Department of Geography

School of Earth Science

Course Contents & Syllabus

Four Year Under Graduate Programme (FYUP)
Under NEP 2020
for Students enrolled in 2026-27 Academic Session

Hemvati Nandan Bahuguna Garhwal University
(A Central University)
Srinagar Garhwal-246174 (Uttarakhand)

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

Bachelor of Arts or 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:

- The course offers a broad perspective on the historical and modern evolution of geography in an integrated manner.
- The goal of the course is to give students pertinent knowledge in the topic so they can become experts in it.
- The course aims to help students develop critical and analytical thinking skills and a detailed understanding of real-world challenges.
- To prepare students for interdisciplinary study, the course incorporates modern scientific advancements and mathematical techniques.
- 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.
- 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.
- 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.
- The course introduces students to a variety of scientific tools that will aid them in identifying problems in the actual world and their solutions.
- 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.
- 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.

The Board of Studies (BoS) meeting held on 6-7 March 2026 and 10-11 August 2026 discussed and approved the programme structure and syllabus for the B.A./B.Sc. in Geography.

Course Structure

First Year – NHEQF Level- 4.5

Course Category	Semester-I					Semester-II			
	Subject/Title	No. of paper	Credits T	Credits P		Subject /Title	No. of paper	Credits T	Credits P
Discipline Specific core (2 subjects)	DSC -I (Major) Physical Geography	1	3	1		DSC -II (Major) Human Geography	1	3	1
	DSC -I (Minor) Physical Geography	1	3	1		DSC -II (Minor) Human Geography	1	3	1
M.D/I.D- 1 Subject	M.D/I.D -I Basics of Geography-I	1	3	1		M.D/I.D-II Basics of Geography-II	1	3	1
SEC	SEC-M.D/I.D -I Mental health & wellbeing or Basics of Social work/Disaster Management	1	3	-		SEC-M.D/I.D -II Mental health & wellbeing or Basics of Social work/Disaster Management	1	3	-
SEC/AEC	AEC-Communication Skills or SEC-AMSC	1	3	-		SEC-AMSC or AEC-Communication Skills	1	3	-
VAC	Understanding and connecting with environment Or Life Skills & personality development	1	2	-		Understanding and connecting with environment Or Life Skills & personality development	1	2	-
Total		6	17	3			6	17	3
NHEQF Level 4.5	***Student on exit after successfully completing first year (i.e., securing minimum required 40 credits + 4 Credits in*** one vocational course/skills-enhancement course of 4 credits***) will be awarded "Undergraduate Certificate" of one year, in related field/discipline/subject***								
The student may opt for Communication Skills in one semester, and any one course from Additional Multidisciplinary skill Course (SEC--AMSC) in the other semester.									
AMSC- Additional Multidisciplinary Skill Course (is offered as SEC)									
List of Additional Multidisciplinary Skill course (SEC-AMSC) courses: Following are the courses which will be offered by the University under AMSC under the 4-year U.G. program. University may add new courses under AMSC in future along with the following courses: 1. Plant Nursery Development and Management 2. Basic Yoga practices 3. Physical Education and Sports Management 4. Regional Folklores and their cultural context ***5.*** Indian traditional music ***6.*** Tour and travel Operations									
Communication Skills- AEC ***'Communication Skills' course will be offered in Hindi, English and Sanskrit Languages, student may opt any one language for studying the course***									
Life Skill & Personality Development – VAC ***Understanding and connecting with environment- VAC***									

Second Year – NHEQF Level- 5

Course Category	Semester-III					Semester-IV			
	Subject/Title	No. of paper	Credits			Subject /Title	No. of paper	Credits	
			T	P				T	P
Major-I (One Subject) Major	DSC (Major)-III Geography of India	1	4	1		DSC (Major)-V Geographical Thought	1	4	1
Minor-I (One Subject)	DSC (Minor)-III Introduction to Geography of India	1	3	1		DSC (Minor)-IV Introduction to Geographical Thought	1	3	1
SEC (Major)	SEC (Major)-IV Regional Development and Planning with Special Reference to Uttarakhand	1	3	-		SEC (Major)-VI Geographical Field work, Mapping, and Digital Techniques	1	-	3
SEC	SEC-M.D/I.D -III Geography of World (Physical)	1	3	1		SEC-M.D/I.D -IV Geography of World (Human)	1	3	1
AEC (Language based courses)	Indian, Modern, Regional Language-I	1	2	-		Indian, Modern, Regional Language-II	1	2	-
VAC/AEC	AEC-Indian Knowledge System Or VAC-Culture, traditions and moral values	1	2	-		AEC-Indian Knowledge System Or VAC-Culture, traditions and moral values	1	2	-
Total		6	17	3			6	14	6
NHEQF Level 5	***Student on exit after successfully completing Second year (i.e., securing minimum required 80 credits + 4 Credits in*** one vocational course/skills-enhancement course of 4 credits***) will be awarded "Undergraduate Diploma" of two year, in related field/discipline/subject.***								

Third Year – NHEQF Level- 5.5

Course Type	Semester-V					Semester-VI				
	Subject/Title	No. of paper	Credits			Subject /Title	No. of paper	Credits		
			T	P				T	P	
Major-I (One)	DSC (Major)-VII Economic Geography	1	4	2		DSC (Major)-X Environmental Geography	1	4	2	
	DSC (Major)-VIII Climatology & Oceanography	1	4	2		DSC (Major)-XI Population and Settlement Geography	1	4	2	
	DSE (Major) Elective-I Geography of Tourism	1	4	-		DSE (Major) Elective-II Agricultural Geography	1	4	-	
	(Major-Vocational)- SEC-IX Field visit, Survey Methods and Report Writing	1	4			(Major-Vocational)- SEC-XII Fundamentals of Remote Sensing	1	4		
Minor (One)	(Minor)-V Field Visit: Physical and Socio-Economic (Village/Town) Survey & Report Writing	1	4			Minor-VI Population and Settlement Geography	1	4		
Total		5	22	2			5	22	2	
NHEQF Level 5.5	***Student on exit after successfully completing three years (i.e., securing minimum required 128 credits will be awarded "Bachelor's Degree" of three year, in related field/discipline/subject.***									

Fourth Year- (U.G. with Honours)

Course Type	Semester-VII				Semester-VIII			
	Subject/Title	No. of paper	Credits		Subject /Title	No. of paper	Credits	
			T	P			T	P
Major Subject (One)	DSC (Major) -XIII Geomorphology	1	4	-	DSC (Major) -XVII Climatology	1	4	-
	DSC (Major) -XIV Advanced Geography of India	1	4	-	DSC (Major) -XVIII Geography of Himalaya	1	4	-
	DSC (Major) -XV History of Geographical Thought	1	4	-	DSC (Major) -XIX Geo-Environmental Studies	1	4	-
	DSC (Major) -XVI Surveying (Practical)	1	-	4	DSC (Major) -XX Quantitative Technique (Practical)	1	-	4
	DSE (Major) Elective -III Geography of Resources	1	4	-	DSE (Major) Elective - IV Population Geography	1	4	-
Minor (One)	(Minor)-VII Locational Aspects India and World	1	4	-	(Minor)-VIII Introduction to GIS	1	4	-
Total		6	20	4		5	20	4
NHEQF Level- 6	*Student on exit after successfully completing four years (i.e., securing minimum required 176 credits) will be awarded "Four years Bachelor's Degree (Honours)", in related field/discipline.*							

Fourth Year- (U.G. Honours with Research)

Course Type	Semester-VII				Semester-VIII			
	Subject/Title	No. of paper	Credits		Subject /Title	No. of paper	Credits	
			T	P			T	P
Major Subject (One)	DSC (Major) -XIII Geomorphology	1	4	-	DSC (Major)-XVII Geography of Himalaya	1	4	-
	DSC (Major) -XIV Advanced Geography of India	1	4	-				
	DSC (Major) -XV History of Geographical Thought	1	4	-				
	DSC (Major)- XVI- Research Methodology	1	4	-	DSC- (Major)-XVIII Dissertation	1	-	12
	DSE (Major) Elective-III Surveying	1	-	4	DSE (Major) Elective -IV Quantitative Technique	1	-	4
Minor (One)	(Minor)-VII Geography of Resources	1	4	-	(Minor)-VIII Population Geography	1	4	-
Total		6	19	5		4	9	15
NHEQF Level- 6	*Student on exit after successfully completing four years (i.e., securing minimum required 176 credits) will be awarded "Four years Bachelor's Degree (Honours with Research)", in related field/discipline.*							

Four Year Under Graduate Programme (FYUP)
Under NEP 2020
for Students enrolled in 2026-27 Academic Session

Semester	Major Subject	Course Name	Credit	
			T	P
I	DSC -I (Major)	Physical Geography	3	1
	DSC -I (Minor)	Physical Geography	3	1
	M.D/I.D (M)-I	Basics of Geography-I	3	1
	SEC- M.D/I.D (G)-I	Mental health & wellbeing or Basics of Social work/Disaster Management	3	-
	AEC-Communication Skills Or AMSC	Hindi, English and Sanskrit Languages	3	-
	Understanding and connecting with environment Or Life Skills & personality development		2	-
	Total		**20**	
Semester	**Major Subject**	**Course Name**	**Credit**	
II	DSC -I (Major)	Human Geography	3	1
	DSC -I (Minor)	Human Geography	3	1
	M.D/I.D (M)-II	Basics of Geography-II	3	1
	SEC- M.D/I.D (G)-I	Mental health & wellbeing or Basics of Social work/Disaster Management	3	-
	AEC-Communication Skills Or AMSC	Hindi, English and Sanskrit Languages	3	-
	Understanding and connecting with environment Or Life Skills & personality development		2	-
	Total		**20**	
Semester	**Major Subject**	**Course Name**	**Credit**	
III	DSC (Major)-III	Geography of India	4	1
	DSC (Minor)-III	Introduction to Geography of India	3	1
	SEC (Major)-IV	Regional Development and Planning with Special Reference to Uttarakhand	3	-
	SEC-M.D/I. D (M)-III	Geography of World (Physical)	3	1
	AEC	Indian, Modern, Regional Language-I	2	
	AEC Or VAC	AEC-Indian Knowledge System Or VAC-Culture, traditions and moral values	2	-
	Total		**20**	
Semester	**Major Subject**	**Course Name**	**Credit**	
IV	DSC (Major)-IV	Geographical Thought	4	1
	DSC (Minor)-IV	Introduction to Geographical Thought	3	1
	SEC (Major)-VI	Geographical Fieldwork, Mapping, and Digital Techniques	-	3
	SEC-M.D/I. D (M)-IV	Geography of World (Human)	3	1
	AEC	Indian, Modern, Regional Language-II	2	-
	AEC Or VAC	AEC-Indian Knowledge System Or VAC-Culture, traditions and moral values	2	-
	Total		**20**	

Semester	Major Subject	Course Name	Credit	
V	DSC (Major)-VII	Economic Geography	4	2
	DSC (Major)-VIII	Climatology & Oceanography	4	2
	DSE (Major) Elective-I	Geography of Tourism	4	-
	Major- Vocational SEC-IX	Field visit, Survey Methods and Report Writing	-	4
	(Minor)-V	Field Visit: Physical and Socio-Economic Survey (Village/town) & Report Writing	-	4
	Total		**24**	
Semester	**Major Subject**	**Course Name**	**Credit**	
VI	DSC (Major)-X	Environmental Geography	4	2
	DSC (Major)-XI	Population and Settlement Geography	4	2
	DSE (Major) Elective-II	Agricultural Geography	4	-
	Major Vocational- SEC-XII	Fundamentals of Remote Sensing	4	-
	Minor-VI	Population and Settlement Geography	4	-
	Total		**24**	
Fourth Year- (U.G. with Honours)				
Semester	**Major Subject**	**Course Name**	**Credit**	
VII	DSC (Major) -XIII	Geomorphology	4	-
	DSC (Major) –XIV	Advanced Geography of India	4	-
	DSC (Major) –XV	History of Geographical Thought	4	
	DSC (Major) –XVI	Surveying	-	4
	DSE (Major) Elective –III	Geography of Resources	4	-
	(Minor)–VII Or M.D/I.D. (M)-V	Locational Aspects India and World	4	-
	Total		**24**	
Semester	**Major Subject**	**Course Name**	**Credit**	
VIII	DSC (Major) -XVII	Climatology	4	-
	DSC (Major) –XVIII	Geography of Himalaya	4	-
	DSC (Major) –XIX	Geo-Environmental Studies	4	-
	DSC (Major) –XX	Quantitative & Qualitative Methods in Geography	-	4
	DSE (Major) Elective –IV	Population Geography	4	-
	(Minor)–VIII Or M.D/I.D. (M)-VI	Introduction to GIS	4	-
	Total		**24**	
Fourth Year- (U.G. Honours with Research)				
Semester	**Major Subject**	**Course Name**	**Credit**	
VII	DSC (Major) -XIII	Geomorphology	4	-
	DSC (Major) –XIV	Advanced Geography of India	4	-
	DSC (Major) –XV	History of Geographical Thought	4	-
	DSC (Major)- XVI-	Research Methodology and Techniques	4	-
	DSE (Major) Elective-III	Surveying	-	4
	(Minor)–VII Or M.D/I.D. (M)-V	Geography of Resources	4	-
	Total		**24**	
Semester	**Major Subject**	**Course Name**	**Credit**	
VIII	DSC (Major)-XVII	Geography of Himalaya	4	-
	DSC- (Major)-XVIII	Dissertation	-	12
	DSE (Major) Elective -IV	Quantitative & Qualitative Methods in Geography	-	4
	(Minor)-VIII Or M.D/I.D. (M)-VI	Population Geography	4	-
	Total		**24**	

Detailed Syllabus

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

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **First**	Semester: **First**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ001**	Course Title: **PHYSICAL GEOGRAPHY**	

Course Learning Objectives:

1. To introduce the fundamental concepts of physical geography.
2. To understand Earth's structure, geomorphic processes, atmosphere, and hydrosphere.
3. To develop analytical skills for interpreting landforms, climate, and ocean systems.

Course Learning Outcomes:

1. Students will grasp the genesis and interrelationship of Earth systems.
2. Students will understand geomorphic, atmospheric, and hydrological processes.
3. Students will gain foundational knowledge useful for competitive exams and advanced geography studies.

*Credits: 3+1= **4***	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning, nature, and scope of Physical Geography, Origin and structure of the Earth, Plate tectonics and continental drift, Rocks and rock classification, Weathering, erosion and geomorphic agents- river, wind, glacier, groundwater, cycle of erosion -Davis & Penck.
UNIT-II	Composition and structure of atmosphere, Heat balance and temperature distribution, Pressure belts, winds, cyclones, monsoon, jet streams, Climatic classification -Köppen.
UNIT-III	Hydrological cycle, Ocean relief features, Ocean currents, tides, salinity, Coral reefs and marine ecology.
Practical GEOG/DSC-MJ001-P (1 Credit)	**Course Title: BASICS OF PRACTICAL GEOGRAPHY** Scale: Simple, comparative and diagonal scale, Toposheets: introduction, indexing, interpretation and conventional signs.

Suggested Readings:

1. Conserve, H. T. (2004). *Illustrated Dictionary of Physical Geography*. Author House, USA.
2. Gabler, R. E., Petersen, J. F., & Trapasso, L. M. (2007). *Essentials of Physical Geography* (8th ed.). Thompson,
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.
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., & Strahler, A. H. (2008). *Modern Physical Geography*. John Wiley & Sons, New York.
9. Singh, Savindra. *Physical Geography* (Hindi & English editions).
10. ePG Pathshala. (n.d.). *Physical Geography Modules*. Retrieved from https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=KwH6LnSyFhsLI6M9Z0+tvw==
11. NCERT. *Physical Geography Textbook*. Retrieved from https://ncert.nic.in/textbook.php?kegy2=0-14
12. Singh, L. R., & Kaur, J. (2008). *Practical Geography*. Allahabad.
13. Lal, D. S. *Practical Geography* (English). Sharda/Prayag Pustak Bhawan, Allahabad.
14. Singh, Savindra. *प्रायोगिक भूगोल (Prayogik Bhugol)*. Prayag Pustak Bhawan, Allahabad.
15. Lillesand, T. M., Kiefer, R. W., & Chipman, J. (2015). *Remote Sensing and Image Interpretation*. Wiley.
16. Lal, D. S. (Hindi). *मौसम विज्ञान (Mausam Vigyan)*. Sharda/Prayag Pustak Bhawan, Allahabad.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) I Year

Course- DSC Subject – Minor

Programme**: B.A./B.Sc.**	Year: **First**	Semester: **First**
Subject: **Geography**		
Course Code: **GEOG/DSC-MN001**	Course Title: **PHYSICAL GEOGRAPHY**	

Course Learning Objectives:

1. To introduce the fundamental concepts of physical geography.
2. To understand Earth's structure, geomorphic processes, atmosphere, and hydrosphere.
3. To develop analytical skills for interpreting landforms, climate, and ocean systems.

Course Learning Outcomes:

1. Students will grasp the genesis and interrelationship of Earth systems.
2. Students will understand geomorphic, atmospheric, and hydrological processes.
3. Students will gain foundational knowledge useful for competitive exams and advanced geography studies.

*Credits: 3+1= **4***	*DSC-MINOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning, nature, and scope of Physical Geography, Origin and structure of the Earth, Plate tectonics and continental drift, Rocks and rock classification, Weathering, erosion and geomorphic agents- river, wind, glacier, groundwater, cycle of erosion -Davis & Penck.
UNIT-II	Composition and structure of atmosphere, Heat balance and temperature distribution, Pressure belts, winds, cyclones, monsoon, jet streams, Climatic classification -Köppen.
UNIT-III	Hydrological cycle, Ocean relief features, Ocean currents, tides, salinity, Coral reefs and marine ecology.
Practical GEOG/DSC-MJ001-P (1 Credit)	**Course Title: BASICS OF PRACTICAL GEOGRAPHY** Scale: Simple, comparative and diagonal scale, Toposheets: introduction, indexing, interpretation and conventional signs.

Suggested Readings:

1. Conserve, H. T. (2004). *Illustrated Dictionary of Physical Geography*. Author House, USA.
2. Gabler, R. E., Petersen, J. F., & Trapasso, L. M. (2007). *Essentials of Physical Geography* (8th ed.). Thompson,
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.
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., & Strahler, A. H. (2008). *Modern Physical Geography*. John Wiley & Sons, New York.
9. Singh, Savindra. *Physical Geography* (Hindi & English editions).
10. ePG Pathshala. (n.d.). *Physical Geography Modules*. Retrieved from https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=KwH6LnSyFhsLI6M9Z0+tvw==
11. NCERT. *Physical Geography Textbook*. Retrieved from https://ncert.nic.in/textbook.php?kegy2=0-14
12. Singh, L. R., & Kaur, J. (2008). *Practical Geography*. Allahabad.
13. Lal, D. S. *Practical Geography* (English). Sharda/Prayag Pustak Bhawan, Allahabad.
14. Singh, Savindra. *प्रायोगिक भूगोल (Prayogik Bhugol)*. Prayag Pustak Bhawan, Allahabad.
15. Lillesand, T. M., Kiefer, R. W., & Chipman, J. (2015). *Remote Sensing and Image Interpretation*. Wiley.
16. Lal, D. S. (Hindi). *मौसम विज्ञान (Mausam Vigyan)*. Sharda/Prayag Pustak Bhawan, Allahabad.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) I Year

Course- M.D/I.D (M)-I

Programme**: B.A./B.SC.**	Year: **First**	Semester: **First**
Subject: **Geography**		
Course Code: **GEOG/MD/ID-001**	Course Title: **BASICS OF GEOGRAPHY-I**	

Course Learning Objectives:

1. To understand the basics of Geography with an emphasis on its nature and scope,
2. To Know Earth structure and composition,
3. To understand major tectonic forces and movements.

