

DEPARTMENT OF GEOGRAPHY

SCHOOL OF EARTH SCIENCE
PROGRAMME BROCHURE



BACHELOR OF ARTS AND SCIENCE (B.A./B.Sc.)

GEOGRAPHY

(Semester Based Course)

National Education Policy (NEP) 2020

Rules, Regulations and Course Contents

Effective from

Academic year 2024 - 2025 onwards

HEMWATI NANDAN BAHUGUNA GARHWAL UNIVERSITY

(A Central University)

SRINAGAR, UTTARAKHAND - 246174

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.Sc.) in Geography

Objectives of the Program

The department's Bachelor of Arts/Science (B.A./B.Sc.) degree "aims to empower students with knowledge and skills for spatial thinking and analysis, to navigate real-world problems, to ponder the solutions, and to contribute to society in a meaningful way;"

Program Outcomes:

1. The course offers a broad perspective on the historical and modern evolution of geography in an integrated manner.
2. The goal of the course is to give students pertinent knowledge in the topic so they can become experts in it.
3. The course aims to help students develop critical and analytical thinking skills and a detailed understanding of real-world challenges.
4. To prepare students for interdisciplinary study, the course incorporates modern scientific advancements and mathematical techniques.
5. The course has been designed with the National Education Policy at its core, with the aim of equipping students with the necessary knowledge to enhance their skills and become future employers.
6. The course will assist students in developing a thorough understanding of global and Indian geography, which will be useful for them as future policymakers and decision-makers.
7. The course will assist students in getting ready for a range of competitive exams for state and central government jobs in the public and commercial sectors.
8. The course introduces students to a variety of scientific tools that will aid them in identifying problems in the actual world and their solutions.
9. The course provides students with a variety of modern papers such as surveying, cartography, remote sensing and GIS, which enable them to become more employable.
10. The course aids in the development of empathy for the natural world, the understanding of the intricate interactions between humans and nature, and the achievement of sustainable development objectives.

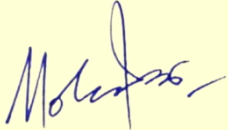

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

Table of Course Contents

Bachelor of Arts/ Science (B.A./B.SC.) Program with Geography

Core Course in Geography (CC) (Credit: 06 each)

SOES/GEOG/UG/C C-001: **Physical Geography** (Theory- 04 credits) + (Labs -2 credits)

SOES/GEOG/UG/C C-002: **Human Geography** (Theory- 04 credits) + (Labs -2 credits)

SOES/GEOG/UG/C C-003: **Geography of India** (Theory- 04 credits) + (Labs -2 credits)

SOES/GEOG/UG/C C-004: **Geographical Thought** (Theory- 04 credits) + (Labs -2 credits)

SOES/GEOG/UG/C C-005: **Economic Geography** (Theory- 04 credits) + (Labs -2 credits)

SOES/GEOG/UG/C C-006: **Environmental Geography** (Theory- 04 credits) + (Labs -2 credits)

Additional /Interdisciplinary (AD/MD) (Theory- 02 credits) + (Labs -2 credits)

SOES/GEOG/UG/MD-001: **Basics of Geography Part-I, 2** (Th+2 Lab. Credits)

SOES/GEOG/UG/MD-002: **Geography of World Part-I, 2** (Th+2 Lab. Credits)

Skill Enhancement Course (SEC) (Credit: 02 each)

SOES/GEOG/UG/SEC-001: **Regional Development and Planning with Special Reference to Uttarakhand**

SOES/GEOG/UG/SEC-002: **Geographical Field, Mapping, and Statistical Training with Software**

SOES/GEOG/UG/SEC-003: **Regional Development and Planning with Special Reference to Uttarakhand**

SOES/GEOG/UG/SEC-004: **Geographical Field, Mapping, and Statistical Training with Software**

Vocational Course/field visit/Entrepreneurship skills (4 Credit)

SOES/GEOG/UG/VC-001: **Fundamental of Remote Sensing & GIS**

SOES/GEOG/UG/VC-002 : **Waste Management**

SOES/GEOG/UG/VC-003 : **Disaster Risk Reduction**

SOES/GEOG/UG/VC-004 : **Mountain Farming**

SOES/GEOG/UG/VC-005 : **Watershed and Spring Management**

SOES/GEOG/UG/VC-006 : **Vibrant and Smart Village**

SOES/GEOG/UG/VC-007 : **Disaster Risk Reduction**

SOES/GEOG/UG/VC-008 : **Community Health Management**

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

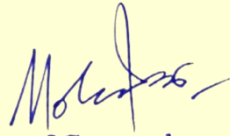
Revised Syllabus of B.A./B.Sc. (U.G. Geography program) as per NEP-2020

Approved in BoS Dated 30.05.2024

Applicable to B.A/ B.Sc. I Semester and V Semester Session 2024-25

| Semester | Major Subject | Revised Course Name (BoS 30/05/2024) | Credit |
|--|---|---|-----------|
| I | Core Subject -1 (CS-1) | Physical Geography | 4 |
| | Core Subject -1 Practical | Practical Geography-I | 2 |
| | Core Subject -2 (CS-2) | Any other subject | 4 |
| | Core Subject -2 Practical | Any other subject | 2 |
| | Additional/Multidisciplinary | Basics of Geography-I | 4 |
| | Skill Course-1 | Regional Development and Planning with Special Reference to Uttarakhand | 2 |
| | Extracurricular courses/CC | 1- Understanding and connecting with the environment | 2 |
| | Total | | 20 |
| II | Core Subject -1 (CS-1) | Human Geography | 4 |
| | Core Subject -1 Practical | Practical Geography-II | 2 |
| | Core Subject -2 (CS-2) | Any other subject | 4 |
| | Core Subject -2 Practical | Any other subject | 2 |
| | Additional/Multidisciplinary | Basics of Geography-II | 4 |
| | Skill Course-2 | Geographical Field Mapping and Statistical Training with Software | 2 |
| | Life skills and personality development/ CC | Life skills and personality development | 2 |
| | Total | | 20 |
| III | Core Subject -1 (CS-1) | Geography of India | 4 |
| | Core Subject -1 Practical | Practical Geography-III | 2 |
| | Core Subject -2 (CS-2) | Any other subject | 4 |
| | Core Subject -2 Practical | Any other subject | 2 |
| | Additional/Multidisciplinary | Geography of World-I | 4 |
| | Skill Course-1 | Regional Development and Planning with Special Reference to Uttarakhand | 2 |
| | IKS 1 | Indian Knowledge System (National)-I | 2 |
| | Total | | 20 |
| IV | Core Subject -1 (CS-1) | Geographical Thought | 4 |
| | Core Subject -1 Practical | Practical Geography-IV | 2 |
| | Core Subject -2 (CS-2) | Any other subject | 4 |
| | Core Subject -2 Practical | Any other subject | 2 |
| | Additional/Multidisciplinary | Geography of World-II | 4 |
| | Skill Course-2 | Geographical Field Mapping and Statistical Training with Software | 2 |
| | IKS 2 | Indian Knowledge System (National)-II | 2 |
| | Total | | 20 |
| New Syllabus of B. A/B.Sc. 5th & 6th Sem. according to NEP 2020 | | | |
| V | Core Subject -1 (CS-1) | Economic Geography | 4 |
| | Core Subject -1 Practical | Practical Geography-V (Field Visit, Survey Methods and Report Writing) | 2 |
| | Core Subject -2 (CS-2) | Any other subject | 4 |
| | Core Subject -2 Practical | Any other subject | 2 |

| | | | |
|----|--|--|-----------|
| | Vocational course/field visit/Entrepreneurship skills | I. Fundamental of Remote Sensing & GIS | 4 |
| | | II. Vibrant and Smart Village | 4 |
| | | III. Mountain Farming | 4 |
| | | IV. Watershed and Spring Management | 4 |
| | | V. Community Health Management | 4 |
| | | VI. Disaster Risk Reduction | 4 |
| | | VII. Waste Management | 4 |
| | Note: (including action research-based report/short term entrepreneurship skill training) * Any one related to either CS-1 or CS-2 OR Field/ Industrial visit as per requirement of core course (Student will submit a brief report on visit at the end of the semester). | | |
| | Extracurricular courses/Compulsory courses | Culture, traditions and moral values | 2 |
| | Languages-I | Indian, Modern Regional language-1 | 2 |
| | Total | | 20 |
| VI | Core Subject -1 (CS-1) | Environmental Geography | 4 |
| | Core Subject -1 Practical | Practical Geography-VI (Field Surveying Techniques) | 2 |
| | Core Subject -2 (CS-2) | Any other subject | 4 |
| | Core Subject -2 Practical | Any other subject | 2 |
| | Vocational course/field visit/Entrepreneurship skills | I. Fundamental of Remote Sensing & GIS | 4 |
| | | II. Vibrant and Smart Village | 4 |
| | | III. Mountain Farming | 4 |
| | | IV. Watershed and Spring Management | 4 |
| | | V. Community Health Management | 4 |
| | | VI. Disaster Risk Reduction | 4 |
| | | VII. Waste Management | 4 |
| | Note: (including action research-based report/short term entrepreneurship skill training) * Any one related to either CS-1 or CS-2 OR Field/ Industrial visit as per requirement of core course (Student will submit a brief report on visit at the end of the semester). | | |
| | Communication skills Based on either CS-1 or CS-2 | Communication skills (Based on developing soft skills) | 2 |
| | Languages-II | Indian, Modern Regional language- I | 2 |
| | Total | | 20 |

