SCHEME AND SYLLABI

3-Year UG Degree (Bachelor of Geography)
4 Year UG Degree (Bachelor of Geography-Honours)
4 Year UG Degree (Bachelor of Geography- Hons. with Research)

Approved by
Board of Under Graduate Studies
in its meeting held on
23rd February, 2024

and

Approved by
Faculty of Physical Science
in its meeting held on
05th June, 2024

DEPARTMENT OF GEOGRAPHY
FACULTY OF PHYSICAL SCIENCE
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1. Introduction to the Programme

In this recent era, it has become inevitable to prepare minds for future by providing quality higher education. Though quality may be viewed through different criteria however, B.A./B.Sc. (Honours/Research) Programme is designed to enable and give power to focus on the current socio-spatial problems, issues and challenges to make the students aware of the application of geography to sort out the societal upcoming problems. It is also essential to rejuvenate the ancestral geographical knowledge to address the current local and global problems. In the light of exponential changes in the field of arts, science and technology, it is to be studied from multifaceted angles. It is important for the policy makers to consider the geo-spatial aspects with references to the location and in context of the best utilization of public utilities. It is further expected that if the above said spatial aspects are considered, it will certainly develop the lagging regions and people living therein. This programme aims at infusing conceptual understanding and practical aspects to prepare students to deal with business realities of today and prepares them to drive and face the challenges of tomorrow. It also exposes the students to the world of technology and digitization in the relevant field as imagined by the entrepreneurs, economist, scholars and lawmakers. This course is designed to help and enlighten the students in different geographical approach, expert knowledge in different fields of geography and organization.

2. Learning Outcome-based Curriculum Framework in Programme Outcomes (POs) of B.A./B.Sc. (Honours/Research)- Four year:

The courses of this programme have been designed to promote understanding of the issues that are challenging the world geographical features and landscape in the world. The programme will help to understand various systems, policy frameworks and strategies desired to planner and administer the rapid changes in an organization's globally oriented environment like equipping students with an understanding of the ecosystem, environment, natural hazards and disaster, space technology etc.The principles on which it operates, interdependence and regulatory concerns apart from exposure of different functional domains. B.A./B.SC. (Honours/Research) is a highly prominent course of modern times and prepares the participants for taking up middle and top-level challenging executive assignments in private and public sectors. Accordingly, they are imparted adequate conceptual knowledge and practical training in various functional areas of geography by taking GPS knowledge, surveying and data collection as a specialization. B.A./B.SC. (Honours/Research) degree is structured to provide the students with the surveying and research skills in disciplines related to geography. Also, by the end of the programme students gain an in-depth knowledge on the core subjects like Geomorphology, Climatology, Geographical Thought, Statistics, GIS and Remote Sensing. B.A./B.SC. (Honours/Research) programme is a four years graduate programme divided into eight semesters. The programme is aimed at following outcomes:

2.1 Objectives of the Programme:

After the students complete this program, they will be able to prepare a progressive mindset by developing the comparative thing, disciplinary knowledge, communication skills, team work, co-operation., management skills, multi-tasking, attributes, qualities and skills.

2.2. Programme Learning Outcomes for the Programme:

This programme brings out the following outcomes:

PO1: Deep Understanding/Knowledge of Geography

The aim of this programme is to make the learners understand the concepts of geography. The content of this

program is so designed that it will help the students to capable of demonstrating comprehensive disciplinary knowledge gained during course of study.

PO2: Developing the Entrepreneurship skills

The aim of this program is to provide the students to start their own work and entrepreneurship skills. The knowledge of the different specialization in space technology, field surveying, mapping, scaling with the help of practical exposure will help the students to stand in an organization. The content is organized in such a way that the students would be able to think from various perspectives and suggest solutions according to their individual sensibilities.

PO3: Capability of the students to make decisions at the personal and professional level

In order to improve geographic education, a better understanding of student's decision making is required. The graduates of this programme will be trained to develop skills and attitudes needed for decisive thinking and adopting an inclusive problem-solving approach. They shall be exposed to the pedagogy that helps them understand real life situations through case-studies. It aims at building the basic ability to think critically, evaluate analytically and solve complex problems innovatively.

PO4: Communication Skill and Team work/cooperation

After the graduates the students communicate effectively on general and scientific topics with the scientific community and with society at large scale. The teaching learning pedagogies used in the programme make the students capable enough to deliver and communicate information effectively up to a mark. The curriculum also inculcates in the young minds the qualities of teamwork, cooperation and communication skill. The course includes the knowledge and understanding of group dynamics, recognise opportunities and contribute positively to collaborative research, demonstrate a capacity for self-management and teamwork, in order to achieve common goals and further the learning of themselves as well as others.