Course Learning Outcomes:

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: 3+1	*MD/ID-MAJOR*
Max. Marks: ***30+70***	*Min. Passing Marks:* ***35***

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

Unit	**Course Contents**
UNIT-I	Meaning, Nature and Scope of Geography, Solar System, Rotation and Revolution of Earth, Latitude and Longitude.
UNIT-II	Continental drift theory, Plate Tectonic and Sea floor spreading.
UNIT-III	Structure and composition of the Earth, Weathering and Erosion, Types of rocks-Igneous rock, Metamorphic rock and sedimentary rock and their importance.
Practical **GEOG/MD/ID001-P** **(1 Credit)**	**Course Title: BASICS OF PRACTICAL GEOGRAPHY-1** Scale: Simple, comparative and diagonal scale.

Suggested Readings:

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 Internation.
6. Alan Strahler- Introducing Physical Geography, Wiley.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) I Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **First**	Semester: **Second**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ002**	Course Title: **HUMAN GEOGRAPHY**	

Course Learning Objectives:

1. Understand the concepts, scope and development of Human Geography.
2. Examine the relationship between population, culture, environment and settlements.
3. Develop the ability to analyse human activities and spatial patterns from a geographical perspective.

Course Learning Outcomes:

1. Understand the basic concepts, scope and development of Human Geography.
2. Explain major geographical thoughts and approaches related to human–environment relationships.
3. Analyse cultural, population and migration patterns at different geographical scales.
4. Evaluate human adaptation, tribal life and settlement patterns in changing environments.

Credits: 3+1	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Definition, nature, scope and significance of Human Geography; Relationship between Human Geography and Physical Geography; Branches and contemporary relevance of Human Geography; Welfare and Humanistic approaches.
UNIT-II	Cultural regions: concept and classification; Human diversity: Race, ethnicity and cultural identity; Religion and language: spatial distribution and cultural landscapes; Population growth and distribution patterns; Migration: definition, causes, types and contemporary trends.
UNIT-III	Human adaptation to environment: concepts and examples; Tribes of India: habitat, economy and cultural characteristics -Bhil, Gond, Santhal and Naga; Rural settlements: types and patterns; Urban settlements: classification and functions; Trends and patterns of world urbanization.
Practical GEOG/DSC-MJ002-P (1 Credit)	**Course Title: MAP PROJECTIONS AND THEMATIC MAPS** Map Projection: Classification; Conical Projection with one and two standards parallel, Distribution Map: Isopleth, Choropleth and Dot method.

Suggested Readings:

1. Bose, N. K. (1971). Tribal life in India. National Book Trust.
2. Castles, S., de Haas, H., & Miller, M. J. (2020). The age of migration: International population movements in the modern world (6th ed.). Red Globe Press.
3. Daniels, P., Bradshaw, M., Shaw, D., & Sideway, J. D. (2020). An introduction to human geography: Issues for the 21st century (5th ed.). Pearson.
4. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.
5. Husain, M. (2020). Human Geography (6th ed.). Rawat Publications. Publisher: Rawat Publications, Jaipur/New Delhi.
6. Johnston, R. J., Gregory, D., Pratt, G., & Watts, M. (2000). The dictionary of human geography (4th ed.). Blackwell Publishers.
7. Ministry of Tribal Affairs. (2024). Annual report 2023–24. Government of India. Link: https://tribal.nic.in/
8. Pacione, M. (2009). Urban geography: A global perspective (3rd ed.). Routledge.
9. Robinson A., 1953: Elements of Cartography, John Wiley.
10. Rubenstein, J. M. (2023). The cultural landscape: An introduction to human geography (14th ed.). Pearson. (Pearson)
11. UN DESA (2024). World Population Prospects
12. United Nations, Department of Economic and Social Affairs, Population Division. (2024). World population prospects 2024: Summary of results. United Nations. Link: https://population.un.org/wpp/
13. Weeks, J. R. (2020). Population: An introduction to concepts and issues (13th ed.). Cengage Learning.
14. Ahrens, C. D. (2019). Meteorology Today: An Introduction to Weather, Climate, and the Environment (13th ed.). Boston, MA: Cengage Learning.

15. Anson, R., & Ormeling, F. (2002). Basic Cartography: Volume 1. Oxford, UK: Butterworth-Heinemann.
16. Critchfield, H. J. (1983). General Climatology (4th ed.). New Delhi, India: Prentice Hall of India.
17. https://mausam.imd.gov.in/
18. https://www.cengage.com/c/meteorology-today-13e-ahrens/
19. https://www.natmo.gov.in/
20. India Meteorological Department (IMD). (n.d.). Weather Information and Daily Weather Reports. Government of India.
21. Khullar, D. R. (2012). Essentials of Practical Geography. New Delhi, India: New Academic Publishing Co.
22. Lal – Climatology (Weather instruments and climatic data interpretation)
23. Lal, D. S. (2016). Climatology. Allahabad, India: Sharda Pustak Bhawan.
24. Monkhouse & Wilkinson – Maps and Diagrams (Map construction and thematic representation) (Open Library)
25. Monkhouse, F. J., & Wilkinson, H. R. (1971). Maps and diagrams: Their compilation and construction (3rd ed.). Methuen. (Open Library)
26. National Atlas and Thematic Mapping Organisation (NATMO). Thematic Mapping Resources. Government of India.
27. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., & Guptill, S. C. (1995). Elements of Cartography (6th ed.). New York, NY: John Wiley & Sons.
28. Sharma J. P., 2010: Prayogic Bhugol, Rastogi Publishers.
29. Sharma, J. P. (2010). Practical Geography: A Systematic Approach. New Delhi, India: Rawat Publications.
30. Singh & Singh – Elements of Practical Geography (Main Practical Manual) (Kalyani Publishers)
31. Singh R. L., 1998: Prayogic Bhoogol Rooprekha, Kalyani Publications.
32. Singh, R. L., & Singh, R. P. B. (2012). Elements of practical geography (Revised ed.). Kalyani Publishers, New Delhi. (Kalyani Publishers)
33. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London
34. United Nations Cartographic Section. (n.d.). Maps and Cartographic Resources.
35. World Meteorological Organization. (n.d.). Weather, climate and water resources.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) I Year

Course- DSC Subject -Minor

Programme**: B.A./B.Sc.**	Year: **First**	Semester: **Second**
Subject: **Geography**		
Course Code: **GEOG/DSC-MN002**	Course Title: **HUMAN GEOGRAPHY**	

Course Learning Objectives:

1. Understand the concepts, scope and development of Human Geography.
2. Examine the relationship between population, culture, environment and settlements.
3. Develop the ability to analyse human activities and spatial patterns from a geographical perspective.

Course Learning Outcomes:

5. Understand the basic concepts, scope and development of Human Geography.
6. Explain major geographical thoughts and approaches related to human–environment relationships.
7. Analyse cultural, population and migration patterns at different geographical scales.
8. Evaluate human adaptation, tribal life and settlement patterns in changing environments.

Credits: 3+1	*DSC-MINOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Definition, nature, scope and significance of Human Geography; Relationship between Human Geography and Physical Geography; Branches and contemporary relevance of Human Geography; Welfare and Humanistic approaches.
UNIT-II	Cultural regions: concept and classification; Human diversity: Race, ethnicity and cultural identity; Religion and language: spatial distribution and cultural landscapes; Population growth and distribution patterns; Migration: definition, causes, types and contemporary trends.
UNIT-III	Human adaptation to environment: concepts and examples; Tribes of India: habitat, economy and cultural characteristics -Bhil, Gond, Santhal and Naga; Rural settlements: types and patterns; Urban settlements: classification and functions; Trends and patterns of world urbanization.
Practical GEOG/DSC-MJ002-P (1 Credit)	**Course Title: MAP PROJECTIONS AND THEMATIC MAPS** Map Projection: Classification; Conical Projection with one and two standards parallel, Distribution Map: Isopleth, Choropleth and Dot method.

Suggested Readings:

1. Bose, N. K. (1971). Tribal life in India. National Book Trust.
2. Castles, S., de Haas, H., & Miller, M. J. (2020). The age of migration: International population movements in the modern world (6th ed.). Red Globe Press.
3. Daniels, P., Bradshaw, M., Shaw, D., & Sideway, J. D. (2020). An introduction to human geography: Issues for the 21st century (5th ed.). Pearson.
4. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.
5. Husain, M. (2020). Human Geography (6th ed.). Rawat Publications. Rawat Publications, Jaipur/New Delhi.
6. Johnston, R. J., Gregory, D., Pratt, G., & Watts, M. (2000). The dictionary of human geography (4th ed.). Blackwell Publishers.
7. Ministry of Tribal Affairs. (2024). Annual report 2023–24. Government of India. Link: https://tribal.nic.in/
8. Pacione, M. (2009). Urban geography: A global perspective (3rd ed.). Routledge.
9. Robinson A., 1953: Elements of Cartography, John Wiley.
10. Rubenstein, J. M. (2023). The cultural landscape: An introduction to human geography (14th ed.). Pearson. (Pearson)
11. UN DESA (2024). World Population Prospects
12. United Nations, Department of Economic and Social Affairs, Population Division. (2024). World population prospects 2024: Summary of results. United Nations. Link:https://population.un.org/wpp/
13. Weeks, J. R. (2020). Population: An introduction to concepts and issues (13th ed.). Cengage Learning.

14. Ahrens, C. D. (2019). Meteorology Today: An Introduction to Weather, Climate, and the Environment (13th ed.). Boston, MA: Cengage Learning.
15. Anson, R., & Ormeling, F. (2002). Basic Cartography: Volume 1. Oxford, UK: Butterworth-Heinemann.
16. Critchfield, H. J. (1983). General Climatology (4th ed.). New Delhi, India: Prentice Hall of India.
17. https://mausam.imd.gov.in/
18. https://www.cengage.com/c/meteorology-today-13e-ahrens/
19. https://www.natmo.gov.in/
20. India Meteorological Department (IMD). (n.d.). Weather Information and Daily Weather Reports. Government of India.
21. Khullar, D. R. (2012). Essentials of Practical Geography. New Delhi, India: New Academic Publishing Co.
22. Lal – Climatology (Weather instruments and climatic data interpretation)
23. Lal, D. S. (2016). Climatology. Allahabad, India: Sharda Pustak Bhawan.
24. Monkhouse & Wilkinson – Maps and Diagrams (Map construction and thematic representation) (Open Library)
25. Monkhouse, F. J., & Wilkinson, H. R. (1971). Maps and diagrams: Their compilation and construction (3rd ed.). Methuen. (Open Library)
26. National Atlas and Thematic Mapping Organisation (NATMO). (n.d.). Thematic Mapping Resources. Government of India.
27. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., & Guptill, S. C. (1995). Elements of Cartography (6th ed.). New York, NY: John Wiley & Sons.
28. Sharma J. P., 2010: Prayogic Bhugol, Rastogi Publishers.
29. Sharma, J. P. (2010). Practical Geography: A Systematic Approach. New Delhi, India: Rawat Publications.
30. Singh & Singh – Elements of Practical Geography (Main Practical Manual) (Kalyani Publishers)
31. Singh R. L., 1998: Prayogic Bhoogol Rooprekha, Kalyani Publications.
32. Singh, R. L., & Singh, R. P. B. (2012). Elements of practical geography (Revised ed.). Kalyani Publishers, New Delhi. (Kalyani Publishers)
33. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London
34. United Nations Cartographic Section. (n.d.). Maps and Cartographic Resources.
35. World Meteorological Organization. (n.d.). Weather, climate and water resources.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) I Year

Course- M.D/I.D (M)-II

Programme**: B.A./B.Sc.**	Year: **First**	Semester: **Second**

Subject: **Geography**

Course Code: **GEOG/MD/ID-002**	Course Title: **BASICS OF GEOGRAPHY-II**

Course Learning Objectives:

1. To understand the basics of geography with an emphasis on atmosphere, hydrosphere and biosphere

Course Learning Outcomes: The atmosphere and wind circulation.

1. The hydrosphere and ocean circulation.
2. The man and environment relationship.

Credits: 3+1	*MD/ID-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
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.
Practical **GEOG/MD/ID002-P** **(1 Credit)**	**Course Title: BASICS OF GEOGRAPHY-II** Toposheets: Introduction, indexing, interpretation and conventional signs.

Suggested Readings:

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 Internation.
6. Alan Strahler- Introducing Physical Geography, Wiley.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 2 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Second**	Semester: **Third**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ003**	Course Title: **GEOGRAPHY OF INDIA**	

Course Learning Objectives:

1. To provide an understanding of the geographical setting, physical features, and regional diversity of India.
2. To examine the distribution and utilization of natural resources, agriculture, industries, and population patterns of India.
3. To develop knowledge about contemporary geographical issues and regional development challenges of India.

Course Learning Outcomes:

1. Explain the physical, climatic, and ecological characteristics of India.
2. Analyse the spatial distribution of population, resources, agriculture, and industries.
3. Understand regional development issues and contemporary geographical challenges of India.

Credits: 4+1	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Physiographic Divisions; Drainage -Peninsula and Extra-Peninsula; Characteristic of Climate, Natural Vegetation and Soils.
UNIT-II	Population Growth and Distribution; Population Composition; Migration; Urbanization; Regional Disparities; Human Development Index and Socio-economic Development
UNIT-III	Agricultural Regions; Green Revolution and Contemporary Agricultural Issues; Distribution and Utilization of Iron Ore, Coal, Petroleum; Industrial Regions.
UNIT-IV	Transport and Communication Networks; Environmental Issues; Climate Change Impacts and adaptation; Disaster Management, SDGs 17 and Sustainable Development in India.
Practical GEOG/DSC-MJ003-P (1 Credit)	**Course Title: STATISTICAL METHODS IN GEOGRAPHY** Primary and secondary data and their sources; Methods of primary data collection; Classification of statistical data and tabulation, Frequency curve, histogram and polygon.

Suggested Readings:

1. Census of India. (Latest Edition). *Primary Census Abstract*. Office of the Registrar General and Census Commissioner, India.
2. Chandna, R. C. (2021). *Geography of population: Concepts, determinants and patterns*. Kalyani Publishers.
3. Government of India. (Latest Edition). *Economic Survey of India*. Ministry of Finance, Government of India.
4. Hussain, M. (2022). *Geography of India*. McGraw Hill Education.
5. Khullar, D. R. (2023). *India: A comprehensive geography*. Kalyani Publishers.
6. Majid Husain. (2021). *Geography of India*. McGraw Hill Education.
7. Sharma, T. C., & Coutinho, O. (2019). *Economic and commercial geography of India*. Vikas Publishing House.
8. Singh, R. L. (Ed.). (2016). *India: A regional geography*. National Geographical Society of India.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 2 Year

Course- DSC Subject - Minor

Programme**: B.A./B.Sc.**	Year: **Second**	Semester: **Third**
Subject: **Geography**		
Course Code: **GEOG/DSC-MN003**	Course Title: **INTRODUCTION TO GEOGRAPHY OF INDIA**	

Course Learning Objectives:

1. To provide an understanding of the geographical setting, physical features, and regional diversity of India.
2. To examine the distribution and utilization of natural resources, agriculture, industries, and population patterns of India.
3. To develop knowledge about contemporary geographical issues and regional development challenges of India.

Course Learning Outcomes:

1. Explain the physical, climatic, and ecological characteristics of India.
2. Analyse the spatial distribution of population, resources, agriculture, and industries.
3. Understand regional development issues and contemporary geographical challenges of India.

Credits: 3+1	*DSC-MINOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Physiographic Divisions; Drainage – Peninsula and Extra-Peninsula; Characteristic of Climate, Natural Vegetation and Soils
UNIT-II	Population Growth and Distribution; Population Composition; Migration; Urbanization; Regional Disparities; Human Development Index (HDI) and Socio-economic Development
UNIT-III	Agricultural Regions; Green Revolution and Contemporary Agricultural Issues; Distribution and Utilization of Iron Ore, Coal, Petroleum; Industrial Regions
UNIT-IV	Transport and Communication Networks; Environmental Issues; Climate Change Impacts and adaptation; Disaster Management, SDGs 17 and Sustainable Development in India
Practical GEOG/DSC-MN003-P (1 Credit)	**Course Title: STATISTICAL METHODS IN GEOGRAPHY** Primary and secondary data and their sources; Methods of primary data collection; Classification of statistical data and tabulation, Frequency curve, histogram and polygon.

Suggested Readings:

1. Census of India. (Latest Edition). *Primary Census Abstract*. Office of the Registrar General and Census Commissioner, India.
2. Chandna, R. C. (2021). *Geography of population: Concepts, determinants and patterns*. Kalyani Publishers.
3. Government of India. (Latest Edition). *Economic Survey of India*. Ministry of Finance, Government of India.
4. Hussain, M. (2022). *Geography of India*. McGraw Hill Education.
5. Khullar, D. R. (2023). *India: A comprehensive geography*. Kalyani Publishers.
6. Majid Husain. (2021). *Geography of India*. McGraw Hill Education.
7. Sharma, T. C., & Coutinho, O. (2019). *Economic and commercial geography of India*. Vikas Publishing House.
8. Singh, R. L. (Ed.). (2016). *India: A regional geography*. National Geographical Society of India.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 2 Year

Course- SEC (Major)

Programme**: B.A./B.SC.**	Year: **Second**	Semester: **Third**
Subject: **Geography**		
Course Code: **GEOG/SEC-001**	Course Title: **REGIONAL DEVELOPMENT AND PLANNING WITH SPECIAL REFERENCE TO UTTARAKHAND**	

Course Learning Objectives:

1. To study the different types of regions and their characteristics with special reference to Uttarakhand.
2. To introduce the unique geographical, social and economic characteristics of Uttarakhand and how these factors influence regional planning.
3. To learn the challenges and opportunities in regional development and planning unique to the region.

Course Learning Outcomes:

1. The region, development, and planning and types of regions with special reference to Uttarakhand.
2. The influence of geographical, social and economic characteristics on the regional development and planning.
3. The region diversity and disparity with special reference to Uttarakhand.

Credits: 3	*SEC-MAJOR*
Max. Marks: ***30+70***	*Min. Passing Marks:* ***35***

Total No. of Lectures- Tutorials - Practical (in hours per week): ***L-T-3/W***

Unit	**Course Contents**
UNIT-I	Region, Development and Planning: Definition, Concept and Types; Methods of Delineation of Regions.
UNIT-II	Regional devolvement: Concepts and indicators; Regional Planning: Concepts and purpose; Levels of planning: local, regional and national.
UNIT-III	Regional diversity in terms of Geography and Development and disparities in Uttarakhand.

Suggested Readings:

1. Blij H. J. De, 1971: Geography: Regions and Concepts, John Wiley and Sons.
2. Claval P.l, 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.