Head 
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) 1st Year
Course- Core Subject -1
(Theory)

| | | |
|---|--|------------------------|
| Programme/ Class: Certificate: B.A./B.SC. | Year: First | Semester: First |
| Subject: Geography | | |
| Course Code: UG/C C001 | Course Title : PHYSICAL GEOGRAPHY | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> 1. Understand physical geography 2. Understand earth's dynamics and related activities. 3. Understanding Earth's atmosphere and its impact on mankind. 4. Understanding the value of Hydrosphere. | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> 1. Students will grasp the genesis and interrelationship of the solar family. 2. Students will grasp the forces that affect the earth's surface and how they work. 3. 3. Students will grasp fundamental principles of atmosphere and oceanography. | | |
| Credits : 4 | Core Compulsory | |
| Max. Marks: 30+70 | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W | | |
| Unit | Topics | |
| UNIT-I | Meaning Nature and Scope of Physical Geography, Approaches to study Physical Geography | |
| UNIT-II | Origin of the Earth; Components of Earth System. Interior of the Earth; Plate Tectonics, Rocks. Weathering; Work of river, wind, glacier and underground water and its associated features. Cycle of Erosion – Davis and Penck | |
| UNIT-III | Atmosphere – Heat Balance; Wind types and pressure; Cyclone; Monsoon- jet streams; Climatic Classification (Koppen). | |
| UNIT-IV | Hydrosphere –Hydrological Cycle; Ocean Bottom Relief Features; Tides; Currents and Salinity, Coral reef. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Conserve H. T., 2004: Illustrated Dictionary of Physical Geography, Author House, USA. 2. Gabbler R. E., Petersen J. F. and Trapasso, L. M., 2007: Essentials of Physical Geography (8th Edition), Thompson, Brooks/Cole, USA. 3. Garrett N., 2000: Advanced Geography, Oxford University Press. 4. Goudie, A., 1984: The Nature of the Environment: An Advanced Physical Geography, Basil Blackwell Publishers, Oxford. 5. Hamblin, W. K., 1995: Earth's Dynamic System, Prentice Hall, N.J. 6. Husain M., 2002: Fundamentals of Physical Geography, Rawat Publications, Jaipur. 7. Monkhouse, F. J. 2009: Principles of Physical Geography, Platinum Publishers, Kolkata. 8. Strahler A. N. and Strahler A. H., 2008: Modern Physical Geography, John Wiley & Sons, New York. 9. Savindra Singh: Physical Geography (Hindi, English) 10. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=KwH6LnSyFhsLI6M9Z0+twv== 11. https://ncert.nic.in/textbook.php?kegy2=0-14 | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |

Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)



Bachelor of Arts/ Science (B.A./B.SC.) 1st Year

Course- **Core Subject -1**

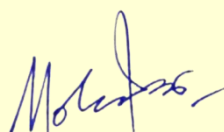
(Practical-I)

| | | |
|---|--|------------------------|
| Programme/ Class: Certificate: B.A./B.SC. | Year: First | Semester: First |
| Subject: Geography | | |
| Course Code: UG/C C001 (P) | Course Title : BASICS OF PRACTICAL GEOGRAPHY | |
| Course Objectives: <i>After completing the course, students will be able to-</i> <ol style="list-style-type: none">1. To develop proficiency in Scale Construction and Usage2. To impart fundamentals of toposheets, and various social and physical aspects related to it.3. To give basic knowledge of Aerial Photographs and its uses in Geography. | | |
| Course Outcomes: <i>Students will be able to understand-</i> <ol style="list-style-type: none">1. Students will learn the most essential tools and techniques of Practical Geography.2. It will enhance their geographical analytical skills, particularly get some hands-on experience on preparation and use of geographical scale.3. Proficiency in interpreting toposheets and recognizing conventional signs.4. Get a comprehensive understanding of Aerial Photograph and its uses. | | |
| Credits : 2 | Core Compulsory | |
| Max. Marks: 30+70 | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-P-2/W | | |
| Unit | Topics | |
| UNIT-I | Scale: Simple, comparative and diagonal scale. | |
| UNIT-II | Toposheets: introduction, indexing, interpretation and conventional signs. | |
| UNIT-III | Landform features based on contours. | |
| UNIT-IV | General introduction and interpretation of Aerial Photographs. | |
| Suggested Readings: <ol style="list-style-type: none">1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing.4. Robinson A., 1953: Elements of Cartography, John Wiley.5. Sharma J. P., 2010: Prayogic Bhugol, Rastogi Publishers.6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers7. Singh R. L., 1998: Prayogic Bhoogol Rooprekha, Kalyani Publications.8. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |
| Note: *In final practical examination students shall be examined by external and internal examiners. | | |
| **Marks distribution: 50 marks written exam, 10 marks practical file, records and 10 marks viva (Total marks 70). | | |

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

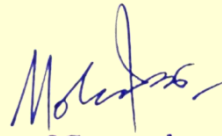
Bachelor of Arts/ Science (B.A./B.SC.) 1st Year
Course- Additional/Multidisciplinary
(Theory)

| | | | |
|--|--|--|------------------------|
| Programme/ Class: Certificate: B.A./B.SC. | | Year: First | Semester: First |
| Subject: Geography | | | |
| Course Code: UG/MD-001 | | Course Title : BASICS OF GEOGRAPHY- I | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | | |
| <ol style="list-style-type: none"> 1. To understand the basics of Geography with an emphasis on its nature and scope, 2. Earth structure and composition, 3. major tectonic forces and movements. | | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | | |
| <ol style="list-style-type: none"> 1. The meaning and scope of Geography. 2. Origin of Earth since its beginning. 3. The tectonic forces and movements. 4. The structure and composition of the Earth. | | | |
| Credits : 4 | | <i>Core Compulsory</i> | |
| Max. Marks: 30+70 | | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | | |
| Unit | | Topics | |
| UNIT-I | Meaning, Nature and Scope of Geography, Solar System, Rotation and Revolution of Earth, Latitude and Longitude. | | |
| UNIT-II | Continental displacement theory, Continental drift theory, Plate Tectonic and Sea floor spreading. | | |
| UNIT-III | Structure and composition of the Earth, Types of rocks-Igneous rock, Metamorphic rock and sedimentary rock and their importance. | | |
| Suggested Readings: | | | |
| <ol style="list-style-type: none"> 1. Majid Hussain, Fundamentals of Physical Geography, Rawat Publication, New Delhi. 2. Goh Cheng Leong, Certificate of Physical and Human Geography. 3. D.R. Khullar, India- A Comprehensive Geography. 4. Savindra Singh - Physical Geography, Prayag Pustak Bhawan. 5. W.D. Thornbury- Principles of Geomorphology, New Age International. 6. Alan Strahler- Introducing Physical Geography, Wiley. | | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods). | | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

| Bachelor of Arts/ Science (B.A./B.SC.) 1st Year | | |
|--|---|------------------------|
| <i>Course- Skill Course-</i> (Theory/ Practical) | | |
| Programme/ Class: Certificate: B.A./B.SC. | Year: First | Semester: First |
| Subject: Geography | | |
| Course Code: UG/SEC-001 | Course Title : REGIONAL DEVELOPMENT AND PLANNING WITH SPECIAL REFERENCE TO UTTARAKHAND | |
| Course Objective: After completing the course, students will be able to- <ol style="list-style-type: none"> To provide insights into the methods and criteria used to delineate planning regions with a specific focus on the planning regions within Uttarakhand. To study the unique geographical, social and economic characteristics of Uttarakhand and how these factors influence regional planning. To apply the principles and methods of regional planning in the context of Uttarakhand, understanding the challenges and opportunities unique to the region. | | |
| Course Outcomes: <i>Students will be able to understand-</i> <ol style="list-style-type: none"> Identify and delineate planning regions using appropriate criteria and methodologies with specific reference to Uttarakhand. Use maps, diagrams, tables, and photographs to interpret and present regional planning data effectively. Evaluate the effectiveness of regional planning strategies implemented in Uttarakhand and propose improvements based on data-driven analysis. | | |
| <i>Credits : 2</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-2/W</i> | | |
| Unit | Topics | |
| UNIT-I | Definition, need and types of regional Planning, | |
| UNIT-II | Delineation of Planning Region, Planning Regions of Uttarakhand | |
| | Participatory, Micro Planning Survey Techniques and field study project report of at least 30 Pages (should have at least 5 Maps, 10 Photographs and 5 Tables). | |
| Recommended Books <ol style="list-style-type: none"> Blij H. J. De, 1971: Geography: Regions and Concepts, John Wiley and Sons. Claval P.I, 1998: An Introduction to Regional Geography, Blackwell Publishers, Oxford and Massachusetts. Friedmann J. and Alonso W. (1975): Regional Policy - Readings in Theory and Applications, MIT Press, Massachusetts. Gore C. G., 1984: Regions in Question: Space, Development Theory and Regional Policy, Methuen, London. Gore C. G., Köhler G., Reich U-P. and Ziesemer T., 1996: Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention, Metropolis- Verlag,Marburg. Haynes J., 2008: Development Studies, Polity Short Introduction Series. Johnson E. A. J., 1970: The Organization of Space in Developing Countries, MIT Press, Massachusetts. Peet R., 1999: Theories of Development, The Guilford Press, New York. UNDP 2001-04: Human Development Report, Oxford University Press. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |

| Bachelor of Arts/ Science (B.A./B.SC.) 1st Year | | |
|--|---|-------------------------|
| Course- Core Subject -2 | | |
| (Theory) | | |
| Programme/ Class: Certificate: B.A./B.SC. | Year: First | Semester: Second |
| Subject: Geography | | |
| Course Code: UG/C C002 | Course Title : HUMAN GEOGRAPHY | |
| Course Objective: <i>After Completion of the course, students will be able to:</i> | | |
| <ol style="list-style-type: none"> 1. Understand the nature, concept, significance, and scope of human geography. 2. To comprehend the relationships between the ecological and cultural changes that occur in and around the human environment. | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> 1. Students will be able to understand Human Geography and its various concepts. 2. Students will find it easier to understand population and its components. 3. Students will be able to identify the patterns of different types of settlements | | |
| Credits : 4 | <i>Core Compulsory</i> | |
| Max. Marks: 30+70 | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | |
| Unit | Topics | |
| UNIT-I | Definition, nature, scope, branches and contemporary relevance. | |
| UNIT-II | Cultural Regions; Race; Religion and Languages Population: Population Growth; Migration- Definition and types. | |
| UNIT-III | World Population Distribution and Composition. Settlements: Types and Patterns of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization | |
| UNIT-IV | Tribes of India: Bheel, Gond, Santhal and Naga. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher. 2. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London. 3. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication. 4. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York. 5. Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut. 6. Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan. Allahabad. 7. Ghosh, S. (2015) Introduction to settlement geography. Orient Black Swan Private Ltd., Kolkata 8. Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) 1st Year