PO5: Information/Digital Literacy

This programme enables the students to be technologically updated as it has courses like computer applications and information technology etc. which not only make them work using software but also makes them independent enough in this world of digitization. In all the courses, wherever applicable and possible, components related to technological changes have been incorporated which not only makes them digitally literate but also makes them aware of various cyber-crimes and how to take precautionary measures.

PO6: Lifelong Learning

This course broadens the horizons of the students by making them understands the details of the world geography and their techniques and issues. This learning makes them probing to raise concerns and act accordingly. The curriculum is designed in such a way that the students are driven to develop an attitude of life-long learning. The lifelong learning will not only enhance the social inclusion and personal development but also the self-sustainability as well as competitiveness and employability.

2.3. Programme Specific Objectives:

PSO1: The learners will understand the human and physical environmental phenomena using specialized knowledge pertaining to various sub-fields of Geography. The students involve in teaching, Stock Agents and Government Employment etc. after the completion of graduate in Geography.

PSO2: The programme will help the learners to prove themselves in the different Competitive and Professional Examinations like CET, HTET, STET, CGL, UPSC, *etc*.

PSO3: The students can move on further towards the research work in the field of Geography.

PSO4: The vast syllabus covers various comprehensive fields and accountancy will helps the students to grasp the practical and theoretical knowledge.

3. Programme Structure

Bachelor of Art - Four year (Eight Semesters) Undergraduate Programme is of 180 credits consisting of Discipline Specific Courses (DSC), Minor(MIC)/Vocational (VOC) Courses, Skill Enhancement Courses (SEC), Ability Enhancement Courses (AEC), Multidisciplinary courses (MDC) and Value Added Courses (VAC).

Curriculum and Credit Framework for Bachelor of Art - Four year (Eight Semesters)

Table 1: Curriculum and Credit Framework for Undergraduate Programmes (Single Major)

Semester	Discipline-Specific Courses (DSC)	Minor(MIC)/ Vocational (VOC)	Multidisciplinary courses(MDC)	Ability Enhancement courses(AEC)	Skill Enhancement Courses (SEC)/ Internship /Dissertation	Value-Added Courses (VAC)	Total Credits
I	DSC/101@ 4 credits DSC/102@ 4 credits	MIC/101@ 4 credits	MDC/101@ 3 credits	AEC/101 @ 2 credits	SEC/101@ 3 credits	VAC/101 @ 2 credits	22
II	DSC/103 @ 4 credits DSC/104 @ 4 credits	MIC/102@ 4 credits	MDC/102@ 3 credits	AEC/102 @ 2 credits	SEC/102@ 3 credits	VAC/102 @ 2 credits	22
Students exiting the programme after second semester and securing 48 credits including 4 credits of summer internship will be awarded UG Certificate in the relevant Discipline/Subject							
III	DSC/201 @ 4 credits DSC/202 @ 4 credits	MIC/201@ 4 credits	MDC/201 @ 3 credits	AEC/201 @ 2 credits	SEC/201@ 3 credits	VAC/201 @ 2 credits	22
IV	DSC/203 @ 4 credits DSC/204 @ 4 credits DSC/205 @ 4 credits DSC/206 @ 4 credits	MIC/202@ 4 credits	----------	AEC/202 @ 2 credits	----------	VAC/202@ 2 credits	24
Students exiting the programme after fourth semester and securing 94 credits including 4 credits of summer internship will be awarded UG Diploma in the relevant Discipline/Subject							
V	DSC/301 @ 4 credits DSC/302 @ 4 credits DSC/303 @ 4 credits DSC/304 @ 4 credits	MIC/301@ 4 credits	----------	----------	Internship @ 4 credits#	----------	24
VI	DSC/305 @ 4 credits DSC/306 @ 4 credits DSC/307 @ 4 credits DSC/308 @ 4 credits	MIC/302@ 4 credits	----------	----------	SEC/301@ 2 credits	----------	22
Students will be awarded 3-year UG Degree in relevant major Discipline/Subject upon securing 136 credits.							
VII*	DSC/401 @ 4 credits DSC/402 @ 4 credits DSC/403 @ 4 credits DSC/404 @ 4 credits DSC/405 @ 4 credits	MIC/401@ 4 credits	----------	----------	----------	----------	24
VIII* (4yr UG Hon.)	DSC/406 @ 4 credits DSC/407 @ 4 credits DSC/408 @ 4 credits DSC/409 @ 4 credits DSC/410 @ 4 credits	MIC/402@ 4 credits	----------	----------	----------	----------	24
VIII*	DSC/406@ 4 credits	MIC/402@ 4 credits	----------	----------	Research project/	----------	24