UNDP 2001-04: Human Development Report, Oxford University Press.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 2 Year

Course- M.D/I.D (M)-III

Programme**: B.A./B.Sc.**	Year: **Second**	Semester: **Third**
Subject: **Geography**		
Course Code: **GEOG/MD/ID-003**	Course Title: **GEOGRAPHY OF WORLD (PHYSICAL)**	

Course Learning Objectives:

1. Develop a comprehensive understanding of the world's major physical features (landforms, climatic regions, natural vegetation, soils, and biomes).
2. To make the students understand the spatial distribution of physical features (landforms, climatic regions, natural vegetation, soils, and biomes across the world).
3. Identify and classify maps and explain their elements, evolution, significance, and applications in geographical analysis and spatial representation.

Course Learning Outcomes:

1. Explain and Discuss World Geography, Its Nature, Scope and Significance.
2. Describe and interpret the distribution and characteristics of major landforms, climatic regions (Köppen Classification), natural vegetation, soil types, and world biomes.
3. Apply fundamental geographical and cartographic concepts to interpret physical landscapes and maps for academic, environmental, and regional studies.

Credits: 3+1	*MD/ID-MAJOR*
Max. Marks: ***30+70***	*Min. Passing Marks:* ***35***

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

Unit	**Course Contents**
UNIT-I	Definition, Nature, Scope and Significance of physical geography of world.
UNIT-II	Major Landforms: Mountains, Plateaus, Plains, and their World Distribution; World Climate: Major Climatic Regions of the World (Koeppen Classification)
UNIT-III	Natural Vegetation of the World, Major Soil Types of the World and World Biomes
Practical GEOG/MD/ID003-P (1 Credit)	**Course Title: UNDERSTANDING MAPS** Maps: Definition, Historical Evolution, Elements, Significance and Usage; Classification of Maps

Suggested Readings:

1. English, Paul Ward and James, A. Miller (1989): World Regional Geography: A Question of Place, John Wiley, New York.
2. Jackson, Richard H. and Lioyd, E. Hudman (1991). World Regional Geography: Issues for Today, John Wiley, New York.
3. Don, R. Hoy (ed.) (1980). Essentials of Geography and Development, MacMillan, New York.
4. Hussain, M. (2008). World Geography, Rawat Publications, Jaipur.
5. Goh, C.L., Morgan G.C. (1982). Human and Economic Geography, Oxford University Press.
6. Di Blij, H. and Muller, O. (1993): Geography: Regions and Concepts. John Wiley and Sons, New York.
7. Rai, Gayatri (2007): Vishwa Ka Pradeshik Bhugol, Mishra Trading Corporation, Varanasi.
8. Sharma, P. R. (ed.) (1991): Perspectives on Third World Development. Rishi Publication, Varanasi.
9. Stamp, L. D. (1976): Asia: A Regional and Economic Geography, Methuen, London.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 2 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Second**	Semester: **Four**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ004**	Course Title: **GEOGRAPHICAL THOUGHT**	

Course Learning Objectives:

1. To introduce to the basic nature of the discipline, its philosophical and methodological development
2. To introduce the basic concepts and landmark development and evolution of different concepts in Geography
3. To introduce the development of subject in India and other places at different periods of time
4. To introduce basic concepts skills in map-making, projections, and thematic mapping techniques.

Course Learning Outcomes:

1. Students will have a comprehensive knowledge of geographic thought and a thorough at different periods of time
2. Students will be familiar with key concepts, debates, and contributions within the field
3. The course will enhance their critical thinking and theoretical analytical skills.
4. The course will enhance their basic understanding regarding elements of map and map making

Credits: 4+1	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Definition, nature and scope of Geography; Branches and sub-branches of Geography Early development of geographical knowledge: Contributions of Greek, Roman and Arab geographers -Strabo, Ptolemy and Al-Idrisi.
UNIT-II	Development of geographical knowledge in Ancient, Medieval and Modern India; Renaissance, the Age of Discovery and Scientific Revolution; Contributions of Bernhard Varenius and Immanuel Kant.
UNIT-III	Development of Modern Geography: German School -Alexander von Humboldt, Carl Ritter, Friedrich Ratzel and Alfred Hettner; French School (Paul Vidal de la Blache and Jean Brunhes);
UNIT-IV	British School -Halford J. Mackinder and Peter Haggett; American School -William Morris Davis, Ellen Churchill Semple, Ellsworth Huntington, Richard Hartshorne, Fred K. Schaefer and David Harvey, Geographers of Uttarakhand.
Practical GEOG/DSC-MJ004-P (1 Credit)	**Course Title: FUNDAMENTALS OF CARTOGRAPHY** Changing perceptions of Maps of the world, Elements of Maps, Basic Concepts of Map Projection, Bonne's; Cylindrical Equal Area; Mercator's; and Polar Zenithal Equal Area map projection.

Suggested Readings:

1. Haggett, P. (2001). Geography: A global synthesis. Prentice Hall.
2. Chorley, R. J., & Haggett, P. (Eds.). (1967). Models in geography. Methuen.
3. Johnston, R. J., & Claval, P. (Eds.). (1984). Geography since the Second World War: An international survey. Croom Helm.
4. Johnston, R. J. (1988). The future of geography. Methuen.
5. Adhikari, S. (2006). Fundamentals of geographical thought. Chaitanya Publishing House.
6. Marcus, D. (1999). Post-structuralism in geography: The diabolical art of spatial science. Edinburgh University Press.
7. Gaile, G. L., & Willmott, C. J. (Eds.). (2003). Geography in America at the dawn of the 21st century. Oxford University Press.
8. Hubbard, P., Kitchin, R., Bartley, B., & Fuller, D. (2002). Thinking geographically: Space, theory and contemporary human geography. Continuum.
9. Hussain, M. (2007). Evolution of geographical thought (5th ed.). Rawat Publications.10. Dixit, R.D.: Geographical Thought: A Contextual History of Geographical Ideas, Prentice Hall of India, New Delhi, 2001.

10. Peet, R. (1998). *Modern geographical thought*. Blackwell.
11. Cloke, P., Crang, P., & Goodwin, M. (Eds.). (2014). *Introducing human geographies* (3rd ed.). Routledge.
12. Cresswell, T. (2013). *Geographic thought: A critical introduction*. Wiley-Blackwell.
13. Holt-Jensen, A. (2018). *Geography: History and concepts* (6th ed.). Sage.
14. Johnston, R. J., & Sidaway, J. D. (2016). *The dictionary of human geography* (5th ed.). Wiley-Blackwell.
15. Livingstone, D. N. (1992). *The geographical tradition: Episodes in the history of a contested enterprise*. Blackwell.
16. Harvey, D. (1989). *The condition of postmodernity*. Blackwell.
17. Soja, E. W. (1989). *Postmodern geographies: The reassertion of space in critical social theory*. Verso
18. Schaefer, F. K. (1953). Exceptionalism in geography: A methodological examination. *Annals of the Association of American Geographers, 43*(3), 226–249.
19. Agnew, J., Livingstone, D. N., & Rogers, A. (Eds.). (1996). *Human geography: An essential anthology*. Blackwell.
20. James, Preston E., and Geoffrey J. Martin. All Possible Worlds: A History of Geographical Ideas. New York: Wiley, 1981. ISBN 0471061212.
21. Dent, B. D., Torguson, J. S., & Hodler, T. W. (2009). Cartography: Thematic map design (6th ed.). McGraw-Hill.
22. Slocum, T. A., McMaster, R. B., Kessler, F. C., & Howard, H. H. (2022). Thematic cartography and geovisualization (5th ed.). CRC Press.
23. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., & Guptill, S. C. (1995). Elements of cartography (6th ed.). John Wiley & Sons.
24. Kraak, M.-J., & Ormeling, F. (2020). Cartography: Visualization of geospatial data (4th ed.). CRC Press.
25. Snyder, J. P. (1987). Map projections: A working manual. U.S. Geological Survey.
26. Harley, J. B. (2001). The new nature of maps: Essays in the history of cartography. Johns Hopkins University Press.
27. Monmonier, M. (2018). How to lie with maps (3rd ed.). University of Chicago Press.
28. Sarkar, A. (2015). Practical geography: A systematic approach. Orient Black Swan.
29. Singh, R. L., & Singh, R. P. B. (1993). Elements of practical geography. Kalyani Publishers.
30. Tyner, J. A. (2014). Principles of map design. Guilford Press.
31. Negi, M. S., & Sunil (2025) Geographers of Uttarakhand (Pioneers of Himalayan Geography), AKINIK Publication

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 2 Year

Course- DSC Subject - Minor

Programme**: B.A./B.Sc.**	Year: **Second**	Semester: **Four**
Subject: **Geography**		
Course Code: **GEOG/DSC-MN004**	Course Title: **INTRODUCTION TO GEOGRAPHICAL THOUGHT**	

Course Learning Objectives:

1. To introduce to the basic nature of the discipline, its philosophical and methodological development
2. To introduce the basic concepts and landmark development and evolution of different concepts in Geography
3. To introduce the development of subject in India and other places at different periods of time
4. To introduce basic concepts skills in map-making, projections, and thematic mapping techniques.

Course Learning Outcomes:

1. Students will have a comprehensive knowledge of geographic thought and a thorough at different periods of time
2. Students will be familiar with key concepts, debates, and contributions within the field
3. The course will enhance their critical thinking and theoretical analytical skills.
4. The course will enhance their basic understanding regarding elements of map and map making

Credits: 3+1	*DSC-MINOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Definition, nature and scope of Geography; Branches and sub-branches of Geography
UNIT-II	Early development of geographical knowledge: Contributions of Greek, Roman and Arab geographers -Strabo, Ptolemy and Al-Idrisi.
UNIT-III	Development of geographical knowledge in Ancient, Medieval and Modern India; Renaissance, the Age of Discovery and Scientific Revolution; Contributions of Bernhard Varenius and Immanuel Kant.
UNIT-IV	Development of Modern Geography: German School -Alexander von Humboldt, Carl Ritter, Friedrich Ratzel and Alfred Hettner; French School-Paul Vidal de la Blache and Jean Brunhes; British School -Halford J. Mackinder and Peter Haggett; American School -William Morris Davis, Ellen Churchill Semple, Ellsworth Huntington, Richard Hartshorne, Fred K. Schaefer and David Harvey, Geographers of Uttarakhand.
Practical GEOG/DSC-MN004-P (1 Credit)	**Course Title: FUNDAMENTALS OF CARTOGRAPHY** Changing perceptions of Maps of the world, Elements of Maps, Basic Concepts of Map Projection, Bonne's; Cylindrical Equal Area; Mercator's; and Polar Zenithal Equal Area map projection

Suggested Readings:

1. Haggett, P. (2001). Geography: A global synthesis. Prentice Hall.
2. Chorley, R. J., & Haggett, P. (Eds.). (1967). Models in geography. Methuen.
3. Johnston, R. J., & Claval, P. (Eds.). (1984). Geography since the Second World War: An international survey. Croom Helm.
4. Johnston, R. J. (1988). The future of geography. Methuen.
5. Adhikari, S. (2006). Fundamentals of geographical thought. Chaitanya Publishing House.
6. Marcus, D. (1999). Post-structuralism in geography: The diabolical art of spatial science. Edinburgh University Press.
7. Gaile, G. L., & Willmott, C. J. (Eds.). (2003). Geography in America at the dawn of the 21st century. Oxford University Press.
8. Hubbard, P., Kitchin, R., Bartley, B., & Fuller, D. (2002). Thinking geographically: Space, theory and contemporary human geography. Continuum.
9. Hussain, M. (2007). Evolution of geographical thought (5th ed.). Rawat Publications.10. Dixit, R.D.: Geographical Thought: A Contextual History of Geographical Ideas, Prentice Hall of India, New Delhi, 2001.

10. Peet, R. (1998). *Modern geographical thought*. Blackwell.
11. Cloke, P., Crang, P., & Goodwin, M. (Eds.). (2014). *Introducing human geographies* (3rd ed.). Routledge.
12. Cresswell, T. (2013). *Geographic thought: A critical introduction*. Wiley-Blackwell.
13. Holt-Jensen, A. (2018). *Geography: History and concepts* (6th ed.). Sage.
14. Johnston, R. J., & Sidaway, J. D. (2016). *The dictionary of human geography* (5th ed.). Wiley-Blackwell.
15. Livingstone, D. N. (1992). *The geographical tradition: Episodes in the history of a contested enterprise*. Blackwell.
16. Harvey, D. (1989). *The condition of postmodernity*. Blackwell.
17. Soja, E. W. (1989). *Postmodern geographies: The reassertion of space in critical social theory*. Verso
18. Schaefer, F. K. (1953). Exceptionalism in geography: A methodological examination. *Annals of the Association of American Geographers, 43*(3), 226–249.
19. Agnew, J., Livingstone, D. N., & Rogers, A. (Eds.). (1996). *Human geography: An essential anthology*. Blackwell.
20. James, Preston E., and Geoffrey J. Martin. All Possible Worlds: A History of Geographical Ideas. New York: Wiley, 1981. ISBN 0471061212.
21. Dent, B. D., Torguson, J. S., & Hodler, T. W. (2009). Cartography: Thematic map design (6th ed.). McGraw-Hill.
22. Slocum, T. A., McMaster, R. B., Kessler, F. C., & Howard, H. H. (2022). Thematic cartography and geovisualization (5th ed.). CRC Press.
23. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., & Guptill, S. C. (1995). Elements of cartography (6th ed.). John Wiley & Sons.
24. Kraak, M.-J., & Ormeling, F. (2020). Cartography: Visualization of geospatial data (4th ed.). CRC Press.
25. Snyder, J. P. (1987). Map projections: A working manual. U.S. Geological Survey.
26. Harley, J. B. (2001). The new nature of maps: Essays in the history of cartography. Johns Hopkins University Press.
27. Monmonier, M. (2018). How to lie with maps (3rd ed.). University of Chicago Press.
28. Sarkar, A. (2015). Practical geography: A systematic approach. Orient Black Swan.
29. Singh, R. L., & Singh, R. P. B. (1993). Elements of practical geography, Kalyani Publishers.
30. Tyner, J. A. (2014). Principles of map design. Guilford Press.
31. Negi, M. S., & Sunil (2025) Geographers of Uttarakhand (Pioneers of Himalayan Geography), AKINIK Publication.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 2 Year

Course- SEC (Major)

Programme**: B.A./B.Sc.**	Year: **Second**	Semester: **Four**
Subject: **Geography**		
Course Code: **GEOG/SEC004 (P)**	Course Title: **Geographical Fieldwork, Mapping, and Digital Techniques**	

Course Learning Objective:

1. Develop basic skills in geographical fieldwork and field data collection.
2. Apply cartographic, mapping, and GIS techniques for geographical representation.
3. Use statistical methods and spreadsheet tools to analyze geographical data.

Course Learning Outcomes (CLOs):

1. Explain the basic concepts and importance of geographical fieldwork.
2. Conduct geographical field surveys using appropriate methods and field instruments.
3. Prepare and interpret maps using basic cartographic and GIS techniques.
4. Analyze geographical data using descriptive statistics and spreadsheet tools.

Credits: 3	*SEC-MAJOR*
Max. Marks: ***30+70***	*Min. Passing Marks:* ***35***

Total No. of Lectures- Tutorials - Practical (in hours per week): ***L-T-3/W***

Unit	**Course Contents**
UNIT-I	Fundamentals of Geographical Fieldwork: aims, scope, planning, organization, ethics and safety. Field Survey and Data Collection: sampling, questionnaires, interviews, observation, and primary/secondary data. *Practical Fieldwork:* mobile-based surveys, data recording, and field exercises.
UNIT-II	Field Documentation and Mapping (traditional and digital): field diary/notebook, sketching, participatory mapping, photography, GPS and geotagging. Geographical Data Analysis and Presentation: statistics, tabulation, graphs, charts, and spreadsheet applications. *Map and Data Interpretation:* interpretation of maps, statistical outputs, and practical exercises.
UNIT-III	Digital Mapping and Participatory Tools: SketchMap Tool, ChatMap, OpenStreetMap, CrowdWater. Geospatial Technologies: AI-assisted documentation, integration of GPS, GIS, remote sensing, and GeoAI. Citizen Science, Data Quality and Ethics: validation, ethical use of digital technologies.

Suggested Readings

1. France, D. & Haigh, M. (2018). Fieldwork@40: Fieldwork in Geography Higher Education. Journal of Geography in Higher Education, 42(4), 498–514.
2. Fuller, I., Edmondson, S., France, D., Higgitt, D. & Ratinen, I. (2006). International Perspectives on the Effectiveness of Geography Fieldwork for Learning. Journal of Geography in Higher Education, 30(1), 89–101.
3. Hope, M. (2009). The Importance of Direct Experience: A Philosophical Defence of Fieldwork in Human Geography. Journal of Geography in Higher Education, 33(2), 169–182.
4. Casinader, N. & Kidman, G. (2018). Fieldwork, Sustainability, and Environmental Education: The Centrality of Geographical Inquiry. Australian Journal of Environmental Education, 34(1), 1–17.
5. Dunphy, A. & Spellman, G. (2009). Geography Fieldwork, Fieldwork Value and Learning Styles. International Research in Geographical and Environmental Education, 18(1), 19–28.
6. Wilson, H., Leydon, J. & Wincentak, J. (2017). Fieldwork in Geography Education: Defining or Declining? Journal of Geography in Higher Education, 41(1), 94–105.
7. Wall, G.P. & Speake, J. (2012). European Geography Higher Education Fieldwork and the Skills Agenda. Journal of Geography in Higher Education, 36(3), 421–435.
8. Fuller, I., Rawlinson, S. & Bevan, R. (2000). Evaluation of Student Learning Experiences in Physical Geography Fieldwork: Paddling or Pedagogy? Journal of Geography in Higher Education, 24(2), 199–215.
9. Bos, D., Miller, S. & Bull, E. (2022). Using Virtual Reality (VR) for Teaching and Learning in Geography: Fieldwork, Analytical Skills, and Employability. Journal of Geography in Higher Education, 46(3), 479–488.
10. Larsen, T., Tabor, L. & Smith, P. (2020). End of the Field? Hacking Online and Hybrid Environments for Field-Based Learning in Geography Education. Journal of Geography, 120(1), 3–11.