Course- **Core Subject -2**

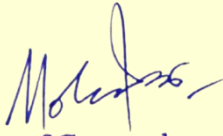
(Practical-II)

| | | |
|---|---|-------------------------|
| Programme/ Class: Certificate: B.A./B.SC. | Year: First | Semester: Second |
| Subject: Geography | | |
| Course Code: UG/C C002 (P) | Course Title : MAP PROJECTIONS, WEATHER INSTRUMENTS AND THEMATIC MAPS | |
| Course Objective: <i>After completing the course, students will be able to-</i> Larger objective of this course is to develop the cartographic skill of students to depict and represent the geographic information on the map. The course will create the ability of students to adapt various methods of map projections. | | |
| Course Outcomes: <i>Students will be able to understand-</i> In addition to the ability of understanding and reading maps, students will develop cartographic skills and will be able to create maps on their own. | | |
| <i>Credits : 2</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-2/W</i> | | |
| Unit | Topics | |
| UNIT-I | Map Projection: Classification; Conical Projection with one and two standards parallel, | |
| UNIT-II | Bonne's; Cylindrical Equal Area; Mercator's; and Polar Zenithal Equal Area map projection | |
| UNIT-III | Use and handling of meteorological instruments and interpretation of Indian Daily Weather Reports | |
| UNIT-IV | Distribution Map: Isopleth, Choropleth , and Dot method. | |
| Suggested Readings: | | |
| 1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill. | | |
| 2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi. | | |
| 3. Mishra R.P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing. | | |
| 4. Robinson A., 1953: Elements of Cartography, John Wiley. | | |
| 5. Sharma J. P., 2010: Prayogic Bhugol, Rastogi Publishers. | | |
| 6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers | | |
| 7. Singh R. L., 1998: Prayogic Bhoogol Rooprekha, Kalyani Publications. | | |
| 8. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |
| Note: *In final practical examination students shall be examined by external and internal examiners. **Marks distribution: 50 marks written exam, 10 marks practical file, records and 10 marks viva (Total marks 70). | | |

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) 1st Year
Course- Additional/Multidisciplinary
(Theory)

| | | |
|--|---|-------------------------|
| Programme/ Class: Certificate: B.A./B.SC. | Year: First | Semester: Second |
| Subject: Geography | | |
| Course Code: UG/MD-001 | Course Title : BASICS OF GEOGRAPHY-II | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> To understand the basics of Geography with an emphasis on atmosphere, Hydrosphere and Biosphere. | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> The atmosphere and wind circulation. The hydrosphere and ocean circulation. The man and environment relationship. | | |
| <i>Credits : 4</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | |
| Unit | Topics | |
| UNIT-I | Structure and Composition of Atmosphere, Insolation and Heat Budget, Global Wind Circulation, Jet Stream, Monsoon, El-Nino and La-Nina. | |
| UNIT-II | Hydrological Cycle, Ocean Current, Tide, Tsunami, Coral Reef. | |
| UNIT-III | Ecology and Ecosystem, Man and Environment relationship, Biosphere, Biodiversity and its conservation. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> Majid Hussain, Fundamentals of Physical Geography, Rawat Publication, New Delhi. Goh Cheng Leong, Certificate of Physical and Human Geography. D.R. Khullar, India- A Comprehensive Geography. Savindra Singh - Physical Geography, Prayag Pustak Bhawan. W.D. Thornbury- Principles of Geomorphology, New Age International. Alan Strahler- Introducing Physical Geography, Wiley. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

| Bachelor of Arts/ Science (B.A./B.Sc.) Ist Year | | |
|---|---|-------------------------|
| <i>Course- Skill Course-2</i> | | |
| (Theory/Practical) | | |
| Programme/ Class: Certificate: B.A./B.Sc. | Year: First | Semester: Second |
| Subject: Geography | | |
| Course Code: UG/SEC-002 | Course Title : GEOGRAPHICAL FIELD, MAPPING, AND STATISTICAL TRAINING WITH SOFTWARE | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> 1. To develop comprehensive fieldwork skills 2. To learn the basic mapping and cartographic, GIS techniques of representation of geographical data 3. To learn basic statistical tools and techniques | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> 1. Ability to design and execute geographical field projects, from data collection to analysis and reporting. 2. Learn to create and interpret various types of maps, both manually and digitally. 3. Acquire skills in statistical methods and their application to geographical data. | | |
| <i>Credits : 2</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-P-2/W</i> | | |
| Unit | Topics | |
| UNIT-I | Introduction to Geographical Fieldwork: Importance and objectives of fieldwork in geography; Planning and preparation for field studies, Fieldwork Techniques: Sampling, Data collection methods: preparation of survey tools, observations, and interviews, Use of field equipment: GPS, and other tools; | |
| UNIT-II | Basic Mapping Techniques and Statistical Methods in Geography: Basics of map-making and cartographic principles, Techniques for creating field map, Digital mapping techniques and GIS applications; Introduction to descriptive statistics and geographical representation of data, Case studies and practical applications of MS office, spreadsheet. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Mahmood Aslam (2008): Statistical Methods in Geographical Studies, New Delhi: Rajesh Publications 2. Singh, R.L. & Singh, Rana P.B. (2008): Elements of Practical Geography, New Delhi, Kalyani Publishers 3. Das, N.G. (2017): Statistical Methods (Combined edition volume 1 & 2), Mc Graw Hill 4. Kothari, C.R. (2008). Research Methodology -Methods and Techniques, New Delhi, New Age International (P) Limited Publishers 5. Keates, J.S., (2008): Cartographic Design and production, London, Longman Lillesand, 6. Peterson, M.P., (1995): Interactive and Animated Cartography, Upper Sadde River, NJ: Prentice Hall. 7. Robinson A.H. & Morrison J.L, (1995): Elements of Cartography, John Wiley & Son 8. Lillesand Thomas, Keifer Ralph W. and Chipman Jonathan (2015). Remote sensing and Image Interpretation, 7th Edn. John Wiley & Sons, New York. 9. Joseph George (2005), Fundamentals of Remote Sensing, 2nd Edn., University Press Pvt. Ltd., Hyderabad, India. 10. Sabins, Flyod F. 1986, Remote Sensing: Principles and Interpretation, 2nd Edn., W H Freeman & Co, New York. 11. Gerber, Rod & Chuan, G.K. (2000): Fieldwork in Geography: Reflections, Perspectives and Actions, Springer | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |
| Note: *In final practical examination students shall be examined by external and internal examiners. **Marks distribution: 50 marks written exam, 10 marks practical file, records and 10 marks viva (Total marks 70). | | |

Bachelor of Arts/ Science (B.A./B.SC.) IInd Year

Course- Core Subject -3

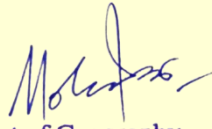
(Theory)

| | | |
|--|---|------------------------|
| Programme/ Class: Diploma: B.A./B.SC. | Year: Second | Semester: Third |
| Subject: Geography | | |
| Course Code: UG/C C003 | Course Title : GEOGRAPHY OF INDIA | |
| Course Objective: <i>After completing the course, students will be able to-</i> <ol style="list-style-type: none">To provide a comprehensive understanding of the geographical and socio-economic aspects of IndiaTo analyze the interconnectedness between geography, human development, and economic development | | |
| Course Outcomes: <i>Students will be able to understand-</i> <ol style="list-style-type: none">The comprehensive Understanding of India's Geography and Socio-economic Dynamics.The population dynamics and settlement patterns of India.The major resource base of India.The important economic aspects of India. | | |
| Credits : 4 | <i>Core Compulsory</i> | |
| Max. Marks: 30+70 | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | |
| Unit | Topics | |
| UNIT-I | Location and Extent, Physiographic Divisions, Drainage Systems, Natural Vegetation, Climate and Soil. | |
| UNIT-II | Population – Population distribution and growth, Demographic structure (age structure, literacy), Migration Pattern, Sex Ratio; Rural and Urban Settlements. | |
| UNIT-III | Resource Base – Livestock (cattle and fisheries); Power (coal, and hydroelectricity); Minerals (iron ore, petroleum and bauxite). | |
| UNIT-IV | Economy: Mineral and Power Resources: Distribution and Utilization of Iron Ore, Coal, Cotton, Paper & Rubber Goods Industry, Petroleum, Gas; Industrial Regions; Agricultural Production of Rice, Wheat, Cotton and Sugarcane, Tea, Coffee; Agricultural regions; Transportation and Trade. | |
| Suggested Readings: <ol style="list-style-type: none">Hussain M., 1992: Geography of India, Tata McGraw Hill Education.Mamoria C. B., 1980: Economic and Commercial Geography of India, Shiva Lal Agarwala.Miller F. P., Vandome A. F. and McBrewster J., 2009: Geography of India: Indo- Gangetic Plain, Thar Desert, Major Rivers of India, Climate of India, Geology of India, Alpha script Publishing.Nag P. and Sengupta S., 1992: Geography of India, Concept Publishing.Pichamuthu C. S., 1967: Physical Geography of India, National Book Trust.Sharma T. C. and Coutinho O., 1997: Economic and Commercial Geography of India, Vikas Publishing.Singh Gopal, 1976: A Geography of India, Atma Ram.Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