(4yr UG Hon. with Research)	DSC/407@ 4 credits				Dissertation@ 12 credits		
						TOTAL CREDITS	184

#Four credits of internship earned by a student during summer internship after 2nd semester or 4th semester will be counted in 5th semester of a student who pursue 3 year UG Programmes without taking exit option.

Table 2: Curriculum and Credit Framework for Undergraduate Programmes (Single Major)
(For students who choose to pursue single major after 2nd semester of multidisciplinary Programmes)

Semester	Discipline-Specific Courses (DSC)	Minor(MIC)/ Vocational (VOC)	Multidisciplinary courses(MDC)	Ability Enhancement courses(AEC)	Skill Enhancement Courses (SEC)/ Internship /Dissertation	Value-Added Courses (VAC)	Total Credits
I	DSC/101@ 4 credits	MIC/101@ 2 credits	MDC/101@ 3 credits	AEC/101 @ 2 credits	SEC/101@ 3 credits	VAC/101 @ 2 credits	24
	DSC/102@ 4 credits						
	DSC/103 @ 4 credits						
II	DSC/104 @ 4 credits	MIC/102@ 2 credits	MDC/102@ 3 credits	AEC/102 @ 2 credits	SEC/102@ 3 credits	VAC/102 @ 2 credits	24
	DSC/105 @ 4 credits						
	DSC/106 @ 4 credits						
Students exiting the programme after second semester and securing 52 credits including 4 credits of summer internship will be awarded UG Certificate in the relevant Discipline /Subject							
III	DSC/201 @ 4 credits	MIC/201@ 4 credits	MDC/201 @ 3 credits	AEC/201 @ 2 credits	SEC/201@ 3 credits	----------	24
	DSC/202 @ 4 credits						
	DSC/203 @ 4 credits						
IV	DSC/204 @ 4 credits	MIC/202@ 4 credits	----------	AEC/202 @ 2 credits	----------	VAC/201 @ 2 credits	24
	DSC/205 @ 4 credits						
	DSC/206 @ 4 credits						
	DSC/207 @ 4 credits						
Students exiting the programme after fourth semester and securing 100 credits including 4 credits of summer internship will be awarded UG Diploma in the relevant Discipline/Subject							
V	DSC/301 @ 4 credits	----------	----------	----------	Internship @ 4 credits#	----------	20
	DSC/302 @ 4 credits						
	DSC/303 @ 4 credits						
	DSC/304 @ 4 credits						
VI	DSC/305 @ 4 credits	MIC/301@ 4 credits	----------	----------	----------	----------	20
	DSC/306 @ 4 credits						
	DSC/307 @ 4 credits						
	DSC/308 @ 4 credits						
Students will be awarded 3-year UG Degree in relevant major Discipline/Subject upon securing 136 credits.							

VII*	**DSC/401 @ 4 credits**	**MIC/401@ 4 credits**	----------	----------	----------	----------	**24**
	DSC/402 @ 4 credits						
	DSC/403 @ 4 credits						
	DSC/404 @ 4 credits						
	DSC/405 @ 4 credits						
VIII* **(4yr UG Hon.)**	**DSC/406 @ 4 credits**	**MIC/402@ 4 credits**	----------	----------	----------	----------	**24**
	DSC/407 @ 4 credits						
	DSC/408 @ 4 credits						
	DSC/409 @ 4 credits						
	DSC/410 @ 4 credits						
VIII* **(4yr UG Hon. with Research)**	**DSC/406@ 4 credits**	**MIC/402@ 4 credits**	----------	----------	**Research project/ Dissertation@ 12 credits**	----------	**24**
	DSC/407@ 4 credits					**TOTAL CREDITS**	**184**

#Four credits of internship earned by a student during summer internship after 2nd semester or 4th semester will be counted in 5th semester of a student who pursue 3 year UG Programmes without taking exit option.