11. Zhao, J., LaFemina, P., Carr, J., Sajjadi, P., Wallgrün, J.O. & Klippel, A. (2020). Learning in the Field: Comparison of Desktop, Immersive Virtual Reality, and Actual Field Trips for Place-Based STEM Education. IEEE Conference on Virtual Reality and 3D User Interfaces, 893–902.
12. Gerber, R. & Chuan, G.K. (2000). Fieldwork in Geography: Reflections, Perspectives and Actions. Springer.
13. Komoto, C. (2009). Moving Toward a Signature Pedagogy in Geography: A Close Reading of the Landscape. In Exploring Signature Pedagogies. Routledge.
14. Glass, M.R. (2015). International Geography Field Courses: Practices and Challenges. Journal of Geography in Higher Education, 39(4), 485–490.
15. Behling, K.T. & Tobin, T.J. (2018). Reach Everyone, Teach Everyone: Universal Design for Learning in Higher Education. West Virginia University Press.
16. Singh, R.L. & Singh, Rana P.B. (2008). Elements of Practical Geography. Kalyani Publishers.
17. Keates, J.S. (2008). Cartographic Design and Production. Longman.
18. Robinson, A.H. & Morrison, J.L. (1995). Elements of Cartography. John Wiley & Sons.
19. Peterson, M.P. (1995). Interactive and Animated Cartography. Prentice Hall.
20. Lillesand, T., Kiefer, R.W. & Chipman, J. (2015). Remote Sensing and Image Interpretation. 7th ed. John Wiley & Sons.
21. George, J. (2005). Fundamentals of Remote Sensing. 2nd ed. University Press.
22. Sabins, F.F. (1986). Remote Sensing: Principles and Interpretation. 2nd ed. W.H. Freeman.
23. Kothari, C.R. (2008). Research Methodology: Methods and Techniques. New Age International.
24. Das, N.G. (2017). Statistical Methods. Combined Edition, Volumes 1 & 2. McGraw Hill.
25. Mahmood Aslam (2008). Statistical Methods in Geographical Studies. Rajesh Publications.
26. National Geographic Education. Field Work.
27. GeographyFieldwork.com. Data Presentation.
28. Geography.org.uk. Fieldwork and Technology.
29. Physical Geography 2023. Practical Physical Geography Learning Resources.

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

Mark's distribution of theory examination: **30 marks** by **internal** assessment and **70 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 2 Year

Course- M.D/I.D (M)

Programme**: B.A./B.Sc.**	Year: **Second**	Semester: **Four**
Subject: **Geography**		
Course Code: **GEOG/MD/ID-004**	Course Title: **GEOGRAPHY OF WORLD (HUMAN)**	

Course Learning Objectives:

1. To understand the concepts, approaches, and scope of Human Geography.
2. To examine global patterns of population, culture, migration, and economic activities.
3. To develop skills in analysing human development and interpreting thematic maps.

Course Learning Outcomes:

1. Explain the fundamental concepts and approaches of Human Geography.
2. Analyse the distribution of population, culture, economic activities, and human development.
3. Prepare and interpret thematic maps and evaluate HDI and SDG indicators.

Credits: 3+1	*MD/ID-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning, Nature, Approaches and Scope of human world geography; Concepts, Bases and Characteristics of Developed and Developing Countries.
UNIT-II	Factors influencing Population Distribution and Density; Demographic Transition Theory; Distribution and Characteristics of Race; Migration Pattern
UNIT-III	Primary, Secondary, Tertiary and Quaternary Economic Activities; Types and Distribution of Agriculture and Industrial Regions; Human Development Index.
Practical GEOG/MD/ID004-P (1 Credit)	**Course Title: Statistical Data and Analysis** Classification of statistical data and tabulation; Introduction to Data Analysis Software- MS Office, spreadsheets and JASP for geographical data analysis.

Suggested Readings:

1. Daniels, P., Bradshaw, M., Shaw, D., Sidaway, J., & Hall, T. (2022). *An introduction to human geography* (6th ed.). Pearson.
2. Fouberg, E. H., Murphy, A. B., & de Blij, H. J. (2023). *Human geography: People, place, and culture* (13th ed.). Wiley.
3. Johnston, R., Gregory, D., Pratt, G., Watts, M., & Whatmore, S. (Eds.). (2009). *The dictionary of human geography* (5th ed.). Wiley-Blackwell.
4. Knox, P. L., & Marston, S. A. (2022). *Human geography: Places and regions in global context* (9th ed.). Pearson.
5. Intergovernmental Panel on Climate Change. (2023). *Climate change 2023: Synthesis report*. IPCC. https://www.ipcc.ch/report/ar6/syr/
6. Rubenstein, J. M. (2021). *The cultural landscape: An introduction to human geography* (14th ed.). Pearson.
7. Singh, G. (2021). *Map work and practical geography*. Vikas Publishing House.
8. United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. United Nations. https://sdgs.un.org/2030agenda
9. United Nations. (2024). *The Sustainable Development Goals report 2024*. United Nations. https://unstats.un.org/sdgs/report/
10. United Nations Development Programme. (2024). *Human development report 2023/2024: Breaking the gridlock—Reimagining cooperation in a polarized world*. UNDP. https://hdr.undp.org

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Five**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ005**	Course Title: **ECONOMIC GEOGRAPHY**	

Course Learning Objectives:

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

Course Learning Outcomes:

1. Distinguish to different types of economic activities and their utilities.
2. Appreciate the factors responsible for the location and distribution of activities.
3. Examine the significance and relevance of theories in relation to the location of different economic activities

Credits: 4+2	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning, approaches and fundamental concepts of Economic Geography; Patterns and Indicators of Economic Development and Regional Disparities.
UNIT-II	Theories of economic Location; Agriculture -Von Thunen and Industrial-Weber.
UNIT-III	Primary Activities - Intensive subsistence farming, Secondary Activities-Cotton textile Industry, Tertiary and Quaternary Activities-Information and Communication Technology Industry.
UNIT-IV	World transportation: major trans-continental railways and sea routes; WTO and International trade: patterns and trends; Major trade blocs: EEC, ASEAN; Effect of globalization on developing countries.

Practical GEOG/DSC-MJ005-P (2 Credit)

Course Title: REPRESENTATION OF DATA AND MEASEURMENT

UNIT-I	Statistical Diagrams- Compound and Multiple Bar Diagram; Ring or Circle diagram
UNIT-II	Measures of Central Tendency- Mean, Median and Mode. Measures of dispersion- Quartile, Mean deviation, Standard Deviation and Coefficient of Variation.

Suggested Readings:

1. Alexander, J. W. (1988): Economic Geography. Prentice-Hall, New Delhi,.
2. Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
3. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
4. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
5. Durand L., 1961: Economic Geography, Crowell.
6. Hodder B. W. and Lee R., 1974: Economic Geography, Taylor and Francis.
7. Wheeler J. O., 1998: Economic Geography, Wiley.
8. Willington D. E., 2008: Economic Geography, Husband Press.
9. Bryson, J., Henry, N., Keeble, D. and Martin, R. (eds.) (1999): The Economic Geography Reader: Producing and Consuming Global Capitalism. John Wiley and Sons, Inc, New York.
10. Clark,G. L., Gertler, M. S. and Feldman, M. P. (eds.) (2000): The Oxford Handbook of Economic Geography. Oxford University Press, USA.
11. Coe, N. (2007): Economic Geography: A Contemporary Introduction. Blackwell Publishers, Inc., Massachusetts.
12. Gautam, A. (2006): *Aarthik Bhugol Ke Mool Tattava,* Sharda Pustak Bhawan, Allahabad.
13. Guha, J. S. and Chattoraj, P.R. (2002): A New Approach to Economic Geography: A Study of Resources. The World Press Private Limited, Kolkata.

14. Hanink, D. M. (1997): Principles and Applications of Economic Geography: Economy, Policy, Environment. John Wiley and Sons, Inc, New York.
15. Hartshorne, T. A. and Alexander, J. W. (1988): Economic Geography (3rd revised edition) Englewood Cliff , New Jersey, Prentice Hall
16. Hudson, R. (2005): Economic Geographies: Circuits, Flows and Spaces. Sage Publications, London.
17. Knowles, R, Wareing, J. (2000): Economic and Social Geography Made Simple, Rupa and Company, New Delhi.
18. Sokal, Martin 2011. Economic Geographics of Globalisation: A short Introduction. Cheltenham, UK : Edward Elgar

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Five**

Subject: **Geography**

Course Code: **GEOG/DSC-MJ006**	Course Title: **CLIMATOLOGY & OCEANOGRAPHY**

Course Learning Objectives:

1. To understand the fundamental principles of atmospheric and oceanic sciences.
2. To analyse climatic processes and their global/regional impacts.
3. To study ocean dynamics and their role in shaping climate and human activities.
4. To develop applied skills in weather data interpretation, climate classification, and oceanographic mapping.

Course Learning Outcomes:

1. Students will be able to explain atmospheric circulation, climatic variability, and ocean currents.
2. Students will gain knowledge of global climate systems and ocean processes influencing weather and ecosystems.
3. Students will acquire practical skills in interpreting meteorological data, weather maps, and oceanographic charts.

Credits: 4+2	*DSC-MAJOR*
Max. Marks: ***30+70***	*Min. Passing Marks:* ***35***

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

Unit	**Course Contents**
UNIT-I	Nature and scope of climatology; Composition and structure of atmosphere; Insolation and Earth's heat balance; Temperature distribution and inversion; Pressure belts, Wind system.
UNIT-II	Pressure belts and winds; Wind-driven ocean currents; Jet streams; Monsoons and Indian Ocean circulation; Air masses and fronts; Cyclones-tropical & temperate.
UNIT-III	Origin and structure of oceans; Ocean floor relief; Waves, tides, and currents; Thermohaline circulation; Oceanic temperature and salinity distribution; Air-sea interaction
UNIT-IV	Coral reefs and marine resources; Role of oceans in climate regulation; ENSO: El Niño, La Niña & El Niño Modoki; Indian Ocean Dipole; Ocean acidification, and AMOC.

Practical GEOG/DSC-MJ006-P (2 Credit)

Course Title: WEATHER MAP AND INSTRUMENTS

UNIT-I	Use and handling of meteorological instruments and interpretation of Indian Daily Weather Reports
UNIT-II	Preparation of climatic graphs -temperature-rainfall, wind rose diagrams. Mapping of ocean currents and tides; Case study on ENSO impacts.

Suggested Readings:

1. Barry, R. G., & Chorley, R. J. (2009). *Atmosphere, Weather and Climate*. Routledge.
2. Critchfield, H. J. (1983). *General Climatology*. Prentice-Hall of India, New Delhi.
3. Trewartha, G. T., & Horn, L. H. (1980). *An Introduction to Climate*. International Student Edition.
4. Lal, D. S. *Climatology and Oceanography (English Medium)*. Sharda Pustak Bhawan, Allahabad.
5. Garrison, T. (2014). *Essentials of Oceanography*. Cengage Learning.
6. Sharma, R. C., & Vatal, M. (1999). *Oceanography for Geographers*. Chaitanya Publishing House, Allahabad.
7. Lal, D. S. (2024 edn.). *जलवायु एवं समुद्र विज्ञान (Jalavayu Evam Samudra Vigyaan)*. Sharda Pustak Bhawan, Allahabad.
8. Lal, D. S. (Hindi edn.). *जलवायु विज्ञान (Jalvayu Vigyan)*. Sharda/Prayag Pustak Bhawan, Allahabad.
9. Lal, D. S. (Hindi edn.). *समुद्र विज्ञान (Samudra Vigyan) [Oceanography – Hindi]*. Sharda Pustak Bhawan, Allahabad.
10. Singh, Savindra. *जलवायु विज्ञान (Jalvayu Vigyan)*. Prayag Pustak Bhawan, Allahabad.
11. Singh, Savindra. *समुद्र विज्ञान (Samudra Vigyan)*. Prayag Pustak Bhawan, Allahabad.
12. Banerjee, R. C., & Upadhyaya, D. S. (1978). *मौसम विज्ञान (Mausam Vigyan)*. Rajasthan Hindi Granth Academy, Jaipur.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- DSE Subject -Major

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Five**
Subject: **Geography**		
Course Code: **GEOG/DSE-MJ005**	Course Title: **GEOGRAPHY OF TOURISM**	

Course Learning Objectives:

1. To introduce students to the basic concepts, scope and importance of Tourism Geography.
2. To familiarize students with the major types of tourism and tourism resources in India with special reference to Uttarakhand.
3. To understand the economic, social and environmental significance of tourism and its role in regional development.

Course Learning Outcomes:

1. Explain the concept, scope and significance of Tourism Geography.
2. Identify different forms of tourism and major tourist destinations in India, particularly Uttarakhand.
3. Assess the contribution of tourism to regional development and recognize the need for sustainable tourism.

Credits: 4	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning, nature, scope and significance of Tourism Geography. Types of Tourism and its contribution in economic development.
UNIT-II	Pilgrimage tourism: concept, characteristics and significance. Eco-tourism: concept, principles, and geographical significance. Emerging trends in cultural, religious, and nature-based tourism, Major tourist attractions of Uttarakhand.
UNIT-III	Tourism infrastructure: transport, accommodation and other support facilities, Role of transport and accessibility in tourism development, Tourism development in the Himalayan region: opportunities and challenges
UNIT-IV	Environmental impacts of tourism: resource degradation and ecological pressure, Concept, and approaches of sustainable tourism, Sustainable tourism practices in mountain, Problems, challenges and prospects of tourism development in Uttarakhand, Strategies for sustainable and responsible tourism development in Uttarakhand.

Suggested Readings:

1. Bhatia, A. K. *Tourism Development: Principles and Practices.*
2. Bharadwaj, D. S. & Chaudhary, M. *Contemporary Issues in Tourism.*
3. Bhatt, Rajesh & Kumar, L. *Uttarakhand Tourism Geography.*
4. Kaul, R. N. *Dynamics of Tourism and Recreation.*
5. Negi, J. M. S. *Himalayan Tourism.*

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- SEC (Major)

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Five**
Subject: **Geography**		
Course Code: **GEOG/SEC005 (P)**	Course Title: **FIELD VISIT, SURVEY METHODS AND REPORT WRITING**	

Course Learning Objectives:

1. Understand and apply survey methods for primary and secondary data collection
2. Develop practical skills in field observation, sampling, and data collection
3. Develop communication, teamwork, and report-writing skills.

Course Learning Outcomes:

1. Demonstrate knowledge of geographical fieldwork and survey ethics.
2. Prepare and present field data using maps, tables, graphs, and reports.
3. Prepare a scientific field report with data analysis and interpretation

Credits: 4	*SEC-MAJOR*
Max. Marks: ***30+70***	*Min. Passing Marks:* ***35***

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

Unit	**Course Contents**
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 (anyone).
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, and Word's References tool- Zotero, Mendeley, Citavi (anyone).

Field Work/ Tour Report

Each student shall prepare an individual fieldwork report based on the primary and secondary data collected during the field study. The duration of the fieldwork shall not exceed 10 days. The report should contain approximately 5,000 words, excluding figures, tables, photographs, maps, references, and appendices. One soft-bound copy of the report (A4-size paper) shall be submitted to the department.

Suggested Readings:

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.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- Minor

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Five**
Subject: **Geography**		
Course Code: **GEOG/MN005 (P)**	Course Title: **FIELD VISIT: PHYSICAL AND SOCIO-ECONOMIC SURVEY (VILLAGE/TOWN) & REPORT WRITING**	

Course Learning Objectives:

1. Understand the socio-economic profile of village and spatial organization through field-based learning.
2. Develop practical skills in conducting household surveys using structured questionnaire, interview and techniques.
3. Collect, analyse, interpret and present primary socio-economic data using statistical and cartographic methods.
4. Prepare a scientific field report and suggest appropriate measures for sustainable rural development.

Course Learning Outcomes:

1. Demonstrate the ability to conduct socio-economic field surveys using appropriate research methodology.
2. Collect, classify, analyse, and interpret primary data related to demographic, social, and economic characteristics of a village.
3. Prepare thematic maps, tables, graphs, and statistical summaries for socio-economic analysis.
4. Develop a comprehensive field report with evidence-based findings and recommendations for rural planning

Credits: 4	*DSC-MINOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning and significance of physical and socio-economic field surveys, Planning and preparation for field survey, Field survey Techniques: Sampling, Selection of Study Area.
UNIT-II	Methods of primary data collection: Observation, Interview, Household Survey and Focus Group Discussion, Preparation of questionnaire or Interview schedule.
UNIT-III	Socio-Economic Survey of Village/Town-Physical setting and Demographic profile, Social characteristics, Economic activities, Rural/Urban infrastructure and public amenities, Government development programmes and their implementation.
UNIT-IV	Data Analysis and Preparation of thematic maps, digital cartographical mapping, SWOT analysis of village/Town, Field-based Report Writing.

Field Work/ Tour Report

Each student shall prepare an individual fieldwork report based on the primary and secondary data collected during the field study. The duration of the fieldwork shall not exceed 10 days. The report should contain approximately 5,000 words, excluding figures, tables, photographs, maps, references, and appendices. One soft-bound copy of the report (A4-size paper) shall be submitted to the department.

Suggested Readings:

1. Archer, J.E. and Dalton, T.H. (1968): Field Work in Geography. William Clowes and Sons Ltd. London and Beccles.
2. Bolton, T. and Newbury, P.A. (1968): Geography through Fieldwork. Blandford Press, London.
3. Jones, P. A. (1968): Field Work in Geography. Longmans, Green and Company Ltd., London and Harlow.
4. Lousenbury, J. F. and Aldrich, F.T. (1986): Introduction to Geographic Field Methods and Techniques. Charles E. Merrill Publishing. Company, Colombus.
5. Pugh, J.C. (1975): Surveying for Field Scientists. Methuen and Company Ltd. London.
6. Knight, Peter G. and Parsons, Tony (2003): How to do your Essays Exams & Coursework in Geography and Related Disciplines. Nelson Thornes, Cheltenham U.K.
9. Kitchen, Rob and Fuller, Duncan (2005): The Academic's Guide to Publishing. Vistaar Publs. (Sage), New Delhi.
10. Hay, Iain (ed.) (2005): Qualitative Research Methods in Human Geography. Oxford University Press, Melbourne. 2nd Ed.
12. Stoddard, Robert H. (1982): Field Techniques and Research Methods in Geography. Kendall/Hunt Pub. Dubuque IO.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Six**

Subject: **Geography**

Course Code: **GEOG/DSC-MJ007**	Course Title: **ENVIRONMENTAL GEOGRAPHY**

Course Learning Objectives:

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

Course Learning Outcomes:

1. Detailed exposure of the Man-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.

Credits: 4+2	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning, Definition, Approaches and Scope of Environmental Geography, Components of Environment; Concept, Components and Functions of Ecosystem.
UNIT-II	Man-Environment Relationship; Bio-geochemical Cycles: Hydrological Cycle, Carbon Cycle.
UNIT-III	Environmental Problems and Management: Air Pollution, Water Pollution, Solid Waste and Biodiversity Loss.
UNIT-IV	Global and National Environmental Programs and Policies, National Parks of India, Wildlife Sanctuaries, and Biosphere Reserves in Uttarakhand.

Practical GEOG/DSC-MJ007-P (2 Credit)

Course Title: FIELD SURVEYING TECHNIQUES

UNIT-I	Geological Map Interpretation and Structure- Identification of rock outcrops, bedding planes, dip, thickness, and interpretation of simple and folded geological structures.
UNIT-II	Use and handling of Indian Clinometers.

Suggested Readings:

1. Casper J.K. (2010) Changing Ecosystems: Effects of Global Warming. InfoBase Pub. New York.
2. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
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.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- DSC -Major

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Six**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ008**	Course Title: **POPULATION AND SETTLEMENT GEOGRAPHY**	

Course Learning Objectives:

1. Understand the basic concepts, nature, scope, and significance of Population Geography
2. Analyse population dynamics, population growth theories, fertility, mortality and migration
3. Examine the origin, types, patterns, morphology, hierarchy, and spatial characteristics of rural and urban settlements.

Course Learning Outcomes:

1. Explain and interpret population distribution, population dynamics, and major theories of population growth and migration.
2. Analyse rural settlements in terms of site, situation, morphology, and hierarchy, with special reference to India.
3. Evaluate the growth, classification, morphology of urban Settlement.