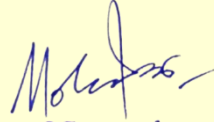
Bachelor of Arts/ Science (B.A./B.SC.) IInd Year
Course- Core Subject -3
(Practical-III)

| | | |
|---|---|------------------------|
| Programme/ Class: Diploma: B.A./B.SC. | Year: Second | Semester: Third |
| Subject: Geography | | |
| Course Code: UG/C C003 (P) | Course Title : STATISTICAL METHODS IN GEOGRAPHY | |
| Course Objective: After completing the course, students will be able to: | | |
| <ol style="list-style-type: none"> 1. Identify basic statistical procedures that can be applied to diverse themes in geography. 2. Examine the assumptions, constraints, and interpretations of statistical processes and findings. 3. Use different statistical methods to analyze geographical problems. | | |
| Course Outcomes: | | |
| <ol style="list-style-type: none"> 1. Students will learn the various statistical procedures for analyzing geographical data. 2. Students will be able to create graphic representations of geographical data. | | |
| <i>Credits : 2</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-P-2/W</i> | | |
| Unit | Topics | |
| UNIT-I | Primary and secondary data and their sources; Methods of primary data collection; Classification of statistical data and tabulation. | |
| UNIT-II | Frequency curve, histogram and polygon; Measures of Central Tendency- Mean, Median, Mode. | |
| UNIT-III | Measures of dispersion- Quartile, Standard Deviation and Coefficient of Variation. | |
| UNIT-IV | Coefficient of Correlation- Karl Pearson's and Spearman's methods, Scatter Diagrams. Introductory knowledge of MS Office, spreadsheet, JASP software. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill. 2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi. 3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing. 4. Robinson A., 1953: Elements of Cartography, John Wiley. 5. Sharma J. P., 2010: Prayogic Bhugol, Rastogi Publishers. 6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers 7. Singh R. L., 1998: Prayogic Bhoogol Rooprekha, Kalyani Publications. 8. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |
| Note: *In final practical examination students shall be examined by external and internal examiners. | | |
| **Marks distribution: 50 marks written exam, 10 marks practical file, records and 10 marks viva (Total marks 70). | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) IInd Year
Course- Additional/Multidisciplinary
(Theory)

| | | |
|---|---|------------------------|
| Programme/ Class: Diploma: B.A./B.SC. | Year: Second | Semester: Third |
| Subject: Geography | | |
| Course Code: UG/MD-002 | Course Title : GEOGRAPHY OF WORLD- I | |
| Course Objective: The basic objective of this course is to help students understand development trends focusing on the differences between developed and developing countries, available resources, population changes, urbanization patterns and important industrial sectors. | | |
| Course Outcomes: <i>Students will be able to understand-</i> <ol style="list-style-type: none"> 1. Recognize development levels; Describe the characteristics of developed, developing, underdeveloped and underdeveloped countries. 2. Assess the resource foundation; Evaluate how landforms, climatic conditions, soil quality, vegetation cover and natural resources contribute to progress. 3. Analyze population patterns; Understand its impact on population growth and development. 4. Explore industrial areas; Use concepts related to regionalization to examine industrial centers around the world. | | |
| <i>Credits : 4</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | |
| Unit | Topics | |
| UNIT-I | Concepts, bases and characteristics of developed and developing countries, Indicators and Levels of development: Developed, Developing, Under-developed, and Least-developed worlds. | |
| UNIT-II | Physical resource base: landforms, climate, soils, vegetation, power, mineral and water resources | |
| UNIT-III | World population: growth, causes and consequences; Urbanization: trends and pattern. | |
| UNIT-IV | Concept and methods of industrial regionalization; Major industrial regions of the world; Mid -Atlantic coastal region of USA, Ruhr Industrial region, Mumbai -Ahmedabad industrial region. | |
| Suggested Readings: <ol style="list-style-type: none"> 1. Di Blij, H. and Muller, O. (1993): Geography: Regions and Concepts. John Wiley and Sons, New York. 2. Jackson, R. H. and Husman, L. E. (1991): World Regional Geography: Issues for Today. John Wiley and Sons, New York. 3. Jones, P. and Bryan, P. (1954): North America: An Historical, Economic and Regional Geography, Methuen and Company. Ltd, London. 4. Kolb, A. (1971): East Asia, China, Japan, Korea, Vietnam, Methuen, London. 5. Rai, Gayatri (2007): Vishwa Ka Pradeshik Bhugol, Mishra Trading Corporation, Varanasi 6. Sharma, P. R. (ed.) (1991): Perspectives on Third World Development. Rishi Publication, Varanasi. 7. Stamp, L. D. (1976): Asia: A Regional and Economic Geography, Methuen, London. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination: 30 marks by internal assessment and 70 marks by external assessment. | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) IInd Year

Course- **Skill Course-1**

(Theory/ Practical)

Programme/ Class: **Diploma: B.A./B.SC.**

Year: **Second**

Semester: **Third**

Subject: **Geography**

Course Code: **UG/SEC-001**

Course Title : **REGIONAL DEVELOPMENT AND PLANNING WITH
SPECIAL REFERENCE TO UTTARAKHAND**

Course Objective: *After completing the course, students will be able to-*

1. To provide insights into the methods and criteria used to delineate planning regions with a specific focus on the planning regions within Uttarakhand.
2. To study the unique geographical, social and economic characteristics of Uttarakhand and how these factors influence regional planning.
3. To apply the principles and methods of regional planning in the context of Uttarakhand, understanding the challenges and opportunities unique to the region.

Course Outcomes: *Students will be able to understand-*

1. Identify and delineate planning regions using appropriate criteria and methodologies with specific reference to Uttarakhand.
2. Use maps, diagrams, tables, and photographs to interpret and present regional planning data effectively.
3. Evaluate the effectiveness of regional planning strategies implemented in Uttarakhand and propose improvements based on data-driven analysis.

Credits : 2

Core Compulsory

Max. Marks: 30+70

Min. Passing Marks: 35

*Total No. of Lectures- Tutorials - Practical (in hours per week): **L-P-2/W***

Unit

Topics

UNIT-I Definition, need and types of regional Planning.

UNIT-II Delineation of Planning Region, Planning Regions of Uttarakhand

Participatory, Micro Planning Survey Techniques and field study project report of at least 30 Pages (should have at least 5 Maps, 10 Photographs and 5 Tables)

Recommended Books

1. Blij H. J. De, 1971: Geography: Regions and Concepts, John Wiley and Sons.
2. Claval P.I, 1998: An Introduction to Regional Geography, Blackwell Publishers, Oxford and Massachusetts.
3. Friedmann J. and Alonso W. (1975): Regional Policy - Readings in Theory and Applications, MIT Press, Massachusetts.
4. Gore C. G., 1984: Regions in Question: Space, Development Theory and Regional Policy, Methuen, London.
5. Gore C. G., Köhler G., Reich U-P. and Ziesemer T., 1996: Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention, Metropolis- Verlag, Marburg.
6. Haynes J., 2008: Development Studies, Polity Short Introduction Series.
7. Johnson E. A. J., 1970: The Organization of Space in Developing Countries, MIT Press, Massachusetts.
8. Peet R., 1999: Theories of Development, The Guilford Press, New York.
9. UNDP 2001-04: Human Development Report, Oxford University Press.

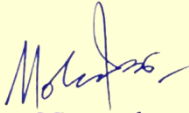
This course can be opted as an elective by the students of following subjects: **Open to all.**

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any two methods)

Marks distribution of theory examination : **30 marks by internal** assessment and **70 marks by external** assessment.

Note: *In final field study project report examination students shall be examined by external and internal examiners. ** Internal Marks distribution: **20 marks written exam, 10 marks project report file, records** (Total marks 30).

| Bachelor of Arts/ Science (B.A./B.SC.) IInd Year | | |
|---|---|-------------------------|
| <i>Course- Core Subject -4</i> (Theory) | | |
| Programme/ Class: Diploma: B.A./B.SC. | Year: Second | Semester: Fourth |
| Subject: Geography | | |
| Course Code: UG/C C004 | Course Title : GEOGRAPHICAL THOUGHT | |
| Course Objective: | | |
| <ol style="list-style-type: none"> To introduce to the basic nature of the discipline, its philosophical and methodological development To introduce the basic concepts and landmark developments in Geography To introduce the development of subject in India and other places at different periods of time | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> Students will have a comprehensive knowledge of geographic thought and a thorough at different periods of time Students will be familiar with key concepts, debates, and contributions within the field The course will enhance their critical thinking and theoretical analytical skills. | | |
| <i>Credits : 4</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | |
| Unit | Topics | |
| UNIT-I | Definition, nature and scope of Geography, Branches and sub-branches of Geography; Basic concepts of Geography | |
| UNIT-II | Contribution of Greek and Roman Geographers-Ptolemy and Strabo. Arab Geographers | |
| UNIT-III | Contribution of Geographical knowledge in ancient, medieval and modern India; Renaissance in Geography, Discoveries and inventions; Contribution of Varenius and Immanuel Kant | |
| UNIT-IV | German and French School of Geography: Humboldt, Ritter, Ratzel, Hattner, Hartshorne, Blache and Brunhes; Anglo-American School of Geography- Davis, EC. Semple, Huntington, Isaiah Bowman, Mackinder, Herbertson, and Stamp. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> Dickenson. R. E. – The Makers of Modern Geography, Rutledge and Kegan London Freeman . T.W. – A Hundred Years of Geography, London. Jones and Martin – All Possible World – A History of Geographical Idias. Odessey, Indianapolis (USA). Halt Jensen A. – Geography- Its History and Concepts , Harper and Raw London. Dixit R.D. – Geographical Thought – A Contextual History of Ideas .Prentice Hall, New Delhi Kaushik S.D. Bhaugolik Vichardharayen (Hindi) – Sahitya Bhawan Pub. Agra. Hussain Majid, Evolution of Geographical Thought (English And Hindi)Rawat Publication Jaipur. Taylor. G. Geography in Twentieth Century; London. Jagdish Singh - Bhaugolik Chintan ka Kram Vikas (Hindi) Gyanodaya, Gorakhpur. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) IInd Year