Table 2: Courses and Credit Scheme of Multidisciplinary
3-Year UG Degree (Bachelor of Art/Science) and
4 Year UG Degree (Bachelor of Art/Science-Honours/Honours with Research)

Sr. No.	Course Code	Course Title	Credits			
	Discipline Specific Courses (DSC)		**L**	**T**	**P**	**Total**
1.	BA/BSC/MD/GEO/1/DSC/101	Physical Geography	3		1	4
2.	BA/BSC/MD/GEO/2/DSC/103	Human Geography	3		1	4
3.	BA/BSC/MD/GEO/3/DSC/201	Geography of India	3		1	4
4.	BA/BSC/MD/GEO/4/DSC/203	Fundamentals of Economic Geography	3		1	4
5.	BA/BSC/MD/GEO/5/DSC/301	Statistical Methods in Geography	3		1	4
6.	BA/BSC/MD/GEO/6/DSC/305	Fundamentals of Remote Sensing	3		1	4
7.	BA/BSC/MD/GEO/7/DSC/401	Geography and Climates	4			4
8.	BA/BSC/MD/GEO/7/DSC/402	Landforms: Origin, Structure and Processes	4			4
9.	BA/BSC/MD/GEO/7/DSC/403	Geography and World Economies	4			4
10.	BA/BSC/MD/GEO/7/DSC/404	Geography of Asia	4			4
11.	BA/BSC/MD/GEO/7/DSC/405	Population Dynamics and Policies	4			4
12.	BA/BSC/MD/GEO/8/DSC/406	Geography and Hazard Management	4			4
13.	BA/BSC/MD/GEO/8/DSC/407	Research Methodology in Geography	4			4
14.	BA/BSC/MD/GEO/8/DSC/408	Geography of Agriculture and Food Security	4			4
15.	BA/BSC/MD/GEO/8/DSC/409	Geography of Europe	4			4
16.	BA/BSC/MD/GEO/8/DSC/410	Environmental Geography	4			4
17.	BA/BSC/MD/GEO/8/DSC/411	Research Methodology in Geography	4			4
18.	BA/BSC/MD/GEO/8/DSC/412	Geographical Thought	4			4
	Minor (MIC)/Vocational (VOC)					
19.	BA/BSC/MD/GEO/1/MIC/101	General Geography of Haryana	2			2
20.	BA/BSC/MD/GEO/2/MIC/102	General Geography of India	1		1	2
21.	BA/BSC/MD/GEO/3/MIC/201	Resource Geography of India	3		1	4
22.	BA/BSC/MD/GEO/4/MIC/202	Introduction to Geographical Information System (GIS)	3		1	4
23.	BA/BSC/MD/GEO/5/MIC/301	Geography of Disaster Management	3		1	4
24.	BA/BSC/MD/GEO/6/MIC/302	Making of Maps	3		1	4

25.	BA/BSC/MD/GEO/7/MIC/401	Advanced Cartography	4			4
26.	BA/BSC/MD/GEO/8/MIC/402	Morphometric Analysis of Landforms	4			4
27.	BA/BSC/MD/GEO/8/MIC/403	Geography and Watershed Management	4			4
	Multidisciplinary Courses (MDC)					
28.	BA/BSC/MD /GEO/1/MDC/101	Physical Geography of India	2		1	3
29.	BA/BSC/MD /GEO/2/MDC/102	Human Geography of India	2		1	3
30.	BA/BSC/MD /GEO/3/MDC/201	Geographical Landscapes: Exploration beyond the classroom learning	2		1	3
	Ability Enhancement Course (AEC)					
31.	BA/BSC/MD/GEO/1/AEC/101	Select from Central Pool	2			2
32.	BA/BSC/MD/GEO/2/AEC/102	Select from Central Pool	2			2
33.	BA/BSC/MD/GEO/3/AEC/201	Select from Central Pool	2			2
34.	BA/BSC/MD/GEO/4/AEC/202	Select from Central Pool	2			2
	Skill Enhancement Courses (SEC)					
35.	BA/BSC/MD /GEO/1/SEC/101	Maps and Scales			3	3
36.	BA/BSC/MD /GEO/2/SEC/102	Maps and Diagrams			3	3
37.	BA/BSC/MD /GEO/3/SEC/201	Representation of Climatic data			3	3
38.	BA/BSC/MD /GEO/5/SEC/301	Internship			4	4
39.	BA/BSC/MD /GEO/6/SEC/302	Introduction to Remote Sensing			2	2
40.	BA/BSC/MD /GEO/8/SEC/401	Research Project			12	12
	Value Added Course (VAC)					
41.	BA/BSC/MD/GEO/1/VAC/101	Select from Central Pool	2			2
42.	BA/BSC/MD/GEO/2/VAC/102	Select from Central Pool	2			2
43.	BA/BSC/MD/GEO/3/VAC/201	Select from Central Pool	2			2
44.	BA/BSC/MD/GEO/4/VAC/202	Select from Central Pool	2			2

Table 3: Course code and Title along with the credit details (B.A./B.Sc.)