Credits: 4+2	*DSC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Nature and scope of Population Geography; relationship between Population Geography and other social sciences. Sources of Population Data: Census, Vital Statistics and National Sample Survey. Population-Resource Relationship; Optimum, Over Population, Under Population, their problem and prospects.
UNIT-II	Population Dynamics: Fertility, Mortality and Migration. Theories of Population Growth: Malthusian theory and Demographic Transition theory. Migration: types, determinant and consequences. Theories of Migration: Ravenstein and Lee's Laws.
UNIT-III	Site and situation; Types and patterns of rural settlements; Rural house types in India by geographical regions. Morphology of and Hierarchy of rural settlements
UNIT-IV	Origin and growth of urban settlements; Classification of urban settlements-Harris and Nelson. Concepts of Metropolis, Megalopolis, Conurbation, Primacy; Morphology of cities.

Practical GEOG/DSC-MJ008-P (2 Credit)

	Course Title: GEOLOGICAL MAPPING AND GPS-BASED FIELD TECHNIQUES
UNIT-I	Plane Table Survey- Radiation and Intersection Methods. Prismatic Compass Survey- Open and closed traverse.
UNIT-II	GPS and Mobile-Based Field Mapping- Use and management of handheld GPS units and mobile GPS applications of Google Maps, GPS Essentials and QField for field data collection and mapping.

Suggested Readings:

1. Bhende, A.S. and Kanitkar, T. (2015) Principles of Population Studies. Mumbai: Himalaya Publishing House.
2. Tiwari, R.C. (2020) Settlement Geography – Rural and Urban Settlement. Allahabad: Pravalika Publications.
3. Chandana, R.C. (2021) Geography of Population – Concept, Determinants and World Pattern. New Delhi: Kalyani
4. Beaujeu- Garnier, J. (1966) Geography of Population. London: Longman.
5. Clarke, J.I. (1972): Population Geography, Pergamon Press, Oxford.
6. Roy, D. (2015) Population Geography. Kolkata: Books & Allied (P) Ltd.
7. Ghosh, S. (1998) Settlement Geography. Kolkata: Orient Longman Ltd.
8. Mandal, R.B. (2001) Introduction to Rural Settlements. New Delhi: Concept Publishing Company.
9. Ramachandran, R. (2010) Urbanisation and Urban Systems of India. New Delhi: Oxford University Press.
10. Singh, R.Y. (1994) Geography of Settlement. Jaipur: Rawat Publications, Jaipur.
11. Denis, E., Zérah, M. H., & Mukhopadhyay, P. (2017) Subaltern urbanisation in India. Switzerland: Springer.
12. Brenner, N. (Ed.). (2021) Implosions/explosions: Towards a study of planetary urbanization. De Gruyter.
13. Maurya, S.D. (2018) Population Geography. Allahabad: Pravalika Publications.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- DSE Subject -Major

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Six**
Subject: **Geography**		
Course Code: **GEOG/DSE-MJ006**	Course Title: **AGRICULTURAL GEOGRAPHY**	

Course Learning Objectives:

1. To understand the nature, scope, concepts, and contemporary trends of Agricultural Geography.
2. To examine the processes of agricultural development, productivity, diversification, specialization, and agricultural transformations.
3. To analyse agricultural models, theories, regionalization approaches, and emerging technologies in agricultural geography.
4. To evaluate the characteristics, challenges, and future prospects of agriculture in Uttarakhand with reference to mountain environments and climate change.

Course Learning Outcomes:

1. Explain the concepts, scope, evolution, and recent developments in Agricultural Geography.
2. Analyse the determinants of agricultural development and assess patterns of productivity, crop diversification, specialization, and agricultural intensity.
3. Apply agricultural models, theories, and regionalization techniques to understand spatial patterns of agricultural systems.
4. Evaluate the challenges, policies, and future opportunities of Uttarakhand agriculture in the context of sustainability, climate change, and mountain development.

Credits: 4	*DSE-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Agricultural Geography: Nature, Scope, and Origin; Dispersal & Diffusion of Agriculture; Agricultural Innovations & Sustainable Agricultures
UNIT-II	Determinants of Agriculture; Agricultural Growth and Development: Productivity, Crop Diversification, Specialization; First, Second & Doubly Green Revolution; Crop Combination; Cropping Intensity.
UNIT-III	Von Thünen's Model; Agricultural Regionalization: Whittlessey's Agricultural Regions; Kostrowicki's Typology; Agro-climatic Regions of India; Precision Agriculture; Food Security.
UNIT-IV	Mountain Agriculture: Types, significance & major challenges; Climate Change and Agriculture: Organic Farming; Recent Agricultural Policies in Uttarakhand; Future Agricultural prospects

Suggested Readings:

1. Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India. (Various years). *Agricultural statistics at a glance*. Government of India.
2. Food and Agriculture Organization of the United Nations. (Various years). *The state of food and agriculture*. FAO.
3. Grigg, D. (1995). *An introduction to agricultural geography* (2nd ed.). Routledge.
4. Hussain, M. (1996). *Systematic agricultural geography*. Rawat Publications.
5. Indian Council of Agricultural Research. (2016). *Handbook of agriculture* (6th ed.). Indian Council of Agricultural Research.
6. Morgan, W. B., & Munton, R. J. C. (1971). *Agricultural geography*. Methuen.
7. Rahaman, H. (2021). *Diversified cropping pattern and agricultural development: A case study from Malda district, India*. Springer Nature.
8. Sharma, P. D. (2007). *Agricultural geography*. Sharda Pustak Bhawan.
9. Singh, J., & Dhillon, S. S. (2004). *Agricultural geography* (3rd ed.). Tata McGraw-Hill Education.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- SEC (Major)

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: **Six**
Subject: **Geography**		
Course Code: **GEOG/SEC006**	Course Title: **FUNDAMENTALS OF REMOTE SENSING**	

Course Learning Objectives:

1. Understand the basic principles and concepts of remote sensing
2. Develop skills in image interpretation and analysis
3. Understand the practical applications of remote sensing.

Course Learning Outcomes:

3. Students will understand the concept and function of remote sensing
4. Interpret remotely sensed images using visual interpretation techniques
5. Apply remote sensing in geographical studies

Credits: 4	*SEC-MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
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, Dissymmetric mapping.
UNIT-IV	Introduction to GIS: Definition, concept and history of GIS. Computer fundamentals for GIS; GIS packages such as ArcGIS, ERDAS, QGIS, etc. Coordinate system, Datum, Raster and vector data. Hands one excursive on the software's handling.

Suggested Readings:

1. Chauniyal, 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. 4thedition. John Wiley and Sons, New York.
3. Campbell, J.B. (2002): Introduction to Remote Sensing. 5th edition, Taylor & 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:

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

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any 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.) 3 Year

Course- Minor

Programme**: B.A./B.Sc.**	Year: **Third**	Semester: Six
Subject: **Geography**		
Course Code: **GEOG/MN006**	Course Title: **POPULATION AND SETTLEMENT GEOGRAPHY**	

Course Learning Objectives:

1. Understand the basic concepts, nature, scope, and significance of Population Geography
2. Analyse population dynamics, population growth theories, fertility, mortality and migration
3. Examine the origin, types, patterns, morphology, hierarchy, and spatial characteristics of rural and urban settlements.

Course Learning Outcomes:

1. Explain and interpret population distribution, population dynamics, and major theories of population growth and migration.
2. Analyse rural settlements in terms of site, situation, morphology, and hierarchy, with special reference to India.
3. Evaluate the growth, classification, morphology of urban Settlement.

Credits: 4	*DSC-MINOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Nature and scope of Population Geography; relationship between Population Geography and other social sciences. Sources of Population Data: Census, Vital Statistics and National Sample Survey. Population-Resource Relationship; Optimum, Over Population, Under Population, their problem and prospects.
UNIT-II	Population Dynamics: Fertility, Mortality and Migration. Theories of Population Growth: Malthusian theory and Demographic Transition theory. Migration: types, determinant and consequences. Theories of Migration: Ravenstein and Lee's Laws.
UNIT-III	Site and situation; Types and patterns of rural settlements; Rural house types in India by geographical regions. Morphology and of rural settlements. Hierarchy of rural settlements.
UNIT-IV	Origin and growth of urban settlements; Classification of urban settlements-Harris and Nelson. Concepts of Metropolis, Megalopolis, Conurbation, Primacy; Morphology of cities.

Suggested Readings:

1. Bhende, A.S. and Kanitkar, T. (2015) Principles of Population Studies. Mumbai: Himalaya Publishing House.
2. Tiwari, R.C. (2020) Settlement Geography – Rural and Urban Settlement. Allahabad: Pravalika Publications.
3. Chandana, R.C. (2021) Geography of Population – Concept, Determinants and World Pattern. New Delhi: Kalyani
4. Beaujeu- Garnier, J. (1966) Geography of Population. London: Longman.
5. Clarke, J.I. (1972): Population Geography, Pergamon Press, Oxford.
6. Roy, D. (2015) Population Geography. Kolkata: Books & Allied (P) Ltd.
7. Ghosh, S. (1998) Settlement Geography. Kolkata: Orient Longman Ltd.
8. Mandal, R.B. (2001) Introduction to Rural Settlements. New Delhi: Concept Publishing Company.
9. Ramachandran, R. (2010) Urbanisation and Urban Systems of India. New Delhi: Oxford University Press.
10. Singh, R.Y. (1994) Geography of Settlement. Jaipur: Rawat Publications, Jaipur.
11. Denis, E., Zérah, M. H., & Mukhopadhyay, P. (2017) Subaltern urbanisation in India. Switzerland: Springer.
12. Brenner, N. (Ed.). (2021) Implosions/explosions: Towards a study of planetary urbanization. De Gruyter.
13. Publishers.
14. Hassan, M. I. (2007) Population Geography. Jaipur: Rawat Publications.
15. Maurya, S.D. (2018) Population Geography. Allahabad: Pravalika Publications.

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

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

Fourth Year- (U.G. with Honours)

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year ***Course- DSC Subject -Major***		
Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ008**	Course Title: **GEOMORPHOLOGY**	

Course Learning Objectives:

1. Understand the concepts, theories, and processes of geomorphology and landscape evolution.
2. Explain endogenic and exogenic processes in shaping Earth's surface.
3. An understanding of the linkages between landscape form and processes.
4. Understanding of the conceptual and dynamic aspects of landform development.

Course Learning Outcomes:

1. Discuss and apply the fundamental concepts and theories of geomorphology.
2. Explain the origin and evolution of major landforms using classical and contemporary geomorphic theories.
3. Analyse the basic principles and forces for development of landforms through time.
4. Familiarity and experience applying fundamental concepts in physical systems.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Fundamental concepts of Geomorphology; Methods and Approaches of landforms study; Theories of landscape development by Gilbert, Davis, Penck and Hack and morphogenetic region.
UNIT-II	Plate tectonics; Mountain building; Isostasy; Tectonic Geomorphology; Theories of slope development by Young and King; Peneplain and pediplains; Geological structure and rocks.
UNIT-III	Denudation process, Mass movement, Geomorphic process-River, Glacier, Wind, underground water and resultant landforms; Morphometry of drainage basin; Profile of equilibrium rejuvenation and polycyclic landscape. (With special reference to Uttarakhand Himalaya)
UNIT-IV	Applied Geomorphology engineering works; Anthropogenic process and landscape planning; Regional Geomorphology of Uttarakhand.

Suggested Readings:

1. Allison, R. J. (Ed.). (2002). *Applied geomorphology: Theory and practice*. John Wiley & Sons Ltd., Chichester. U.K.
2. Anderson, R. S., & Anderson, S. P. (2010). *Geomorphology: The mechanics and chemistry of landscapes*. Cambridge University Press. Cambridge.
3. Bierman, P. R., & Montgomery, D. R. (2014). *Key concepts in geomorphology*. W. H. Freeman and Company Publishers. New York.
4. Bloom A. L., (2003). Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India. New Delhi.
5. Bridges, E. M. (1990). World geomorphology. Cambridge University Press. Cambridge. U.K.
6. Chorley, R. J. (1972). Spatial Analysis in Geomorphology. Methuen London.
7. Christopherson, R. W. (2011), Geosystems: An Introduction to Physical Geography, 8 Ed.,Macmillan Publishing Company.
8. Condie, K.C. (2003). Plate Tectonic and Crustal Evolution, Butterworth-Heinemann, Oxford, Burlington.
9. Dayal, P. (2015). Text-Book of Geomorphology, Shukla Book Depot, Patna.
10. Dury, G.H. (Ed.). (1966). Essays in Geomorphology. Heinmann Educational Books Ltd., London.
11. Fairbridge, R.W. (Ed.) (1968). Encyclopedia of Geomorphology. Rein-hold Book Corp., New York.
12. Gabler R.E, Peterson. J.F., Trapasso, L.M., Sack, D. (2009). Physical Geography, Brooks/Cole, Cengage Learning, Belmont, USA.
13. Garner, H.F. (1974). The Origin of Landscape: A Synthesis of Geomorphology. Oxford Univ. Press, New York.
14. Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut.
15. Gautam, A. (2015). Geomorphology. Sharda Pustak Bhawan. Allahabad.
16. Goudie, A. (Ed.). (2003). Encyclopedia of Geomorphology, Routledge, London.
17. Goudie, A. (Ed.). (2005). Geomorphological Techniques (2nd Edition), Routledge, London.

18. Gregory, K. J., & Goudie, A. S. (Eds.). (2011). *The SAGE handbook of geomorphology*. SAGE Publications.
19. Hails, J.R. (1977). Applied Geomorphology. Elsevier.
20. Harvey, A. (2012). Introducing geomorphology: A guide to landforms and processes. Dunedin Academic Press.
21. Huggett, R.J. (2011). Fundamentals of Geomorphology, (3rd Ed.), Routledge. New York.
22. Kale, V. and Gupta, A. (2001). Elements of Geomorphology. Oxford University Press. Delhi.
23. Kale, V.S. and Gupta, A. (2001). Introduction to Geomorphology, Orient Longman. Hyderabad. India.
24. Knighton, A.D. (1984). Fluvial Forms and Processes, Edward Arnold Publishers Ltd., London. U.K.
25. Leopold, L.B., Wolman, M.G., and Miller, J.P. (1964). Fluvial Processes in Geomorphology, W.H. Freeman Company, San Francisco.
26. Mateo-Gutiérrez, J. (2012). Geomorphology. CRC Press, Boca Raton (FL). USA.
27. Pitty, A. F. (1971). Introduction to Geomorphology. Methuen, London.
28. Richards, K.S. (1982). Rivers: Form and Processes in Alluvial Channels, Methuen & C., Ltd., London
29. Schumm, S. A. (1977). The fluvial system. John Wiley & Sons, Inc., New York.
30. Selby, M.J. (2005). Earth's Changing Surface, Indian Edition, OUP.
31. Singh, S (2009). Bhautik Bhugol ka Swaroop, Prayag Pustak, Allahabad
32. Singh, S. (2004). Geomorphology. Prayag Pustak Bhawan, Allahabad.
33. Skinner, B. J. and Stephen C. P. (2000). The Dynamic Earth: An Introduction to physical Geology, 4th Edition. John Wiley and Sons.
34. Sparks, B. W. (1960). Geomorphology. Longman, London.
35. Strahler, A. H. (2013). Introducing physical geography (6th ed.). John Wiley & Sons.
36. Summerfield, M. A. (1991). Global geomorphology. Pearson Prentice Hall. U.K.
37. Thornbury, W. D. (1968). Principles of geomorphology (2nd ed.). John Wiley & Sons. New York.
38. Tikkaa, R. N. (1989). Bhautik Bhugol ka Swaroop. Kedarnath Ram Nath. Meerut.
39. Worcester, P. G. (1969). Textbook of geomorphology. East-West Press. New Delhi.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ009**	Course Title: **ADVANCED GEOGRAPHY OF INDIA**	

Course Learning Objectives:

1. To understand the geological evolution, physiographic characteristics that shape the physical geography of India.
2. To analyse the demographic characteristics, population dynamics and population policies.
3. To examine the spatial patterns of agriculture, agro-climatic regions and infrastructure for sustainable economic growth.
4. To evaluate India's planning process, economic reforms and contemporary developmental issues.

Course Learning Outcomes:

1. Explain the geological evolution, physiographic and monsoon mechanisms influencing India's physical environment.
2. Analyse the spatial patterns of population, settlement distribution and the implications of the National Population Policy.
3. Assess the characteristics of Indian agriculture, industrial regions, and their role in regional economic development.
4. Critically evaluate India's planning process and emerging contemporary issues affecting regional development.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Making of India through geological times, structure and relief; Drainage systems and watersheds; Physiographic divisions; Mechanism of the Indian Monsoon.
UNIT-II	Population growth, trends and distribution; Population- density, Sex and literacy, Trends of urbanisation; Spatial distribution and pattern of settlement, National population policy.
UNIT-III	Agricultural characteristics and trends; Agro-climate region, Infrastructure: irrigation, power, fertilizer, HYV seeds and farm technology; Green, white, blue and yellow revolutions.
UNIT-IV	Industrial Complex and Industrial regions, New industrial policy, Evolution of Planning in India: Five-Year Plans to NITI Aayog, Integrated Rural Development and Sustainable Livelihoods, Economic Reforms- Multinationals, liberalization and Contemporary Issues.

Suggested Readings:

1. Chapman, G. and Baker, K.M. (eds.) (1992): The Changing Geography of Asia. Routledge, London.
2. Farmer, B.H. (1983): Introduction to South Asia. Methuen and Company Ltd. and Company Ltd., London.
3. Ganguly, S. and Neil, De Votta (eds.) (2003): Understanding Contemporary India. Lynne Reinner Publishers., Boulder and London.
4. Johnson, B. L. C. (ed.) (2001): Geographical Dictionary of India. Vision Books, New Delhi. Johnson, B.L.C. (1983): Development in South Asia. Penguin Books, Harmonsworth.
5. Khullar, D. R. (2006): India. A Comprehensive Geography. Kalyani Publishers., New Delhi. Krishnan, M. S. (1968): Geology of India and Burma. 4th edition. Higgin Bothams Private. Ltd.,Madras.
6. Nag, P. and Gupta S. S. (1992): Geography of India. Concept Publishing. Company, New Delhi. Sharma, T. C. (2003): India: Economic and Commercial Geography. Vikas Publication., New Delhi.
7. Singh, J. (2003): India: A Comprehensive and Systematic Geography. Gyanodaya Prakashan, Gorakhpur.
8. Singh, R. L. (ed.) (1971): India. A Regional Geography. National Geographical Society of India, Varanasi.
9. Spate, O.H.K., Learmonth, A.T.A. and Farmer, B. H. (1979): India and Pakistan. Methuen and Company Ltd. and Company Ltd., London.
10. Subbarao, B. (1959): The Personality of India. University of Baroda Press, Baroda.
11. Tirtha, R. (2002): Geography of India. Rawat Publications., Jaipur and New Delhi.
12. Tiwari, R. C. (2007): Geography of India, Prayag Pustak Bhawan, Allahabad
13. Wadia, D. N. (1959): Geology of India. MacMillan and Company, London and Madras. Student edition.
14. Ahmed, Waquar, Amitabh Kundra and Richard Peet (eds.) 2010. India's New Economic Policy: A Cractical Analysis, Jaipur/ Dew Delhi: Rawat Publications

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ010**	Course Title: **HISTORY OF GEOGRAPHICAL THOUGHT**	

Course Learning Objectives:

1. To introduce to the basic nature of the discipline, its philosophical and methodological development
2. To examine the landmark contributions of classical, medieval, and modern geographers
3. To analyse the evolution of geography across different schools of thought worldwide
4. To critically engage with models, paradigms, and philosophical approaches in geography

Course Learning Outcomes:

1. Students will gain a clear understanding of the basic nature, scope, and methodological foundations of geography as a discipline.
2. Students will be able to identify and evaluate the landmark contributions of classical, medieval, and modern geographers across different traditions.
3. Students will develop the ability to analyse the evolution of geography through German, French, American, British, and Indian schools of thought.
4. Students will enhance their critical thinking skills by engaging with models, paradigms, and philosophical approaches, and applying them to contemporary geographical debates.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Nature, scope and changing perspectives of Geography; Geography as the study of space, place, region, landscape, environment and human-Earth relations; Ancient Indian and selected Asian geographical traditions; Contributions of the Greeks and Romans; Renaissance and the Age of Discovery.
UNIT-II	Development of modern Geography: German, French, British, American and Russian traditions; Major geographical thinkers -Ratzel, Hettner, Vidal de la Blache, Davis, Mackinder, Sauer, Hartshorne and Schaefer; Dualisms, dichotomies and methodological debates; Development of Geography in India.
UNIT-III	Philosophical foundations and scientific traditions: Positivism, Pragmatism and Paradigms; Quantitative Revolution, Spatial Science, Models, Laws and Systems Theory; Behavioural and Humanistic Geography (Phenomenology, Idealism and Existentialism); Marxist, Radical and Welfare Geography; Critical Realism
UNIT-IV	Contemporary geographical thought: Feminist, Political Ecology, Decolonial, Structuralist, Poststructuralist and Postmodern perspectives; Critical Cartography and Digital Geography; Geography in the Anthropocene and Earth-System perspectives; Future directions in Geography; Geographers of Uttarakhand.