Course- Core Subject -4

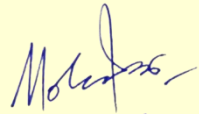
(Practical-IV)

| | | |
|---|--|-------------------------|
| Programme/ Class: Diploma: B.A./B.SC. | Year: Second | Semester: Fourth |
| Subject: Geography | | |
| Course Code: UG/C C004 (P) | Course Title : GRAPHICAL REPRESENTATION OF DATA AND GEOLOGICAL MAPS | |
| Course Objective: <ol style="list-style-type: none">1. This course aims to develop different cartographic skills of the student and make the familiar with graphical representation of data.2. To learn about the fundamentals of geological maps, drawing and interpretation of geological cross sections. | | |
| Course Outcomes: <ol style="list-style-type: none">1. At the end of this course, student will be able to draw, explain, prepare diagrams and maps by use of advance techniques.2. Students will be to understand the basics of geological maps, drawing techniques and interpretation of geological cross sections. | | |
| Credits : 2 | Core Compulsory | |
| Max. Marks: 30+70 | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-P-2/W | | |
| Unit | Topics | |
| UNIT-I | Statistical Diagrams- Compound and Multiple Bar Diagram; Ring or Circle diagram | |
| UNIT-II | Simple and Polyline graph, Hythergraph and Climograph. | |
| UNIT-III | Geological Map: Identification of rock outcrops, bedding panes, determinants of dip and thickness- simple and folded . | |
| Suggested Readings: <ol style="list-style-type: none">1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing.4. Robinson A., 1953: Elements of Cartography, John Wiley.5. Sharma J. P., 2010: Prayogic Bhugol, Rastogi Publishers.6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers7. Singh R. L., 1998: Prayogic Bhoogol Rooprekha, Kalyani Publications.8. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. Note: *In final practical examination students shall be examined by external and internal examiners. **Marks distribution: 50 marks written exam, 10 marks practical file, records and 10 marks viva (Total marks 70). | | |

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

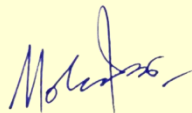
Bachelor of Arts/ Science (B.A./B.SC.) IInd Year
Course- Additional/Multidisciplinary
(Theory)

| | | |
|--|---|-------------------------|
| Programme/ Class: Diploma: B.A./B.SC. | Year: Second | Semester: Fourth |
| Subject: Geography | | |
| Course Code: UG/MD-002 | Course Title : GEOGRAPHY OF WORLD-II | |
| Course Objective: The basic objective of this course is to understand the different bases which distinguish between developed and developing countries along with population issues, urbanization pattern and different urban regions of the world. | | |
| Course Outcomes: <i>Students will be able to understand-</i> After end of this course students will explore the different indicators on which rural and urban world can be divided. Student will also comprehend the consequences of increasing population and urban dynamics of the present world. | | |
| Credits : 4 | Core Compulsory | |
| Max. Marks: 30+70 | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W | | |
| Unit | Topics | |
| UNIT-I | Population distribution and factors affecting population distribution; Population growth; Races and tribes | |
| UNIT-II | Major Agriculture crops' agricultural regions; Forestry; Sheep Rearing and Fishing. | |
| UNIT-III | Minerals; Energy and Water resources; | |
| UNIT-IV | Industries and Trade: Iron & Steel, Textiles, Petro- chemicals, Automobiles and Major trade Blocks of the World | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) (2003) Just Sustainability's: Development in an Unequal World. London: Earthscan. (Introduction and conclusion.). 2. Ayers, Jessica and David Dodman (2010) "Climate change adaptation and development I: the state of the debate". Progress in Development Studies 10 (2): 161-168. 3. Baker, Susan (2006) Sustainable Development. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge. (Chapter 2, "The concept of sustainable development"). 4. Brosius, Peter (1997) "Endangered forest, endangered people: Environmentalist representations of indigenous knowledge", Human Ecology 25: 47-69. 5. Lohman, Larry (2003) "Re-imagining the population debate". Corner House Briefing. 6. Martínez-Alier, Joan et al (2010) "Sustainable de- growth: Mapping the context, criticisms and future prospects of an emergent paradigm" Ecological Economics 69: 1741-1747. 7. Merchant, Carolyn (Ed.) (1994) Ecology. Atlantic Highlands, N.J: Humanities Press. (Introduction, pp 1-25.) 8. Osorio, Leonardo et al (2005) "Debates on sustainable development: towards a holistic view of reality". Environment, Development and Sustainability 7: 501-518. 9. Robbins, Paul (2004) Political Ecology: A Critical Introduction. Blackwell Publishing | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |


 Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

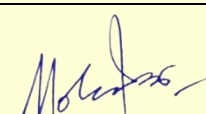
| Bachelor of Arts/ Science (B.A./B.SC.) IInd Year | | |
|---|---|-------------------------|
| <i>Course- Skill Course-2</i> (Theory/ Practical) | | |
| Programme/ Class: Diploma: B.A./B.SC. | Year: Second | Semester: Fourth |
| Subject: Geography | | |
| Course Code: UG/SEC-002 | Course Title : GEOGRAPHICAL FIELD, MAPPING, AND STATISTICAL TRAINING WITH SOFTWARE | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> 1. To develop comprehensive fieldwork skills 2. To learn the basic mapping and cartographic, GIS techniques of representation of geographical data 3. To learn basic statistical tools and techniques | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> 1. Ability to design and execute geographical field projects, from data collection to analysis and reporting. 2. Learn to create and interpret various types of maps, both manually and digitally. 3. Acquire skills in statistical methods and their application to geographical data. | | |
| <i>Credits : 2</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-P-2/W</i> | | |
| Unit | Topics | |
| UNIT-I | Introduction to Geographical Fieldwork: Importance and objectives of fieldwork in geography; Planning and preparation for field studies, Fieldwork Techniques: Sampling, Data collection methods: preparation of survey tools, observations, and interviews, Use of field equipment: GPS, and other tools; | |
| UNIT-II | Basic Mapping Techniques and Statistical Methods in Geography: Basics of map-making and cartographic principles, Techniques for creating field map, Digital mapping techniques and GIS applications, Introduction to descriptive statistics and geographical representation of data, Case studies and practical applications of MS office, spreadsheet. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Mahmood Aslam (2008): Statistical Methods in Geographical Studies, New Delhi: Rajesh Publications 2. Singh, R.L. & Singh, Rana P.B. (2008): Elements of Practical Geography, New Delhi, Kalyani Publishers 3. Das, N.G. (2017): Statistical Methods (Combined edition volume 1 & 2), Mc Graw Hill 4. Kothari, C.R. (2008). Research Methodology -Methods and Techniques, New Delhi, New Age International (P) Limited Publishers 5. Keates, J.S., (2008): Cartographic Design and production, London, Longman Lillesand, 6. Peterson, M.P., (1995): Interactive and Animated Cartography, Upper Sadde River, NJ: Prentice Hall. 7. Robinson A.H. & Morrison J.L, (1995): Elements of Cartography, John Wiley & Son 8. Lillesand Thomas, Keifer Ralph W. and Chipman Jonathan (2015). Remote sensing and Image Interpretation, 7th Edn. John Wiley & Sons, New York. 9. Joseph George (2005), Fundamentals of Remote Sensing, 2nd Edn., University Press Pvt. Ltd., Hyderabad, India. 10. Sabins, Flyod F. 1986, Remote Sensing: Principles and Interpretation, 2nd Edn., W H Freeman & Co, New York. 11. Gerber, Rod & Chuan, G.K. (2000): Fieldwork in Geography: Reflections, Perspectives and Actions, Springer | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |

Note: *In final practical examination students shall be examined by **external and internal** examiners.
Marks distribution: **50 marks written exam, 10 marks practical file, records and 10 marks viva (Total marks 70).


Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year
Course- Core Subject -5
(Theory)

| | | |
|---|---|------------------------|
| Programme/ Class: Degree: B.A./B.SC. | Year: Third | Semester: Fifth |
| Subject: Geography | | |
| Course Code: UG/C C005 | Course Title : ECONOMIC GEOGRAPHY | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> To understand the concept and spatial distribution of economic activities in the world. To analyse the factors affecting the economics activity focusing on Von Thunen and Weber theory. To describe in the details the regionalization of different economic activities. | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> Distinguish to different types of economic activities and their utilities. Appreciate the factors responsible for the location and distribution of activities. Examine the significance and relevance of theories in relation to the location of different economic activities | | |
| Credits : 4 | <i>Core Compulsory</i> | |
| Max. Marks: 30+70 | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | |
| Unit | Topics | |
| UNIT-I | Definition, approaches and fundamental concepts of Economic Geography; Patterns of development. | |
| UNIT-II | Locational Theories-Agriculture (Von Thunen) and Industrial (Weber). | |
| UNIT-III | Primary Activities - Intensive subsistence farming: Commercial grain farming, Plantation; Commercial dairy farming: Commercial Fishing, and Mining (iron ore, coal and petroleum). Secondary Activities-Cotton textile Industry, Petro-Chemical Industry; Major Manufacturing Regions. | |
| UNIT-IV | Tertiary and Quaternary Activities Modes of transportation: Patterns of international trade; Information and Communication Technology Industry. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey. 2. Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press. Durand L., 1961: Economic Geography, Crowell. Hodder B. W. and Lee R., 1974: Economic Geography, Taylor and Francis. Wheeler J. O., 1998: Economic Geography, Wiley. 8. Willington D. E., 2008: Economic Geography, Husband Press. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

