longman, Kolkata.

References Books:-

- Kalia Ravi, 1999: *Chandigarh: The Making of Indian City*, Oxford University Press.
- Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: *Urban Geography*, John Wiley.
- Krishan G., 1999: *Inner Spaces – Outer Spaces of a Planned City: A Thematic Atlas of*
- *Chandigarh*, Celebrating Chandigarh.
- Pacione M., 2009: *Urban Geography: A Global Perspective*, Taylor and Francis.
- Ramachandran R., 1989: *Urbanisation and Urban Systems of India*, Oxford University Press.
- Ramachandran, R., 1992: *The Study of Urbanisation*, Oxford University Press, Delhi
- Singh R. Y., 1994: *The Geography of Settlement*, Rawat Publication, New Delhi.
- Tiwari, R. C. 2000: *Settlement Geography*, (in Hindi), Prayag Publ., Allahabad.
- Misra, R. P. & Misra, K. eds. 1998: *Million*

Assessment Method: (Continuous Internal Assessment=40%, Final Exam=60%)

Assessment -1	- 05%
Assessment -2	- 05%
Assessment- 3 (Mid- Exam)	- 05%
<u>Assessment- 4</u>	<u>-05%</u>
<u>Total Internal Assessment</u>	<u>- 40%</u>