Suggested Readings:

1. Haggett, P. (2001). Geography: A global synthesis. Prentice Hall.
2. Chorley, R. J., & Haggett, P. (Eds.). (1967). Models in geography. Methuen.
3. Johnston, R. J., & Claval, P. (Eds.). (1984). Geography since the Second World War: An international survey. Croom Helm.
4. Johnston, R. J. (1988). The future of geography. Methuen.
5. Adhikari, S. (2006). Fundamentals of geographical thought. Chaitanya Publishing House.
6. Marcus, D. (1999). Post-structuralism in geography: The diabolical art of spatial science. Edinburgh University Press.
7. Gaile, G. L., & Willmott, C. J. (Eds.). (2003). Geography in America at the dawn of the 21st century. Oxford University Press.
8. Hubbard, P., Kitchin, R., Bartley, B., & Fuller, D. (2002). Thinking geographically: Space, theory and contemporary human geography. Continuum.

9. Hussain, M. (2007). Evolution of geographical thought (5th ed.). Rawat Publications.10. Dixit, R.D.: Geographical Thought: A Contextual History of Geographical Ideas, Prentice Hall of India, New Delhi, 2001.
10. Peet, R. (1998). *Modern geographical thought*. Blackwell.
11. Cloke, P., Crang, P., & Goodwin, M. (Eds.). (2014). *Introducing human geographies* (3rd ed.). Routledge.
12. Cresswell, T. (2013). *Geographic thought: A critical introduction*. Wiley-Blackwell.
13. Holt-Jensen, A. (2018). *Geography: History and concepts* (6th ed.). Sage.
14. Johnston, R. J., & Sidaway, J. D. (2016). *The dictionary of human geography* (5th ed.). Wiley-Blackwell.
15. Livingstone, D. N. (1992). *The geographical tradition: Episodes in the history of a contested enterprise*. Blackwell.
16. Harvey, D. (1989). *The condition of postmodernity*. Blackwell.
17. Soja, E. W. (1989). *Postmodern geographies: The reassertion of space in critical social theory*. Verso
18. Schaefer, F. K. (1953). Exceptionalism in geography: A methodological examination. *Annals of the Association of American Geographers, 43*(3), 226–249.
19. Agnew, J., Livingstone, D. N., & Rogers, A. (Eds.). (1996). *Human geography: An essential anthology*. Blackwell.
20. Negi, M. S., & Sunil (2025) Geographers of Uttarakhand (Pioneers of Himalayan Geography), AKINIK Publication

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ011 (P)**	Course Title: **SURVEYING**	

Course Learning Objectives:

1. To develop advanced knowledge of surveying principles and techniques.
2. To enable students to collect, process and analyse spatial data accurately using classical and modern surveying instruments.
3. To develop the ability to design and execute field survey for geographical research.
4. To promote the application of surveying techniques in solving real-world geographical problems.

Course Learning Outcomes:

1. Demonstrate advanced proficiency in surveying techniques by applying conventional and modern surveying methods.
2. Analyse and interpret survey data using geospatial techniques to produce an accurate map and spatial analysis for research and planning.
3. Design and conduct an independent field survey by selecting an appropriate survey method, ensuring data quality, and addressing practical challenges in geographical research.
4. Integrate surveying with geospatial technologies such as GIS and remote sensing to solve complex problems in the field of Geography

Credits: 4	*MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Plain table survey: Intersection and radiation method, Triangulation and determination of heights and contouring with clinometers.
UNIT-II	Dumpy level survey; Prismatic compass survey, Open and close traverse; Instrument-based: Total station Survey.
UNIT-III	Weather Map: Weather symbols, Representation of atmospheric features, Interpretation of Indian daily weather maps, Weather forecasting method.
UNIT-IV	GPS: GPS system, Handling usages, GPS-based data acquisition and applications; Altimeter (Hi-tech with precision): Handling and use.

Suggested Readings:

1. Campbell, J., Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey, 1984.
2. Cuff, D.J., & Mattson, M.T., Thematic Maps, their Design and Production, Mathuen, New York., 1982.
3. Robinson, A.H. & others., Elements of Cartography, John Willey and Sons, New York (New edition).
4. Archer, J.E., & Dalton, T.H., Fieldwork in Geography, London.
5. National Atlas and Thematic Maps Organization (NATMO): National Atlas of India, Calcutta.
6. Monkhouse, F.J., Maps and Diagrams, Methuen & Co., London,1967
7. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
8. Sharma, J. P. (2001): Prayogik Bhugol. Rastogi Publication, Meerut 3rd edition.
9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSE Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSE-MJ007**	Course Title: **GEOGRAPHY OF RESOURCES**	

Course Learning Objectives:

1. To understand the basic concepts of resource and resource management.
2. To discuss the causes of resource depletion and its consequences from local to global.
3. To study the challenges in the management of different natural resources.
4. To study the resource management policy at national and global levels.

Course Learning Outcomes:

1. Explain the concepts related to the field of natural resource management.
2. Elaborate the regions behind the resource depletion and their impact.
3. Assess the various issues in the field of natural resource management.
4. Explain the sustainable resource management and resource management policies.

Credits: 4	*DSE*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Natural Resources: Meaning, Definition and Concept; Nature and Scope of Resources Geography; Classification of Resources,
UNIT-II	Soil, Water and Forest Resource: distribution, utilization, problems, management and conservation; Mineral Resources: Iron ore and Bauxite.
UNIT-III	Energy Resources-Coal, Petroleum and Natural Gas: distribution, production, problems, management and conservation; Renewable energy resources and World energy crisis.
UNIT-IV	Contemporary Strategies for Resource Management: Sustainable Resource Development; Resource Management Policies. Community Based Natural Resource Management (CBNRM).

Suggested Readings:

1. Holechek. J.L. et al: Natural Resources- Ecology, Economics and Policy, Prentice Hall, New Jersey, 2000.
2. Kates, R.W. and Burton, I. (ed): Geography, Resources and Environment, Vol, II, University of Chicago Press, Chicago, 1986.
3. Mc Laren, D.J. and Sklnnet, B.J. (ed): Resources and World Development, Jogn Wiley and Sons, New York, 1986.
4. Newson, M.D.: Land, Water and Development, River Basin System and Management, Routledge, London, 1991.
5. Owen, S. and Owen, P.L.: Environment Resources and Conservation, Cambdridge University Press, New York, 1991.
6. Rees, J.: Natural Resources, Allocation, Economics and Policy, Methuen, London, 1988.
7. Simmons, I.G.: Earth, Air and Water Resources and Environment in Late 20th Century, Edward, Arnold, 1991.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course -Minor

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**

Subject: **Geography**

Course Code: **GEOG/MN007**	Course Title: **LOCATIONAL ASPECTS: INDIA AND WORLD**

Course Learning Objectives:

1. To understand the basics of locational aspects.
2. To discuss the location of various administrative units of India and World.
3. To study the location of different geographical features of India and World.
4. To study the important locations of some man-made resource/ features.

Course Learning Outcomes:

1. Explain the basics of locational aspects.
2. Locate and identify the different administrative units.
3. Locate and identify the different geographical features of India and world.
4. Locate and identify the important man-made features in India and world.

Credits: 4	*Minor*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Administrative Units: Country**,** State, District, Developmental Block and Capital; Important Cities.
UNIT-II	Geographical Features: Mountain and Range, Major Rivers, Glaciers, lakes, Deserts, Straits, Island, Volcanic and Major Water falls.
UNIT-III	Man-made Features: Agricultural Belts, Industrial Region, Power Plants; Important Sea & Air Ports, Transportation Routes: Road, Rail and Sea. .
UNIT-IV	National Parks, Wildlife Sanctuary, Ramsar Sites, Bio-diversity Parks, Grassland and Contemporary issues.

Suggested Readings:

India & the World – NATMO, School Atlas, Oxford-Atlas & Time UK Print World Atlas and Uttarakhand Atlas.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ012**	Course Title: **CLIMATOLOGY**	

Course Learning Objectives:

1. To understand the meaning, scope, and development of climatology as a scientific discipline.
2. To analyse atmospheric processes including circulation, precipitation, and climatic systems.
3. To study air masses, fronts, cyclones, and their global/regional impacts.
4. To evaluate climate classification systems and their application to global climatic regions.
5. To critically examine climatic change processes, both natural and anthropogenic.

Course Learning Outcomes:

1. Students will be able to explain atmospheric equilibrium, adiabatic processes, and global circulation systems.
2. Students will understand the origin, classification, and dynamics of air masses, fronts, and cyclones.
3. Students will apply climate classification methods (Köppen, Thornthwaite) to analyze global climates.
4. Students will evaluate climatic change processes, including solar variability, tree-ring analysis, and human impacts.
5. Students will develop informed perspectives on global warming, acid precipitation, and climate hazards.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning, scope, and development of climatology; Composition and structure of atmosphere, Jet streams and Walker circulation; ENSO phenomena (El Niño and La Niña); and precipitation processes and humidity.
UNIT-II	Origin, growth, classification, and distribution of air masses; horizontal and vertical motion of winds; fronts and frontogenesis; and tropical and temperate cyclones and anticyclones
UNIT-III	Climate classification: Köppen and Thornthwaite; Weather analysis and forecasting; Weather modification and human behaviour; Atmospheric hazards: cloudbursts and other extreme weather events.
UNIT-IV	Climatic change: definition, indicators, anatomy; Human impact on global climate; Global warming and the greenhouse effect; Artificial rain, acid precipitation and contemporary debates and policy perspectives on climate change.

Suggested Readings:

1. Chorley, R. J., & Barry, R. G. (1995). *Atmosphere, Weather and Climate*. Methuen & Co. Ltd., London.
2. Critchfield, H. J. (2002). *General Climatology*. Prentice Hall of India, New Delhi.
3. Hidoore, J. J. (1996). *Global Environment Change*. Prentice Hall, New Jersey.
4. Lockwood, J. G. (1979). *World Climatology*. Elbs and Edward Arnold (Pub.) Ltd.
5. Miller, A., et al. *Elements of Meteorology*. Merrill and Columbus.
6. Oliver, J. E., & Hiddore, J. J. (2003). *Climatology: An Atmospheric Science*. Pearson Education, India.
7. Thomson, R. D., & Perry, A. (1997). *Applied Climatology*. Routledge, London and New York.
8. Trewartha, G. T. (1954). *An Introduction to Climate*. McGraw Hill Series in Geography.
9. Lal, D. S. *Climatology*. Sharda Pustak Bhawan, Allahabad.
10. Singh, Savindra. (2005). *Climatology*. Prayag Pustak Bhawan, Allahabad.
11. Lal, D. S. *Jalvayu Vigyan*. Sharda Pustak Bhawan, Allahabad.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ013**	Course Title: **GEOGRAPHY OF HIMALAYA**	

Course Learning Objectives:

1. To understand the geo-physical identity, origin, and structural evolution of the Himalaya.
2. To analyse the physiographic and ecological characteristics of the Himalayan region.
3. To examine demographic, economic, and developmental aspects of the Himalayan states.
4. To evaluate regional diversity and policy frameworks for sustainable mountain development.

Course Learning Outcomes:

1. Students will comprehend the geological formation, physiographic divisions, and geo-sensitivity of the Himalaya.
2. Students will understand the natural and anthropogenic processes shaping Himalayan landscapes and ecosystems.
3. Students will analyse demographic and economic patterns, including agriculture, tourism, and power development.
4. Students will critically assess regional planning and policy approaches for sustainable Himalayan development.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Geo-physical identity and origin of the Himalaya; structural divisions and their regional significance; geo-political issues and border dynamics; cultural appraisal and ethnic diversity; Himalayan people and tribes; and the geo-sensitivity and future prospects of the Himalayan region.
UNIT-II	Physiographic structure and landforms; drainage system and Himalayan water resources; glaciers, lakes, and mountain passes; climate and natural vegetation; and natural hazards and geo-ecological problems resulting from anthropogenic activities.
UNIT-III	Population distribution, density, and growth; migration and urbanization trends; agriculture, horticulture, and animal husbandry; industrial development and tourism; developmental challenges; and hydroelectric power projects in the Himalayan region.
UNIT-IV	Geographical account of the Western, Central, and Eastern Himalaya; regional analysis of the Kashmir Valley, Ladakh, Lahaul & Spiti, Kathmandu Valley, and Teesta Valley; mountain development planning and policy; and sustainable development and climate resilience in the Himalayan states.

Suggested Readings:

1. Lal, J. S., & Moddie (Ed.). *The Himalaya: Aspect of Change*.
2. Bose, S. C. *Land and People of the Himalaya*.
3. Singh, O. P. (Ed.). *The Himalaya: Nature, Man and Culture*.
4. Joshi, S. C., & Others. *Kumaun Himalaya*.
5. Nityanand, & Kumar, K. *The Holy Himalaya: Geographical Interpretation of Garhwal Himalaya*.
6. Kharkwal, S. C. *Uttarakhand: Physio-Culture Complex*.
7. Maithani, D. D. *Central Himalaya: Ecology, Environmental Resources & Development*.
8. Rawat, M. S. S. (Ed.). *Central Himalaya: Environment and Development* (Vols. I & II).
9. Valdiya, K. S. (Ed.). (1988). *Kumaun: Land and People*.
10. Bhatt, H. P., & Bhatt, S. (1993). *Environmental Dimensions of Rural Settlements in the Himalaya*.
11. Valdiya, K. S. (1998). *The Himalayan Rivers: Aspects of Change*. Oxford & IBH Publishing, New Delhi.
12. Ives, J. D., & Messerli, B. (1989). *Himalayan Dilemma: Reconciling Development and Conservation*. Cambridge University Press, Cambridge.
13. Zoller, H. (1981). *Man and Environment in the Himalaya*. K. G. Saur Verlag, Munich.
14. Gulia, K. S. (2007). *Ecology and Environment in the Himalayas*. Isha Books, New Delhi.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ014**	Course Title: **GEO-ENVIRONMENTAL STUDIES**	

Course Learning Objectives:

1.To introduce students to the fundamental concepts and scope of Environmental Geography.
2.To provide an in-depth understanding of ecosystems, including their structure, ecological processes and dynamics.
3.To explore the complexities of environmental degradation, pollution and sustainable development initiatives.
4. To develop critical thinking and problem-solving skills to address environmental challenges at local, regional, and global scales.

Course Learning Outcomes:

1. Students will be able to articulate the key concepts and principles of Environmental Geography.
2. Students will develop the analytical skills necessary to evaluate ecosystem structures and functions.
3. Students will gain the ability to critically analyze environmental degradation, pollution and global environmental challenges.
4. Students will be able to demonstrate awareness of environmental ethics and global environmental challenges.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Meaning and scope of Environmental Geography; Basic concept of Environmental Geography; Component and types of environments; Ecology; Principles, types and ecological secession; Man-environment relationship.
UNIT-II	Ecosystem - Concept and components; Trophic levels; Food Chain and Food Webs; Energy flow in the ecosystem; Ecosystem stability, and productivity.
UNIT-III	Environmental degradation; Environmental Pollution- Air, Water and Solid Waste; Environmental Problems- Global Warming, Ozone depletion and Green House effect; Acid rain and climate change.
UNIT-IV	Environmental Management: Concepts, approaches and management strategies; Environmental dimension in planning and sustainable development; Limits to growth - Rio Summit, Kyoto Protocol; Environment impact assessment; National environment policy and programs. Sendai Framework for Disaster Risk Reduction.