| Bachelor of Arts/ Science (B.A./B.SC.) Illrd Year | | |
|---|---|------------------------|
| Course- Core Subject -5 | | |
| (Practical-V) | | |
| Programme/ Class: Degree: B.A./B.SC. | Year: Third | Semester: Fifth |
| Subject: Geography | | |
| Course Code: UG/C C005 (P) | Course Title : FIELD VISIT, SURVEY METHODS AND REPORT WRITING | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> 1. To develop proficiency in Report Writing and organizing a report. 2. Enhance Writing and Communication Skills. | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> 1. Ability to design and execute geographical field survey and projects, from data collection to analysis and reporting. 2. Understanding the field ethics and different tools of field study. 3. Students will have enough ability to comprehensive Report Writing skills | | |
| <i>Credits : 2</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-2/W</i> | | |
| Unit | Topics | |
| UNIT-I | Introduction to Field Survey Methods: Importance of field survey in Geography; Planning and preparation for field survey, Field survey Techniques: Sampling, Selection of Study Area | |
| UNIT-II | Developing Data collection tools: preparation of survey questionnaire, Other field survey techniques- observation, Interviews and survey tools (Kobo Toolbox ODK - Collect data anywhere, Google Maps, GPS Essentials, Qfield). | |
| UNIT-III | Report Writing and Presentation: Introduction to Report Writing- types and purpose, Different components of field report, Structure and Organization of a Report; Writing Style and Language, Editing and Proofreading | |
| UNIT-IV | Citations and Referencing; Ethical Considerations; Presenting findings using maps, digital cartographical mapping software (ArcGIS, QGIS, Erdas, Google Earth Engine etc.), charts, and visual aids, Zotero, Mendeley, Citavi, Word's References tool (anyone). | |
| Field Work/ Tour Report | | |
| <ul style="list-style-type: none"> • Each student will prepare an individual report based on primary and secondary data collected during field work. • The duration of the field work should not exceed 10 days. • The word count of the report should be about 8000 to 12,000 excluding figures, tables, photographs, maps, references and appendices. • One copy of the report on A4 size paper should be submitted in soft binding. | | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Mahmood Aslam (2008): Statistical Methods in Geographical Studies, New Delhi: Rajesh Publications 2. Singh, R.L. & Singh, Rana P.B. (2008): Elements of Practical Geography, New Delhi, Kalyani Publishers 3. Das, N.G. (2017): Statistical Methods (Combined edition volume 1 & 2), Mc Graw Hill 4. Kothari, C.R. (2008). Research Methodology -Methods and Techniques, New Delhi, New Age International (P) Limited Publishers 5. V.P. Michael, Research Methodology in Management, Himalaya Publishing House, Bombay. 6. O.R. Krishna Swamy, Methodology of Research in Social Sciences, Himalaya Publishing House, Mumbai. 7. Berenson, Conrad and Raymond Cotton, Research and Report Writing for Business and Economics, Random House, New York. | | |
| Weblinks | | |
| <ol style="list-style-type: none"> 1. https://www.zotero.org/support/quick_start_guide 2. https://gradcoach.com/how-to-use-mendeley/ | | |

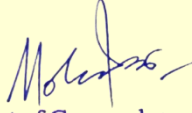
3. <https://www.citavi.com/en/support/first-steps>
4. <https://libguides.reading.ac.uk/managing-references/word>

This course can be opted as an elective by the students of following subjects: **Open to all.**

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any two methods)

Marks distribution of theory examination : **30 marks by internal** assessment and **70 marks by external** assessment.

Note: *In final practical examination students shall be examined by external and internal examiners. **Marks distribution: **50 marks written exam, 10 marks practical file, records and 10 marks viva** (Total marks 70).

Head 
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year
Course- Vocational course/field visit/Entrepreneurship skills
(Theory/ Practical)

Programme/ Class: **Degree: B.A./B.SC.** Year: **Third** Semester: **Fifth/ Sixth**

Subject: **Geography**

Course Code: **UG/VC-001**

Course Title : **FUNDAMENTAL OF REMOTE SENSING & GEOGRAPHIC INFORMATION SYSTEM (GIS)**

Course Objective: *After completing the course, students will be able to-*

1. Understand the basic concept and application of remote sensing techniques and Geographical Information Systems.
2. Comprehensive awareness of the potential of remote sensing, GIS, and GPS.
3. Understanding visual interpretation.
4. Understanding of GIS analytical workflow and integrated applications in various geographical domains.

Course Learning Outcomes:

1. Students will understand the concept and function of remote sensing
2. Students will be able to comprehend the use and significance of Remote Sensing and GIS in the field of geographical data analysis and presentation.

Credits : **4**

Core Compulsory

Max. Marks: **30+70**

Min. Passing Marks: **35**

Total No. of Lectures- Tutorials - Practical (in hours per week): **L-T-4/W**

Unit

Topics

UNIT-I Remote Sensing: Definition, Type, Scope and Historical Development. Types of Satellites. Electro-magnetic radiation: Characteristics, spectral regions and bands. Stages or Process of Remote Sensing.

UNIT-II Remote sensing satellites: Platform and sensors. Resolution: Spatial, Spectral, Temporal, Radiometric Resolution. Remote Sensing data processing and applications: Visual and digital image processing techniques.

UNIT-III Remote Sensing applications in watershed management, Glacial studies, Land use/Land cover Mapping, Disaster Management, Dasyetric mapping.

UNIT-IV Introduction to GIS: Definition, concept and history of GIS. Computer fundamentals for GIS, GIS Packages like ARC GIS, ERDAS, QGIS etc. Coordinate system, Datum, Raster and vector data. Hands one excursive on the software's handling.

Suggested Readings:

1. Choniya, D D, (2016) Sudur Samvadenevam Bhogolic Suchna Pranalikesighant, Sharda Pustak Bhavan, Allahabad.
 2. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. 4th edition. John Wiley and Sons, New York.
 3. Campbell, J.B. (2002): Introduction to Remote Sensing. 5th edition, Taylor and Francis, London.
 4. Bhatta, B. (2010): Remote Sensing and GIS, Oxford University Press, New Delhi.
 5. Nag Prithvish and Kudrat M. (1998): Digital Remote Sensing, Concept Publishing Company, New Delhi
- Curran, P.J. (1985): Principles of Remote Sensing, Longman, London.

Web References:

- 1 https://onlinecourses.swayam2.ac.in/aic20_ge05/preview

This course can be opted as an elective by the students of following subjects: **Open to all.**

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any two methods)

Marks distribution of theory examination : **30 marks by internal** assessment and **70 marks by external** assessment.

Note: The paper consists of four units. Two questions will be set from each unit. The candidate will be required to attempt four questions in all. Answer should be precise. All questions carry equal marks.

Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year
Course- Vocational course/field visit/Entrepreneurship skills
(Theory/ Practical)

| | | |
|---|---|-------------------------------|
| Programme/ Class: Degree: B.A./B.SC. | Year: Third | Semester: Fifth/ Sixth |
| Subject: Geography | | |
| Course Code: UG/VC-002 | Course Title : WASTE MANAGEMENT | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> 1. To examine the various types of solid waste and methods to categorise it. 2. To find out methods to reduce solid waste at the source. 3. To carry out analysis and audit of waste. 4. To understand people's responsibility in reducing and managing waste | | |
| Course Learning Outcomes: <i>Students will be able to understand-</i> | | |
| Credits : 4 | Core Compulsory | |
| Max. Marks: 30+70 | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W | | |
| Unit | Topics | |
| UNIT-I | Problem of Wastes, Types of Solid Waste, Categories of solid waste, Effects of Excess Waste Generation. | |
| UNIT-II | Solid Waste Reduction, Waste reduction strategies - How to Start a Waste Reduction Program Guideline, Economic benefits of Waste Reduction, Operation on a daily basis. | |
| UNIT-III | Introduction to Terminology of Waste, Waste Analysis, Introduction to Waste Audit, Checklist for performance audit in Waste Collection, Segregation, Transport, Treatment, Responsibility of Waste Management, Polluter Pays Principle (PPP), | |
| UNIT-IV | Report on the Case study of Waste Management during the Course. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. CPHEEO Manual of Solid Waste Management, GOI Publication, 2001. 2. Manuals, Rules and regulations in India for Municipal Solid Waste, Biomedical waste, flyash, nuclear waste, hazardous waste and E-waste, Government of India. 3. Gitanjali Nain Gill, 2011, SAGE Publications's Green Technology: An A-Z Guide (2011) whose work for that encyclopedia formed the basis of her contributions to Britannica. 4. Hester, R. E. and R. M. Harrison, (2002). Environmental and health impact of solid waste management activities. Cambridge: The Royal Society of Chemistry. https://www.downtoearth.org.in/coverage/costs-and-benefits-of-india-s-waste-disposal-options-5623. 5. https://swachhindia.ndtv.com/national-aluminium-company-limited-advocates-for-use-of-aluminium-foil-as-alternative-to-plastic-26056/ 6. https://www.downtoearth.org.in/blog/india-s-challenges-in-waste-management-56753 7. http://rsos.royalsocietypublishing.org/content/4/3/160764#sec-17 8. https://www.downtoearth.org.in/coverage/waste-smart-cities-54119 9. Johnson, Michael R.; McCarthy, Ian P. (2014-10-01). "Product recovery decisions within the context of Extended Producer Responsibility". Journal of Engineering and Technology Management. Engineering and Technology Management for Sustainable Business Development, 34 (9) doi:10.1016/j.jengtecman.2013.11.002 10. Rees, J.F., (1980). The fate of carbon compounds in the landfill disposal of organic matter. J. Chem. Tech. Biotechnol, Vol.30, pp.161-175. 11. Misi, S. N and Forster, C.F (2002). "Semi-Continuous Anaerobic Co Digestion of Agro-Waste," Environmental Technology, Vol. 23, No. 1, 2002, pp. 445-451. 12. Srilatha,H.R., Krishna, N., Sudhakar Bada, K. and Madhukara, K. 1995. Fungal pretreatment of orange processing waste by solid state fermentation for improved production of methane. Process Biochem. 30 : 327-331. 13. Tchobanoglous, G, Theisen, H, and Eliassen, R (1977).Solid Waste Engineering. Principles and Management Issues McGraw Hill Book Company, New York. | | |

14. Waste Management, IANS (2016), <https://swachhindia.ndtv.com/vegetable-markets-get-rs-10-lakh-setting-waste-management-plants-3722/>
15. Wastes to Resource : Waste Management Handbook.
http://cbs.teriin.org/pdf/Waste_Management_Handbook.pdf
16. Performance audit on “management of Waste in India” <https://swachcoop.com/pdf/CAG%20Audit.pdf>
17. Technical EIA guidance manual for common hazardous waste treatment, storage and disposal facilities

Further Readings

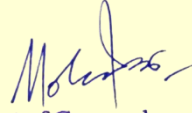
1. Internal Waste Audit: A Best Practices Guide.
<https://www.partnersinprojectgreen.com/resources/internal-waste-audit-a-best-practices-guide/> Video Links 1. Using Waste Audits to Improve Recycling & Recovery Programs.
<https://www.youtube.com/watch?v=DVbB7mVY42Y>
2. EIA waste sector lecture <https://www.youtube.com/watch?v=BbKlKl9qsAM>
3. Manual on Sampling, Analysis and Characterization of Hazardous Wastes.
http://cpcb.nic.in/cpcb/old/upload/Publications/Publication_323_sec6_16.pdf

This course can be opted as an elective by the students of following subjects: **Open to all.**

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any two methods)

Marks distribution of theory examination : **30 marks by internal** assessment and **70 marks by external** assessment.