Suggested Readings:

1. Sing. L.R. et al.: Environmental Management, Allahabad Geographical Society, Allahabad.
2. National Academy of Sciences: Understanding Climate Changes, Washington, D.C.
3. Furley, P.A. and Neway, W.W.: Man and the Biosphere, Butterworth, London.
4. Arvil, R.: Man and Environment, Penguin.
5. Bennet, R.J. and Chorley, R.J.: Environmental System- Philosophy, Analysis and Control, Methuen, London.
6. Singh, Savindra: Environmental Geography, Prayag Pushtak Bhawan, Allahabad.
7. Detwler, T.R.: Man's impact on the Environment, McGraw Hill, New York.
8. Sing, Savindra: ParyavaranBhoogal, Prayag Pushtak Bhawan, Allahabad.
9. Odum, E.P.: Fundamentals of Ecology, W.B. Sounders Co. Philaelfia, 1971.
10. Mather, A.S. and Chapman, K.: Environmental Resources, Longman Group Ltd. U.K., 1995.
11. Smith, K. (1996): Environmental Hazards, Routledge, London

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**

Subject: **Geography**

Course Code: **GEOG/DSC-MJ015 (P)**	Course Title: **QUANTITATIVE & QUALITATIVE METHODS IN GEOGRAPHY**

Course Learning Objectives:

1. To introduce students to qualitative research traditions in geography
2. To develop skills in qualitative data collection, analysis, and interpretation
3. To understand ethical, positional, and field-based dimensions of research
4. To enable students to design and conduct small-scale qualitative research

Course Learning Outcomes:

1. Understand the philosophical foundations and approaches of qualitative research
2. Apply qualitative methods such as interviews, ethnography, and observation
3. Critically analyse qualitative data using coding and thematic interpretation
4. Design and present a qualitative research project with ethical considerations

Credits: 4	*Major*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Research methods in geography, quantitative vs qualitative vs mixed methods, Levels of measurement, nature of data in quantitative and qualitative research; preparing data collection tools; audio-visual methods, focus group discussion,
UNIT-II	content and thematic analysis; discourse and narrative analysis; basic introduction to qualitative data analysis software
UNIT-III	Measures of inequality, central tendencies and dispersion, Location quotient; Lorenz curve, Gini's Co-efficient; Nearest Neighbour Analysis ; Rank Size Rule;
UNIT-IV	Correlation: Spearman's Rank and Karl Pearson's method, Simple linear regression: basic concepts and construction of regression line; Introduction to basics of R software (hands on training)

Suggested Readings:

1. Basu, P. (2009). Practical Geography: A Systematic Approach. Orient BlackSwan.
2. Tulsian, P. C. (2007). Business Statistics. Pearson Education India.
3. S. P. Gupta (2021). Statistica Methods, 46th Edition, Sultan Chand and Sons, New Delhi
4. Mahmood, A. (1998). Statistical Methods in Geographical Studies. Rajesh Publications.
5. D. N. Gujrati, D.C. Porter and S. Gunasekar (2017), Basic Econometrics, 5th Edition, McGraw Hill Education
6. Ashis Sarkar (2015). Practical Geography: A Systematic Approach, 3rd Edition, Orient BlackSwan
7. Mishra, R.P. & Ramesh A (1989). Fundamentals of Cartography, 2nd Edition, South Aisa Books
8. Singh, R. L. and R. P. B. Singh (2015). Elements of Practical Geography (English/Hindi), Kalyani Publishers
9. Hay, I. (2010). Qualitative research methods in human geography (3rd ed.). Oxford University Press.
10. Creswell, J. W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches (3rd ed.). SAGE Publications.
11. DeLyser, D., Herbert, S., Aitken, S., Crang, M., & McDowell, L. (Eds.). (2010). The SAGE handbook of qualitative geography. SAGE Publications.
12. Clifford, N., & Valentine, G. (Eds.). (2010). Key methods in geography (2nd ed.). SAGE Publications.
13. Silverman, D. (2011). Interpreting qualitative data (4th ed.). SAGE Publications.
14. Kabacoff, R. I. (2015). *R in action: Data analysis and graphics with R* (2nd ed.). Manning Publications.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSE Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSE-MJ008**	Course Title: **POPULATION GEOGRAPHY**	

Course Learning Objectives:

1. Understand the fundamental concepts, theories and approaches of Population Geography and their geographical significance.
2. Analyse population distribution, composition, dynamics and migration using demographic data and geographical methods.
3. Evaluate population issues, policies and development challenges from local, national and global perspectives.

Course Learning Outcomes:

1. Explain the concepts, theories and methods of Population Geography.
2. Interpret demographic data to identify patterns of population distribution, composition and change.
3. Analyse the spatial dimensions of fertility, mortality, migration and population growth.

Credits: 4	*DSE*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Nature, scope and significance of Population Geography and its relationship with demography, Relevance of Population Geography; Recent approaches and methods to study population geography.
UNIT-II	Population composition; Population growth, density, distribution patterns and their determinants; Concepts of under, over and optimum Population.
UNIT-III	Concepts and measurements of fertility, mortality and migrations; major theories of fertility, mortality and migration, demographic transition theory, demographic dividend.
UNIT-IV	Concept of Human Resource and Management; Population resource regions; Population planning and policies in under-developed and developed countries, Human development index; National Population Policies in India.

Suggested Readings:

1. Asha A. Bhende and Tata Kanitkar (2024). Principles of Population Studies, 19th Edition, Himalaya Publishing House Pvt. Ltd., India
2. Chandna, R.C. (2000). A Geography of Population; Concept, Determinants and Patterns, Kalyani Pub. New Delhi
3. Beaujeu-Garnier, Jacqueline (1978). Geography of Population, Longman, London 1970.
4. Srinivasan, K. (1997). Basic Demographic Techniques and Applications, Sage Pub. New Delhi,
5. Clarke, J.I. (1972). Population Geography, Pergamon. Oxford
6. Bhagat, R. B. and Rajan, S. I. (2023). Researching Internal Migration, Routledge, London
7. Bhagat, R. B. (2008). Assessing the measurement of internal migration in India , Asian and Pacific Migration Journal, 17(1), 91-102
8. Md Izhaar Hassan (2020): Population Geography-A Systematic Exposition, Routledge, London
9. United Nations Demographic Manuals: https://www.unpopulation.org/en/development/desa/population/publications/manual/index.html
10. ORGI, UNFPA (2014), Training Manual on Demographic Techniques,

    https://india.unfpa.org/en/publications/training-manual-demographic-techniques

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- Minor

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/MN008**	Course Title: **INTRODUCTION TO GIS**	

Course Learning Objectives:

1. Explain the basic principles and components of remote sensing.
2. Understand the fundamentals of aerial photogrammetry and image processing for spatial analysis.
3. Analyse land-use and land-cover data using remote sensing techniques.
4. Recognise the applications of remote sensing in geography, environmental monitoring, resource management, and disaster management.

Course Learning Outcomes:

1. Demonstrate an understanding of the principles and components of Remote Sensing and GIS.
2. Analyse spatial data and satellite imagery using Remote Sensing and GIS techniques.
3. Apply geospatial tools for mapping, spatial analysis, and problem-solving.
4. Evaluate the role of Remote Sensing and GIS in geographical research and sustainable development.

Credits: 4	*DSE*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Definition, process and stages of Remote Sensing; Energy sources and radiation; EMR; Energy interaction with atmosphere and earth surface principles of microwave Remote Sensing, Remote sensing Platforms, Satellites, sensors and resolution; Digital image and satellite imagery; Elements of visual image interpretation; Digital image processing techniques.
UNIT-II	Definition, history, types, classification and planning mission of Aerial photography; Basic geometric characteristics- scale, height, overlap, mosaic, resolution, stereoscopic coverage; Fundamental concept of Photogrammetry, Orientation, relief displacement, stereoscopic, 3D viewing, Uses of Aerial photography.
UNIT-III	Definition, concept, scope and components of GIS; Data and Information; Geo-referencing and rectification; Data imputing methods and GPS. Databases, types of data; Data models in GIS; Data integration; Geospatial data analysis.
UNIT-IV	Computer Cartography and mapping in digital image; Internal GIS, Web GIS, DTM, Recent trends of GIS, Emerging branches of GIS Science. Application of Remote Sensing and GIS in watershed management, weather information, disaster forecast and geo-information.

Suggested Readings:

1. Sabine, F.F.: Remote Sensing- Principles & Interpretation.
2. Lillesand, R.M.: Remote Sensing and Image Interpretation Kiefer R.W.
3. Chauniyal, D.D.: Remote Sensing and GIS (Hindi).
4. Jensen, J.R.: Introductory Digital Image Processing- A Remote Sensing Perspective.
5. Demer, M.N.: Fundamentals of Geographic Information System.
6. Martin, D.S.: Geographic Information System- Socio-Economic Applications.
7. Aronoff, S.: Principles of Geographical Information Systems for Land Resource Assessment.
8. Aronoff, S.: Geographic Information System- A Management Perspective.
9. Bontham Carter, G.F.: Geographic Information System for Geoscientists.
10. Jones, C.: Geographical Information System & Computer Cartography.
11. Ayery, T.E.: Introduction to Aerial Photographs.
12. Pratt, W.K.: Digital Image Processing, John Wiley & Sons Now York (1995).

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Fourth Year- (U.G. Honours with Research)

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year
Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ008**	Course Title: **GEOMORPHOLOGY**	

Course Learning Objectives:

1. Understand the concepts, theories, and processes of geomorphology and landscape evolution.
2. Explain endogenic and exogenic processes in shaping Earth's surface.
3. An understanding of the linkages between landscape form and processes.
4. Understanding of the conceptual and dynamic aspects of landform development.

Course Learning Outcomes:

1. Discuss and apply the fundamental concepts and theories of geomorphology.
2. Explain the origin and evolution of major landforms using classical and contemporary geomorphic theories.
3. Analyse the basic principles and forces for development of landforms through time.
4. Familiarity and experience applying fundamental concepts in physical systems.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Fundamental concepts of Geomorphology; Methods and Approaches of landforms study; Theories of landscape development by Gilbert, Davis, Penck and Hack and morphogenetic region.
UNIT-II	Plate tectonics; Mountain building; Isostasy; Tectonic Geomorphology; Theories of slope development by Young and King; Peneplain and pediplains; Geological structure and rocks.
UNIT-III	Denudation process, Mass movement, Geomorphic process-River, Glacier, Wind, underground water and resultant landforms; Morphometry of drainage basin; Profile of equilibrium rejuvenation and polycyclic landscape. (With special reference to Uttarakhand Himalaya)
UNIT-IV	Applied Geomorphology engineering works; Anthropogenic process and landscape planning; Regional Geomorphology of Uttarakhand.

Suggested Readings:

1. Allison, R. J. (Ed.). (2002). *Applied geomorphology: Theory and practice*. John Wiley & Sons Ltd., Chichester. U.K.
2. Anderson, R. S., & Anderson, S. P. (2010). *Geomorphology: The mechanics and chemistry of landscapes*. Cambridge University Press. Cambridge.
3. Bierman, P. R., & Montgomery, D. R. (2014). *Key concepts in geomorphology*. W. H. Freeman and Company Publishers. New York.
4. Bloom A. L., (2003). Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India. New Delhi.
5. Bridges, E. M. (1990). World geomorphology. Cambridge University Press. Cambridge. U.K.
6. Chorley, R. J. (1972). Spatial Analysis in Geomorphology. Methuen London.
7. Christopherson, R. W. (2011), Geosystems: An Introduction to Physical Geography, 8 Ed.,Macmillan Publishing Company.
8. Condie, K.C. (2003). Plate Tectonic and Crustal Evolution, Butterworth-Heinemann, Oxford, Burlington.
9. Dayal, P. (2015). Text-Book of Geomorphology, Shukla Book Depot, Patna.
10. Dury, G.H. (Ed.). (1966). Essays in Geomorphology. Heinmann Educational Books Ltd., London.
11. Fairbridge, R.W. (Ed.) (1968). Encyclopedia of Geomorphology. Rein-hold Book Corp., New York.
12. Gabler R.E, Peterson. J.F., Trapasso, L.M., Sack, D. (2009). Physical Geography, Brooks/Cole, Cengage Learning, Belmont, USA.
13. Garner, H.F. (1974). The Origin of Landscape: A Synthesis of Geomorphology. Oxford Univ. Press, New York.
14. Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut.
15. Gautam, A. (2015). Geomorphology. Sharda Pustak Bhawan. Allahabad.

16. Goudie, A. (Ed.). (2003). Encyclopedia of Geomorphology, Routledge, London.
17. Goudie, A. (Ed.). (2005). Geomorphological Techniques (2nd Edition), Routledge, London.
18. Gregory, K. J., & Goudie, A. S. (Eds.). (2011). *The SAGE handbook of geomorphology*. SAGE Publications.
19. Hails, J.R. (1977). Applied Geomorphology. Elsevier.
20. Harvey, A. (2012). Introducing geomorphology: A guide to landforms and processes. Dunedin Academic Press.
21. Huggett, R.J. (2011). Fundamentals of Geomorphology, (3rd Ed.), Routledge. New York.
22. Kale, V. and Gupta, A. (2001). Elements of Geomorphology. Oxford University Press. Delhi.
23. Kale, V.S. and Gupta, A. (2001). Introduction to Geomorphology, Orient Longman. Hyderabad. India.
24. Knighton, A.D. (1984). Fluvial Forms and Processes, Edward Arnold Publishers Ltd., London. U.K.
25. Leopold, L.B., Wolman, M.G., and Miller, J.P. (1964). Fluvial Processes in Geomorphology, W.H. Freeman Company, San Francisco.
26. Mateo-Gutiérrez, J. (2012). Geomorphology. CRC Press, Boca Raton (FL). USA.
27. Pitty, A. F. (1971). Introduction to Geomorphology. Methuen, London.
28. Richards, K.S. (1982). Rivers: Form and Processes in Alluvial Channels, Methuen & C., Ltd., London
29. Schumm, S. A. (1977). The fluvial system. John Wiley & Sons, Inc., New York.
30. Selby, M.J. (2005). Earth's Changing Surface, Indian Edition, OUP.
31. Singh, S (2009). Bhautik Bhugol ka Swaroop, Prayag Pustak, Allahabad
32. Singh, S. (2004). Geomorphology. Prayag Pustak Bhawan, Allahabad.
33. Skinner, B. J. and Stephen C. P. (2000). The Dynamic Earth: An Introduction to physical Geology, 4th Edition. John Wiley and Sons.
34. Sparks, B. W. (1960). Geomorphology. Longman, London.
35. Strahler, A. H. (2013). Introducing physical geography (6th ed.). John Wiley & Sons.
36. Summerfield, M. A. (1991). Global geomorphology. Pearson Prentice Hall. U.K.
37. Thornbury, W. D. (1968). Principles of geomorphology (2nd ed.). John Wiley & Sons. New York.
38. Tikkaa, R. N. (1989). Bhautik Bhugol ka Swaroop. Kedarnath Ram Nath. Meerut.
39. Worcester, P. G. (1969). Textbook of geomorphology. East-West Press. New Delhi.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ009**	Course Title: **ADVANCED GEOGRAPHY OF INDIA**	

Course Learning Objectives:

1. To understand the geological evolution, physiographic characteristics that shape the physical geography of India.
2. To analyse the demographic characteristics, population dynamics and population policies.
3. To examine the spatial patterns of agriculture, agro-climatic regions and infrastructure for sustainable economic growth.
4. To evaluate India's planning process, economic reforms and contemporary developmental issues.

Course Learning Outcomes:

1. Explain the geological evolution, physiographic and monsoon mechanisms influencing India's physical environment.
2. Analyse the spatial patterns of population, settlement distribution and the implications of the National Population Policy.
3. Assess the characteristics of Indian agriculture, industrial regions, and their role in regional economic development.
4. Critically evaluate India's planning process and emerging contemporary issues affecting regional development.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Making of India through geological times, structure and relief; Drainage systems and watersheds; Physiographic divisions; Mechanisms of the Indian Monsoon.
UNIT-II	Population growth, trends and distribution; Population- density, Sex and literacy, Trends of urbanisation; Spatial distribution and pattern of settlement, National population policy.
UNIT-III	Agricultural characteristics and trends; Agro-climate region, Infrastructure: irrigation, power, fertilizer, HYV seeds and farm technology; Green, white, blue and yellow revolutions.
UNIT-IV	Industrial Complex and Industrial regions, New industrial policy, Evolution of Planning in India: Five-Year Plans to NITI Aayog, Integrated Rural Development and Sustainable Livelihoods, Economic Reforms- Multinationals, liberalization and Contemporary Issues.

Suggested Readings:

1. Chapman, G. and Baker, K.M. (eds.) (1992): The Changing Geography of Asia. Routledge, London.
2. Farmer, B.H. (1983): Introduction to South Asia. Methuen and Company Ltd. and Company Ltd., London.
3. Ganguly, S. and Neil, De Votta (eds.) (2003): Understanding Contemporary India. Lynne Reinner Publishers., Boulder and London.
4. Johnson, B. L. C. (ed.) (2001): Geographical Dictionary of India. Vision Books, New Delhi. Johnson, B.L.C. (1983): Development in South Asia. Penguin Books, Harmonsworth.
5. Khullar, D. R. (2006): India. A Comprehensive Geography. Kalyani Publishers., New Delhi. Krishnan, M. S. (1968): Geology of India and Burma. 4th edition. Higgin Bothams Private. Ltd.,Madras.
6. Nag, P. and Gupta S. S. (1992): Geography of India. Concept Publishing. Company, New Delhi. Sharma, T. C. (2003): India: Economic and Commercial Geography. Vikas Publication., New Delhi.
7. Singh, J. (2003): India: A Comprehensive and Systematic Geography. Gyanodaya Prakashan, Gorakhpur.
8. Singh, R. L. (ed.) (1971): India. A Regional Geography. National Geographical Society of India, Varanasi.
9. Spate, O.H.K., Learmonth, A.T.A. and Farmer, B. H. (1979): India and Pakistan. Methuen and Company Ltd. and Company Ltd., London.
10. Subbarao, B. (1959): The Personality of India. University of Baroda Press, Baroda.
11. Tirtha, R. (2002): Geography of India. Rawat Publications., Jaipur and New Delhi.
12. Tiwari, R. C. (2007): Geography of India, Prayag Pustak Bhawan, Allahabad
13. Wadia, D. N. (1959): Geology of India. MacMillan and Company, London and Madras. Student edition.
14. Ahmed, Waquar, Amitabh Kundra and Richard Peet (eds.) 2010. India's New Economic Policy: A Cractical Analysis, Jaipur/ Dew Delhi: Rawat Publications

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ010**	Course Title: **HISTORY OF GEOGRAPHICAL THOUGHT**	

Course Learning Objectives:

1. To introduce to the basic nature of the discipline, its philosophical and methodological development
2. To examine the landmark contributions of classical, medieval, and modern geographers
3. To analyse the evolution of geography across different schools of thought worldwide
4. To critically engage with models, paradigms, and philosophical approaches in geography

Course Learning Outcomes:

1. Students will gain a clear understanding of the basic nature, scope, and methodological foundations of geography as a discipline.
2. Students will be able to identify and evaluate the landmark contributions of classical, medieval, and modern geographers across different traditions.
3. Students will develop the ability to analyse the evolution of geography through German, French, American, British, and Indian schools of thought.
4. Students will enhance their critical thinking skills by engaging with models, paradigms, and philosophical approaches, and applying them to contemporary geographical debates.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Nature, scope and changing perspectives of Geography; Geography as the study of space, place, region, landscape, environment and human-earth relations; Ancient Indian and selected Asian geographical traditions; Contributions of the Greeks and Romans; Renaissance and the Age of Discovery.
UNIT-II	Development of modern Geography: German, French, British, American and Russian traditions; Major geographical thinkers -Ratzel, Hettner, Vidal de la Blache, Davis, Mackinder, Sauer, Hartshorne and Schaefer; Dualisms, dichotomies and methodological debates; Development of Geography in India.
UNIT-III	Philosophical foundations and scientific traditions: Positivism, Pragmatism and Paradigms; Quantitative Revolution, Spatial Science, Models, Laws and Systems Theory; Behavioural and Humanistic Geography (Phenomenology, Idealism and Existentialism); Marxist, Radical and Welfare Geography; Critical Realism
UNIT-IV	Contemporary geographical thought: Feminist, Political Ecology, Decolonial, Structuralist, Poststructuralist and Postmodern perspectives; Critical Cartography and Digital Geography; Geography in the Anthropocene and Earth-System perspectives; Future directions in Geography; Geographers of Uttarakhand.

Suggested Readings:

1. Haggett, P. (2001). Geography: A global synthesis. Prentice Hall.
2. Chorley, R. J., & Haggett, P. (Eds.). (1967). Models in geography. Methuen.
3. Johnston, R. J., & Claval, P. (Eds.). (1984). Geography since the Second World War: An international survey. Croom Helm.
4. Johnston, R. J. (1988). The future of geography. Methuen.
5. Adhikari, S. (2006). Fundamentals of geographical thought. Chaitanya Publishing House.
6. Marcus, D. (1999). Post-structuralism in geography: The diabolical art of spatial science. Edinburgh University Press.
7. Gaile, G. L., & Willmott, C. J. (Eds.). (2003). Geography in America at the dawn of the 21st century. Oxford University Press.
8. Hubbard, P., Kitchin, R., Bartley, B., & Fuller, D. (2002). Thinking geographically: Space, theory and contemporary human geography. Continuum.

9. Hussain, M. (2007). Evolution of geographical thought (5th ed.). Rawat Publications.10. Dixit, R.D.: Geographical Thought: A Contextual History of Geographical Ideas, Prentice Hall of India, New Delhi, 2001.
10. Peet, R. (1998). *Modern geographical thought*. Blackwell.
11. Cloke, P., Crang, P., & Goodwin, M. (Eds.). (2014). *Introducing human geographies* (3rd ed.). Routledge.
12. Cresswell, T. (2013). *Geographic thought: A critical introduction*. Wiley-Blackwell.
13. Holt-Jensen, A. (2018). *Geography: History and concepts* (6th ed.). Sage.
14. Johnston, R. J., & Sidaway, J. D. (2016). *The dictionary of human geography* (5th ed.). Wiley-Blackwell.
15. Livingstone, D. N. (1992). *The geographical tradition: Episodes in the history of a contested enterprise*. Blackwell.
16. Harvey, D. (1989). *The condition of postmodernity*. Blackwell.
17. Soja, E. W. (1989). *Postmodern geographies: The reassertion of space in critical social theory*. Verso
18. Schaefer, F. K. (1953). Exceptionalism in geography: A methodological examination. *Annals of the Association of American Geographers, 43*(3), 226–249.
19. Agnew, J., Livingstone, D. N., & Rogers, A. (Eds.). (1996). *Human geography: An essential anthology*. Blackwell.
20. Negi, M. S., & Sunil (2025) Geographers of Uttarakhand (Pioneers of Himalayan Geography), AKINIK Publication

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ011**	Course Title: **RESEARCH METHODOLOGY AND TECHNIQUES**	

Course Learning Objectives:

1. To understand the concepts, methodologies of geographical research and formulate scientifically relevant research problems.
2. To develop competencies in research design, sampling techniques and the application of appropriate statistical tools.
3. To apply geospatial technologies and interpretation in geographical research.
4. Acquire skills in scientific writing, dissemination of research findings and ethical research practices.

Course Learning Outcomes:

1. Explain the fundamental concepts and methods in Geography, and formulate appropriate research problems.
2. Design and conduct geographical research using suitable sampling techniques.
3. Analyse and interpret quantitative, qualitative and statistical techniques to address geographical problems.
4. Prepare research proposals, pilot studies, project reports and research papers, citation practices and research ethics.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Concept & significance of research in Geography; Nature, objective and basis of research; Types of research, Approaches and methods; Review of literature, Formulation of Research problem; Techniques and research process.
UNIT-II	Research Design: Meaning, need, features and types; Sampling: Types, methods and steps; Design of spatial sampling; Survey and experiments; Data collection methods - primary and secondary data, schedule, questionnaire and observation.
UNIT-III	Hypothesis: meaning, characteristic importance and formulation; Testing of Hypothesis; Parametric and non-parametric tests; Introduction to open sources statistical software;
UNIT-IV	Research Ethics and plagiarism; Writing of research report/paper and dissertation; Framing of pilot projects; Citation and referencing using softwares.

Suggested Readings:

1. Bhatt H. P. and Bansal S.C. (2012): Research methodology (in Hindi), Meenakshi Prakashan, Meerut.
2. Ahuja, R. (2001): Research Methods, Rawat methodology, Excel Books, New Delhi.
3. Bhattacharya, D.K. (2005): Research Methodology, Excel Books, New Delhi.
4. Blaxter, L.; Hughes, C. and Tight, M. (1996): How to Research. Open University Press, Buckingham.
5. Crang, Mike 1999. Cultural Geography. Routledge, London.
6. Denzin, N.K. and Lincoln, Y.S., (eds.) (2000): handbook of Qualitative Research thousand Oaks C.A. Sage Publications.
7. Dikshit, R.D. (2003): The Art and Science of Geography: Integrated Readings. Prentice- Hall of India, New Delhi.
8. Dorling, D. And Simpson, L.(eds.) (1999): Statistics in Society. Edward Arnold, London.
9. Fisher, P. And Unwin, D., (eds.) (2002): Virtual Reality in Geography, Taylor and Francis, London.
10. Hay, I. (ed.) (2000): Qualitative research Methods in Human Geography. Oxford University Press, New York.
11. Henn, M., Mark W., and Nick F. (2006): A short introduction to Social Research, Vistara Publications, New Delhi.
12. Eyles J. And Smith D.M. (1988): Qualitative Methods in Human Geography, Polity Press, Dales Brewering Cambridge.
13. Kitchin, R. And Tate, N., (2001): Conducting Research into Human geography, Theory, Methodology and Practice. Prentice-hall, London.
14. Har Prasad: Research Methodology and Techniques in Geography, Rawat Publications, Jaipur.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ011 (P)**	Course Title: **SURVEYING**	

Course Learning Objectives:

1. To develop advanced knowledge of surveying principles and techniques.
2. To enable students to collect, process and analyse spatial data accurately using classical and modern surveying instruments.
3. To develop the ability to design and execute field survey for geographical research.
4. To promote the application of surveying techniques in solving real-world geographical problems.

Course Learning Outcomes:

1. Demonstrate advanced proficiency in surveying techniques by applying conventional and modern surveying methods.
2. Analyse and interpret survey data using geospatial techniques to produce an accurate map and spatial analysis for research and planning.
3. Design and conduct an independent field survey by selecting an appropriate survey method, ensuring data quality, and addressing practical challenges in geographical research.
4. Integrate surveying with geospatial technologies such as GIS and remote sensing to solve complex problems in the field of Geography

Credits: 4	*MAJOR*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Plain table survey: Intersection and radiation method, Triangulation and determination of heights and contouring with clinometers.
UNIT-II	Dumpy level survey; Prismatic compass survey, Open and close traverse; Instrument-based: Total station Survey.
UNIT-III	Weather Map: Weather symbols, Representation of atmospheric features, Interpretation of Indian daily weather maps, Weather forecasting method.
UNIT-IV	GPS: GPS system, Handling usages, GPS-based data acquisition and applications; Altimeter (Hi-tech with precision): Handling and use.

Suggested Readings:

1. Campbell, J., Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey, 1984.
2. Cuff, D.J., & Mattson, M.T., Thematic Maps, their Design and Production, Mathuen, New York., 1982.
3. Robinson, A.H. & others., Elements of Cartography, John Willey and Sons, New York (New edition).
4. Archer, J.E., & Dalton, T.H., Fieldwork in Geography, London.
5. National Atlas and Thematic Maps Organization (NATMO): National Atlas of India, Calcutta.
6. Monkhouse, F.J., Maps and Diagrams, Methuen & Co., London,1967
7. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
8. Sharma, J. P. (2001): Prayogik Bhugol. Rastogi Publication, Meerut 3rd edition.
9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSE Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Seven**
Subject: **Geography**		
Course Code: **GEOG/DSE-MJ007**	Course Title: **GEOGRAPHY OF RESOURCES**	

Course Learning Objectives:

1. To understand the basic concepts of resource and resource management.
2. To discuss the causes of resource depletion and its consequences from local to global.
3. To study the challenges in the management of different natural resources.
4. To study the resource management policy at national and global levels.

Course Learning Outcomes:

1. Explain the concepts related to the field of natural resource management.
2. Elaborate the regions behind the resource depletion and their impact.
3. Assess the various issues in the field of natural resource management.
4. Explain the sustainable resource management and resource management policies.

Credits: 4	*DSE*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Natural Resources: Meaning, Definition and Concept; Nature and Scope of Resources Geography; Classification of Resources,
UNIT-II	Soil, Water and Forest Resource: distribution, utilization, problems, management and conservation; Mineral Resources: Iron ore and Bauxite.
UNIT-III	Energy Resources-Coal, Petroleum and Natural Gas: distribution, production, problems, management and conservation; Renewable energy resources and World energy crisis.
UNIT-IV	Contemporary Strategies for Resource Management: Sustainable Resource Development; Resource Management Policies. Community Based Natural Resource Management (CBNRM).

Suggested Readings:

1. Holechek. J.L. et al: Natural Resources- Ecology, Economics and Policy, Prentice Hall, New Jersey, 2000.
2. Kates, R.W. and Burton, I. (ed): Geography, Resources and Environment, Vol, II, University of Chicago Press, Chicago, 1986.
3. Mc Laren, D.J. and Sklnnet, B.J. (ed): Resources and World Development, Jogn Wiley and Sons, New York, 1986.
4. Newson, M.D.: Land, Water and Development, River Basin System and Management, Routledge, London, 1991.
5. Owen, S. and Owen, P.L.: Environment Resources and Conservation, Cambdridge University Press, New York, 1991.
6. Rees, J.: Natural Resources, Allocation, Economics and Policy, Methuen, London, 1988.
7. Simmons, I.G.: Earth, Air and Water Resources and Environment in Late 20th Century, Edward, Arnold, 1991.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ013**	Course Title: **GEOGRAPHY OF HIMALAYA**	

Course Learning Objectives:

1. To understand the geo-physical identity, origin, and structural evolution of the Himalaya.
2. To analyse the physiographic and ecological characteristics of the Himalayan region.
3. To examine demographic, economic, and developmental aspects of the Himalayan states.
4. To evaluate regional diversity and policy frameworks for sustainable mountain development.

Course Learning Outcomes:

1. Students will comprehend the geological formation, physiographic divisions, and geo-sensitivity of the Himalaya.
2. Students will understand the natural and anthropogenic processes shaping Himalayan landscapes and ecosystems.
3. Students will analyse demographic and economic patterns, including agriculture, tourism, and power development.
4. Students will critically assess regional planning and policy approaches for sustainable Himalayan development.

Credits: 4	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Geo-physical identity and origin of the Himalaya; Structural divisions and their regional significance; Geo-political issues and border dynamics; Cultural appraisal and ethnic diversity; Himalayan people and tribes, Geo-sensitivity and future prospects of the Himalayan region.
UNIT-II	Geomorphic process and landforms; drainage system and Himalayan water resources; Glaciers, lakes, and mountain passes; Climate and natural vegetation, Natural hazards and geo-ecological problems resulting from anthropogenic activities.
UNIT-III	Population distribution, density, and growth; Migration and urbanization trends; Agriculture, horticulture, and animal husbandry; Industrial development and tourism; Developmental challenges, Hydroelectric power projects in the Himalayan region.
UNIT-IV	Geographical division of the Western, Central, and Eastern Himalaya; Regional analysis of the Kashmir Valley, Ladakh, Lahaul & Spiti, Kathmandu Valley, Teesta Valley and Doon valley; Mountain development planning and policy, Sustainable development and climate resilience in the Himalayan states.

Suggested Readings:

1. Lal, J. S., & Moddie (Ed.). *The Himalaya: Aspect of Change*.
2. Bose, S. C. *Land and People of the Himalaya*.
3. Singh, O. P. (Ed.). *The Himalaya: Nature, Man and Culture*.
4. Joshi, S. C., & Others. *Kumaun Himalaya*.
5. Nityanand, & Kumar, K. *The Holy Himalaya: Geographical Interpretation of Garhwal Himalaya*.
6. Kharkwal, S. C. *Uttarakhand: Physio-Culture Complex*.
7. Maithani, D. D. *Central Himalaya: Ecology, Environmental Resources & Development*.
8. Rawat, M. S. S. (Ed.). *Central Himalaya: Environment and Development* (Vols. I & II).
9. Valdiya, K. S. (Ed.). (1988). *Kumaun: Land and People*.
10. Bhatt, H. P., & Bhatt, S. (1993). *Environmental Dimensions of Rural Settlements in the Himalaya*.
11. Valdiya, K. S. (1998). *The Himalayan Rivers: Aspects of Change*. Oxford & IBH Publishing, New Delhi.
12. Ives, J. D., & Messerli, B. (1989). *Himalayan Dilemma: Reconciling Development and Conservation*. Cambridge University Press, Cambridge.
13. Zoller, H. (1981). *Man and Environment in the Himalaya*. K. G. Saur Verlag, Munich.
14. Gulia, K. S. (2007). *Ecology and Environment in the Himalayas*. Isha Books, New Delhi.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ014**	Course Title: **DISSERTATION**	

Course Learning Objectives:

To discuss how to write report/dissertation.

Course Learning Outcomes:

To explain the report/dissertation writing process.

Credits: 12	*DSC*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

Note:

Topic of dissertation will be assigned by HOD or Supervisor of the Dept. concerned. HOD will ensure no repetition of topic and area. Dissertation topic will be selected from any core/elective paper offered by the student in semester only. Area of study shall be the Himalaya region preferably.

Distribution of marks

Periodical presentation (Internal Assessment) by Supervisor	- 30 Marks
Dissertation (evaluation by external examiner and supervisor jointly)	- 60 Marks
Power Point/ Viva-voce	- 10 Marks

The project report will involve statement of objectives and scope of field investigation, methods of field work for studies of different scales (Macro, Meso and Micro), Preparation of a questionnaire/schedule, sampling techniques, collection, processing, presentation, analysis and interpretation of data/information. The candidates are required to write a project report on assigned problem involving field investigations.

1. The candidates are required to submit their project reports one week before the commencement of examination to the concerned head of the department.

2. Assessment of report will be done by a Board of Examiners, consisting of external examiner and internal examiner.

3. Power point presentation is must, Separate external examiner will be appointed by the University, Supervisor of dissertation will act as an Internal examiner. In the absence of Supervisor, HOD will act as internal examiner.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSC Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSC-MJ015 (P)**	Course Title: **QUANTITATIVE & QUALITATIVE METHODS IN GEOGRAPHY**	

Course Learning Objectives:

1. To introduce students to qualitative research traditions in geography
2. To develop skills in qualitative data collection, analysis, and interpretation
3. To understand ethical, positional, and field-based dimensions of research
4. To enable students to design and conduct small-scale qualitative research

Course Learning Outcomes:

1. Understand the philosophical foundations and approaches of qualitative research
2. Apply qualitative methods such as interviews, ethnography, and observation
3. Critically analyse qualitative data using coding and thematic interpretation
4. Design and present a qualitative research project with ethical considerations

Credits: 4	*Major*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Research methods in geography, quantitative, qualitative and mixed methods, Levels of measurement, nature of data in quantitative and qualitative research; Preparing data collection tools; audio-visual methods, focus group discussion.
UNIT-II	Content and thematic analysis; discourse and narrative analysis; basic introduction to qualitative data analysis software.
UNIT-III	Measures of inequality, central tendencies and dispersion, Location quotient; Lorenz curve, Gini's Co-efficient; Nearest Neighbour Analysis; Rank Size Rule.
UNIT-IV	Correlation: Spearman's Rank and Karl Pearson's method, Simple linear regression: basic concepts and construction of regression line; Introduction to basics of R software (hands on training).

Suggested Readings:

1. Basu, P. (2009). Practical Geography: A Systematic Approach. Orient BlackSwan.
2. Tulsian, P. C. (2007). Business Statistics. Pearson Education India.
3. S. P. Gupta (2021). Statistica Methods, 46th Edition, Sultan Chand and Sons, New Delhi
4. Mahmood, A. (1998). Statistical Methods in Geographical Studies. Rajesh Publications.
5. D. N. Gujrati, D.C. Porter and S. Gunasekar (2017), Basic Econometrics, 5th Edition, McGraw Hill Education
6. Ashis Sarkar (2015). Practical Geography: A Systematic Approach, 3rd Edition, Orient BlackSwan
7. Mishra, R.P. & Ramesh A (1989). Fundamentals of Cartography, 2nd Edition, South Aisa Books
8. Singh, R. L. and R. P. B. Singh (2015). Elements of Practical Geography (English/Hindi), Kalyani Publishers
9. Hay, I. (2010). Qualitative research methods in human geography (3rd ed.). Oxford University Press.
10. Creswell, J. W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches (3rd ed.). SAGE Publications.
11. DeLyser, D., Herbert, S., Aitken, S., Crang, M., & McDowell, L. (Eds.). (2010). The SAGE handbook of qualitative geography. SAGE Publications.
12. Clifford, N., & Valentine, G. (Eds.). (2010). Key methods in geography (2nd ed.). SAGE Publications.
13. Silverman, D. (2011). Interpreting qualitative data (4th ed.). SAGE Publications.
14. Kabacoff, R. I. (2015). *R in action: Data analysis and graphics with R* (2nd ed.). Manning Publications.

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

Bachelor of Arts/ Science (B.A./B.SC.) 4 Year

Course- DSE Subject -Major

Programme**: B.A./B.Sc.**	Year: **Four**	Semester: **Eight**
Subject: **Geography**		
Course Code: **GEOG/DSE-MJ008**	Course Title: **POPULATION GEOGRAPHY**	

Course Learning Objectives:

1. Understand the fundamental concepts, theories and approaches of Population Geography and their geographical significance.
2. Analyse population distribution, composition, dynamics and migration using demographic data and geographical methods.
3. Evaluate population issues, policies and development challenges from local, national and global perspectives.

Course Learning Outcomes:

1. Explain the concepts, theories and methods of Population Geography.
2. Interpret demographic data to identify patterns of population distribution, composition and change.
3. Analyse the spatial dimensions of fertility, mortality, migration and population growth.

Credits: 4	*DSE*
*Max. Marks: **30+70***	*Min. Passing Marks: **35***

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

Unit	**Course Contents**
UNIT-I	Nature, scope and significance of Population Geography and its relationship with demography, Relevance of Population Geography; Recent approaches and methods to study population geography.
UNIT-II	Population structure and composition; Population growth, density, distribution patterns and their determinants; Concepts of under, over and optimum Population.
UNIT-III	Concepts and measurements of fertility, mortality and migrations; major theories of fertility, mortality and migration, demographic transition theory, demographic dividend.
UNIT-IV	Concept of Human Resource and Management; Population resource regions; Population planning and policies in under-developed and developed countries, Human development index; National Population Policies in India.

Suggested Readings:

1. Asha A. Bhende and Tata Kanitkar (2024). Principles of Population Studies, 19th Edition, Himalaya Publishing House Pvt. Ltd., India
2. Chandna, R.C. (2000). A Geography of Population; Concept, Determinants and Patterns, Kalyani Pub. New Delhi
3. Beaujeu-Garnier, Jacqueline (1978). Geography of Population, Longman, London 1970.
4. Srinivasan, K. (1997). Basic Demographic Techniques and Applications, Sage Pub. New Delhi,
5. Clarke, J.I. (1972). Population Geography, Pergamon. Oxford
6. Bhagat, R. B. and Rajan, S. I. (2023). Researching Internal Migration, Routledge, London
7. Bhagat, R. B. (2008). Assessing the measurement of internal migration in India , Asian and Pacific Migration Journal, 17(1), 91-102
8. Md Izhaar Hassan (2020): Population Geography-A Systematic Exposition, Routledge, London
9. United Nations Demographic Manuals: https://www.unpopulation.org/en/development/desa/population/publications/manual/index.html
10. ORGI, UNFPA (2014), Training Manual on Demographic Techniques,

    https://india.unfpa.org/en/publications/training-manual-demographic-techniques

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

Marks distribution of theory examination: 3**0 marks** by **internal** assessment and 7**0 marks** by **external** assessment.

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