Note: The paper consists of four units. Two questions will be set from each unit. The candidate will be required to attempt four questions in all. Answer should be precise. All questions carry equal marks.

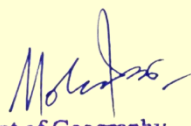
Head 
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year
Course- Vocational course/field visit/Entrepreneurship skills
(Theory/ Practical)

| | | | |
|---|--|---|-------------------------------|
| Programme/ Class: Degree: B.A./B.SC. | | Year: Third | Semester: Fifth/ Sixth |
| Subject: Geography | | | |
| Course Code: UG/VC-003 | | Course Title : DISASTER RISK REDUCTION | |
| Course Objective: After completing the course, students will be able to- <ol style="list-style-type: none"> 1. Learn how sustainable development and disaster risk are linked. 2. Understand how to make policies for better disaster management. 2. 3. Explore community strategies to improve disaster preparedness. | | | |
| Course Learning Outcomes: Students will be able to understand- Demonstrate skills of identifying linkages between disasters and development and developing disaster risk reduction as a cross-cutting element. Enable to facilitate communities to develop disaster preparedness and recovery plans. | | | |
| Credits : 4 | | Core Compulsory | |
| Max. Marks: 30+70 | | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W | | | |
| Unit | | Topics | |
| UNIT-I | Sustainable development and livelihood. Linkages between disasters and development. Disaster-Development continuum. Integrating risk reduction perspective in disaster risk management stages, Mainstreaming disaster risk reduction. Strategies of mainstreaming disaster risk reduction. | | |
| UNIT-II | Policy and planning for disaster management, Mainstreaming DRR in all development activities, Maintenance of public infrastructure. | | |
| UNIT-III | Community Based Approaches to Disaster Risk Management Course Content Community vulnerability management plan. Community risk assessment. Community based disaster management. | | |
| UNIT-IV | Household risk mapping. Community based adaptation. Indigenous knowledge for reducing disaster risks. Facilitating self-help initiatives. Sustaining long-term community-based disaster risk management. Gender responsive approaches. | | |
| Suggested Readings: | | | |
| <ol style="list-style-type: none"> 1. https://www.bracu.ac.bd/sites/default/files/Course%20Content.pdf 2. https://openlearning.unesco.org/courses/course-v1:UNESCO+UNESCO-03+2021_01/about 3. https://www.shareweb.ch/site/disasterriskreduction/themes-and-resources/DOC_themesresources/Themes-and-resources/Guide_Basic_Course_DRR_Volume_1_2014_SDC_WFP.pdf 4. https://ssp.nidm.gov.in/enrol/index.php?id=148 5. https://openlearning.unesco.org/courses/course-v1:UNESCO+UNESCO-03+2021_01/about 6. https://openlearning.unesco.org/assets/courseware/v1/8409fd36472bc585b50e7545eea97a92/asset-v1:UNESCO+UNESCO-03+2021_01+type@asset+block/Brochure_Resilient_schools_and_DRR_education_.pdf 7. https://unitar.org/courses-learning-events/individual-learners/master-degree-related-qualifications/graduate-certificate-disaster-risk-reduction-drr 8. https://www.newcastle.edu.au/degrees/teach-out/graduate-certificate-disaster-risk-reduction-pre-2024 9. https://www.newcastle.edu.au/degrees/teach-out/graduate-certificate-disaster-risk-reduction-pre-2024 10. https://hpsdma.nic.in/WriteReadData/LINKS/Final%20DRR%20Mainstreaming%20Training%20Modules413f99f4-ddb9-4ca0-affd-0156c7cb7343.pdf | | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. Note: The paper consists of four units. Two questions will be set from each unit. The candidate will be required to attempt four questions in all. Answer should be precise. All questions carry equal marks. | | | |

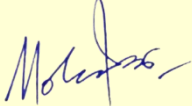
Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year
Course- Vocational course/field visit/Entrepreneurship skills
(Theory/ Practical)

| | | | |
|--|--|--|------------------------------|
| Programme/ Class: Degree: B.A./B.SC. | | Year: Third | Semester: Fifth/Sixth |
| Subject: Geography | | | |
| Course Code: UG/VC-004 | | Course Title : MOUNTAIN FARMING | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | | |
| 1. To introduce with mountain agricultural systems in fragile ecosystem | | | |
| 2. To work, contribute and show off mountain agricultural processes | | | |
| Course Learning Outcomes: <i>Students will be able to understand-</i> | | | |
| 1. Show off/exhibit their contribution to mountain agricultural system in a limited space. | | | |
| 2. Understand deeper importance of mountain agriculture | | | |
| Credits : 4 | | Core Compulsory | |
| Max. Marks: 30+70 | | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W | | | |
| Unit | | Topics | |
| UNIT-I | Meaning and concept of agriculture, Agricultural Infrastructure, Types of mountain agriculture | | |
| UNIT-II | Types of crops and seeds, Climate-smart agriculture, Urban agriculture, Regenerative Agriculture, Horticultural practices | | |
| | Project work and exhibition (any one of the following) | | |
| | <ul style="list-style-type: none"> • Making bio-compost • Organic fertilizer • Organic farming • High – tech farming • Precision agriculture • Hydroponic, Aero phonics and vertical farming | | |
| UNIT-III | • Agro-tourism | | |
| Suggested Readings: | | | |
| 1. Symons, L. (2019). Agricultural geography. Routledge. | | | |
| 2. Grigg, D. (2003). An introduction to agricultural geography. Routledge. | | | |
| 3. Whatmore, S. (1993). Agricultural geography. Progress in Human Geography, 17(1), 84-91. | | | |
| 4. Morgan, W. B., & Munton, R. J. C. (1971). Agricultural geography. Routledge. | | | |
| 5. de Assis, R. L., de Aquino, A. M., Prado, R. B., Borba, M. F. S., Magalhães, L. A., & Tonietto, J. (2019). Mountain agriculture. | | | |
| 6. Saleth, R. M. (1993). Sustainable Mountain Agriculture: Beyond a'Mountain Perspective'. | | | |
| 7. Food and Agriculture Organization of the United Nations. (2014). Mountain farming is family farming. Rome, Italy: Food & Agriculture Organization of the United Nations (FAO). | | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | | |
| Note: The paper consists of four units. Two questions will be set from each unit. The candidate will be required to attempt four questions in all. Answer should be precise. All questions carry equal marks. | | | |


 Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

| Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year <i>Course- Vocational course/field visit/Entrepreneurship skills</i> (Theory/ Practical) | | |
|---|--|-------------------------------|
| Programme/ Class: Degree: B.A./B.SC. | Year: Third | Semester: Fifth/ Sixth |
| Subject: Geography | | |
| Course Code: UG/VC-006 | Course Title : VIBRANT AND SMART VILLAGE | |
| Course Objective: <i>After completing the course, students will be able to-</i> | | |
| <ol style="list-style-type: none"> 1. To understand the concept of Vibrant and Smart Villages 2. To analyse the role of technology in Rural Development 3. To examine the socio-economic empowerment strategies 4. To evaluate the government initiative programme and applied field knowledge. | | |
| Course Learning Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> 1. Significance of Vibrant and Smart Villages 2. Integrated technological aspects in Rural Development 3. Designing strategies for the socio-economic empowerment 4. Role of Government policy framework | | |
| Credits : 4 | Core Compulsory | |
| Max. Marks: 30+70 | Min. Passing Marks: 35 | |
| Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W | | |
| Unit | Topics | |
| UNIT-I | Introduction to Vibrant and Smart Villages: Concept, definition, scope and approach and importance of rural development. | |
| UNIT-II | Integration of technology in Vibrant and Smart villages: Concept of ICT, Digital Infrastructure, digital literacy, smart agriculture and water management. | |
| UNIT-III | Social and Economic empowerment: Inclusive development, rural entrepreneurship and skill development, rural livelihood. | |
| UNIT-IV | Policy Framework and Future Prospects: Government policies and programs, and a detailed Report on the Case study of Vibrant and Smart village in India. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Gandhi, M., 1963. Village swaraj. Narajivan Publishing House. 2. Nakka, S.B.R., How to Create Vibrant Smart Villages in the World. SAI BHASKAR REDDY NAKKA. 3. Rajan, Y.S., 2022. Smart Villages–Indian Realities, Opportunities and Way Forward. Smart Villages: Bridging the Global Urban-Rural Divide. 4. Singh, K., 1999. Rural development: Principles, policies and management. Sage. 5. Tripathy, S.N. ed., 2000. Rural Development. Discovery Publishing House. 6. Chambers, R., 2014. Rural development: Putting the last first. Routledge. 7. Azman, W.F.A.C. and Kasim, R.S.R., 2021. Bottom 40 Next Generation Model for Sustainability Entrepreneurship: Post COVID-19 Crisis. Nasrul Aiman Bin Abd Aziz Web designer. 8. Jha, M., 2022. DIGITAL MAPPING OF RURAL DEVELOPMENT WORKS: PURPOSE AND ADVANTAGE. Sustainable Development for Society, Industrial. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |

Note: The paper consists of four units. Two questions will be set from each unit. The candidate will be required to attempt four questions in all. Answer should be precise. All questions carry equal marks.


Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year
Course- Vocational course/field visit/Entrepreneurship skills
(Theory/ Practical)

Programme/ Class: **Degree: B.A./B.SC.**

Year: **Third**

Semester: **Fifth/ Sixth**

Subject: **Geography**

Course Code: **UG/VC-007**

Course Title : **COMMUNITY HEALTH MANAGEMENT**

Course Objective: After completing the course, students will be able to-

1. Understand the concept of health, nutrition promotion, diseases and their prevention,
2. Understand the processes of community health management,
3. Participate in health management at the community level and during emergencies,

Course Learning Outcomes: Students will be able to understand-

1. Will understand the history and development of Community healthcare initiatives in India
2. Understand the concepts of health, nutrition and able to draw the importance of individuals and families in promoting health of the Community.
3. Participate effectively in the management of health at community level.
4. Able to coordinate and collaborate with various agencies operating in the community by using inter sectoral and multi-disciplinary approach.

Credits : **4**

Core Compulsory

Max. Marks: **30+70**

Min. Passing Marks: **35**

Total No. of Lectures- Tutorials - Practical (in hours per week): **L-T-4/W**

Unit

Topics

UNIT-I
 Definition, nature and scope of Community health, Historical development of Community health planning in India, National Policies, plans and programmes- National health policy, National Population policy, Sustainable Developmental Goals (SDGs), National Health Mission, ABDHM.

UNIT-II
 Health, nutrition and diseases: concepts, determinants, measurements, promotion and management of health, Health care delivery system in India: Urban and rural; Levels and hierarchical structure of health care system, IPHS guidelines

UNIT-III
 Information, Education and Communication (IEC)-its importance, principles, strategies and guidelines, types and roles; Tele-medicine, Alternative systems of medicine; Health agencies: roles and functions;

UNIT-IV
 Student Activities (anyone from the list as per convenience and context).
Community Health Survey & report writing

- Health education- campaign, exhibition, fold media, preparation of IEC materials (with the help from local health officials) on different issues like ANC visits, menstrual hygiene, child nutrition, STIs,
- Identification and interaction with key persons of Village Health, Sanitation and Nutrition committee (VHSNC) under NHM, followed by brief report writing on health management processes
- Drill for disaster/emergency preparedness (with the help from local health officials)
- Report on the functioning of Anganwadi Centre (AWC) providing nutrition to child and women– Exercise on nutritional assessment
- Estimation of vital health statistics using records, reports and registers maintained at SC/PHC/CHC
- Field visits to Population Control Office, Office for National Health Mission, SHEB, Ayurveda Hospital, Homeopath Hospital

Suggested Readings:

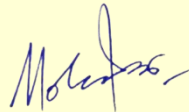
1. World Health Organization (2001): Community Health Needs Assessment An introductory guide for the family health nurse in Europe, ISBN 92 890 1194 7
2. Neil Brecht (Eds.) (1999): Health promotion at the community level- New Advances (2nd Edition), Sage Publications, New Delhi
3. K Park (2023): Park's Textbook of Preventive and Social Medicine, 27th Edition, Bhanot Publication
4. James F. McKenzie, Robert R. Pinger, Jerome E. Kotecki (2005): An Introduction to Community Health-5th Edition, Jones and Bartlett Publishers
5. GOI-UNDP DRM Programme (2002-08): Guidelines for Hospital Emergency Preparedness Planning, National Disaster Management Division, GOI, MHFW, Retrieved at https://www.undp.org/sites/g/files/zskgke326/files/migration/in/guidelines_hospital_emergency.pdf
6. Indian Public Health Standards (2022): National Health Mission, <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=971&lid=154>
7. IGNOU (2017): Information, education and communication, <https://egyankosh.ac.in/bitstream/123456789/31761/1/Unit-3.pdf>
8. Bhalwar, R, Rajesh Vaidya, Rina Tilak, Rajul Gupta, Renuka Kunte (Eds.) (2009): Text Book of Public Health and Community Medicine- 1st Edition, Dept of Community Medicine, AFMC, Pune in collaboration with WHO, India, New Delhi
9. World Health Organization (2001): Information, Education and Communication -Lessons from the past; Perspective for the future, https://iris.who.int/bitstream/handle/10665/67127/WHO_RHR_01.22.pdf
10. MoSPI, GOI (2010): Manual on Vital statistics, Ministry of Statistics and Programme Implementation, Central Statistics Office retrieved from https://mospi.gov.in/sites/default/files/publication_reports/vital_statistics_2010_0.pdf
11. Journal of the Indian Institute of Science Vol 102, No 2 (2022): Public Health, ISSN: 0970-4140, Retrieved at <https://journal.iisc.ac.in/index.php/iisc/issue/view/531>
12. World Health Organization (2019): Health Emergency and Disaster Risk Management Framework, ISBN 978-92-4-151618-1
13. Directorate of Health Services Kashmir (2014): Disaster Management Manual Health Care Emergency Management,
14. <https://www.dhskashmir.org/disaster/Disaster%20Management%20Manual-DHSK.pdf>
15. Lahariya C, Roy B, Shukla A, Chatterjee M, De Graeve H, Jhalani M, Bekedam H. (2020): Community action for health in India: evolution, lessons learnt and ways forward to achieve universal health coverage. WHO South-East Asia J Public Health. ;9(1):82–91. doi:10.4103/2224-3151.283002.

This course can be opted as an elective by the students of following subjects: **Open to all.**

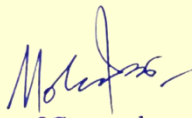
Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any two methods)

Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment.

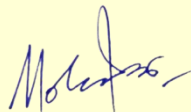
Note: The paper consists of four units. Two questions will be set from each unit. The candidate will be required to attempt four questions in all. Answer should be precise. All questions carry equal marks.


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

| Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year | | |
|---|--|------------------------|
| <i>Course- Core Subject -6</i> (Theory) | | |
| Programme/ Class: Degree: B.A./B.SC. | Year: Third | Semester: Sixth |
| Subject: Geography | | |
| Course Code: UG/VC C-006 | Course Title : ENVIRONMENTAL GEOGRAPHY | |
| Course Objective: | | |
| <ol style="list-style-type: none"> 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. | | |
| Course Outcomes: <i>Students will be able to understand-</i> | | |
| <ol style="list-style-type: none"> 1. Detailed exposure of human-environment relationship. 2. In-depth knowledge of environmental issues in tropical, temperate and polar ecosystems. 3. Understanding the environmental programmes and policies at local as well as global level. | | |
| <i>Credits : 4</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i> | | |
| Unit | Topics | |
| UNIT-I | Environmental Geography: Concepts and approaches, Ecosystem-Concept and structure; Ecosystem functions. | |
| UNIT-II | Human-Environment Relationship in Equatorial, Desert, Mountain and Coastal Regions. | |
| UNIT-III | Environmental Problems and Management; Air Pollution; Biodiversity Loss; Solid and Liquid Waste. | |
| UNIT-IV | Environmental Programs and Policies; Developed and Developing Countries. 5. Protected Areas; National Parks; Biosphere Reserves and Wildlife Sanctuaries in Uttarakhand. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Casper J.K. (2010) Changing Ecosystems: Effects of Global Warming. InfoBase Pub. New York. 2. Hudson, T. (2011) Living with Earth: An Introduction to Environmental Geology, PHI Learning Private Limited, New Delhi. 3. Miller, G.T. (2007) Living in the Environment: Principles, Connections, and Solutions, Brooks/Cole Cengage Learning, Belmont. 4. Singh, R.B. (1993) Environmental Geography, Heritage Publishers, New Delhi. 5. UNEP (2007) Global Environment Outlook: GEO 6. Environment For Development, United Nations Environment Programme. University Press, Cambridge. 7. Wright R. T. and Boorse, D. F. (2010) Toward a Sustainable Future, PHI Learning Pvt Ltd, New Delhi. 8. Singh, Savindra 2001. Paryavaran Bhugol, Prayag Pustak Bhawan, Allahabad. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination : 30 marks by internal assessment and 70 marks by external assessment. | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)

| Bachelor of Arts/ Science (B.A./B.SC.) IIIrd Year | | |
|--|---|------------------------|
| <i>Course- Core Subject -6</i> | | |
| (Practical-VI) | | |
| Programme/ Class: Degree: B.A./B.SC. | Year: Third | Semester: Sixth |
| Subject: Geography | | |
| Course Code: UG/C C006 (P) | Course Title : FIELD SURVEYING TECHNIQUES | |
| Course Objective: | | |
| The course aims to equip the students with principles and procedures of surveying techniques and GIS tools. | | |
| Course Outcomes: | | |
| After completing of this course student will be able to apply the general principles of surveying to conduct survey and preparation of report. A special outcome would be an understanding about GIS tools. | | |
| <i>Credits : 2</i> | <i>Core Compulsory</i> | |
| <i>Max. Marks: 30+70</i> | <i>Min. Passing Marks: 35</i> | |
| <i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-2/W</i> | | |
| Unit | Topics | |
| UNIT-I | Plane Table Survey- Radiation and Intersection Methods. Prismatic Compass Survey- Open and closed traverse. | |
| UNIT-II | Use and handling of Indian Clinometers. | |
| UNIT-III | Use and manage handheld GPS units, mobile GPS apps like Google Maps, GPS Essentials, Qfield. | |
| Suggested Readings: | | |
| <ol style="list-style-type: none"> 1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill. 2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi. 3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing. 4. 4.Misra R.N.and Sharma P.,2019, Practical Geography, Rawat Publication, Jawahar Nagar, Jaipur. 5. Robinson A., 1953: Elements of Cartography, John Wiley. 6. Sharma J. P., 2010: Prayogic Blagol, Rastogi Publishers. 7. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers 8. Singh R. L., 1998: Prayogic Bhoogol Rooprekha, Kalyani Publications. 9. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London. | | |
| This course can be opted as an elective by the students of following subjects: Open to all. | | |
| Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any two methods) | | |
| Marks distribution of theory examination: 30 marks by internal assessment and 70 marks by external assessment. | | |
| Note: *In final practical examination students shall be examined by external and internal examiners. | | |
| **Marks distribution: 50 marks written exam, 10 marks practical file, records and 10 marks viva (Total marks 70). | | |


Head
 Department of Geography
 School of Earth Science
 H.N.B. Garhwal University
 Srinagar (Uttarakhand)



Prof. M.S. Panwar
Head and Convener
Department of Geography,
HNB Garhwal University,

Head Srinagar, Uttarakhand
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)