Semester	Course Code	Course Title	Credits			
			L	T	P	Total
1st	BA/BSC/MD/GEO/1/DSC/101	Physical Geography	3		1	4
	BA/BSC/MD/GEO/1/MIC/101	General Geography of Haryana	2			2
	BA/BSC/MD /GEO/1/MDC/101	Physical Geography of India	2		1	3
	BA/BSC/MD /GEO/1/SEC/101	Maps and Scales			3	3
2nd	BA/BSC/MD/GEO/2/DSC/103	Human Geography	3		1	4
	BA/BSC/MD/GEO/2/MIC/102	General Geography of India	1		1	2
	BA/BSC/MD /GEO/2/MDC/102	Human Geography of India	2		1	3
	BA/BSC/MD /GEO/2/SEC/102	Maps and Diagrams			3	3
3rd	BA/BSC/MD/GEO/3/DSC/201	Geography of India	3		1	4
	BA/BSC/MD/GEO/3/MIC/201	Resource Geography of India	3		1	4
	BA/BSC/MD /GEO/3/MDC/201	Geographical Landscapes: Exploration beyond the classroom learning	2		1	3
	BA/BSC/MD /GEO/3/SEC/201	Representation of Climatic data			3	3
4th	BA/BSC/MD/GEO/4/DSC/203	Fundamentals of Economic Geography	3		1	4
	BA/BSC/MD/GEO/4/MIC/202	Introduction to Geographical Information System (GIS)	3		1	4
5th	BA/BSC/MD/GEO/5/DSC/301	Statistical Methods in Geography	3		1	4
	BA/BSC/MD/GEO/5/MIC/301	Geography of Disaster Management	3		1	4
	BA/BSC/MD /GEO/5/SEC/301	Internship			4	4
6th	BA/BSC/MD/GEO/6/DSC/305	Fundamentals of Remote Sensing	3		1	4
	BA/BSC/MD/GEO/6/MIC/302	Making of Maps	3		1	4
	BA/BSC/MD /GEO/6/SEC/302	Introduction to Remote Sensing			2	2
7th	BA/BSC/MD/GEO/7/DSC/401	Geography and Climates	4			4
	BA/BSC/MD/GEO/7/DSC/402	Landforms: Origin, Structure and Processes	4			4
	BA/BSC/MD/GEO/7/DSC/403	Geography and World Economies	4			4
	BA/BSC/MD/GEO/7/DSC/404	Geography of Asia	4			4
	BA/BSC/MD/GEO/7/DSC/405	Population Dynamics and Policies	4			4
	BA/BSC/MD/GEO/7/MIC/401	Advanced Cartography	4			4
	Total Credits		**24**			**24**
8th (4yr UG Hon.)	BA/BSC/MD/GEO/8/DSC/406	Geography and Hazard Management	4			4
	BA/BSC/MD/GEO/8/DSC/407	Research Methodology in Geography	4			4
	BA/BSC/MD/GEO/8/DSC/408	Geography of Agriculture and Food Security	4			4
	BA/BSC/MD/GEO/8/DSC/409	Geography of Europe	4			4
	BA/BSC/MD/GEO/8/DSC/410	Environmental Geography	4			4
	BA/BSC/MD/GEO/8/MIC/402	Morphometric Analysis of Landforms	4			4
	Total Credits		**24**			**24**

8th (4yr UG Hon. with Research)	BA/BSC/MD/GEO/8/DSC/411	Research Methodology in Geography	4			4
	BA/BSC/MD/GEO/8/DSC/412	Geographical Thought	4			4
	BA/BSC/MD/GEO/8/MIC/403	Geography and Watershed Management	4			4
	BA/BSC/MD/GEO/8/SEC/401	Research Project			12	12
	Total Credits		12		12	24

BA/BSC/MD/GEO/1/DSC/101: Physical Geography

Duration: 3 Hours **Credit 03, Maximum Marks: 75**
(External Evaluation: 50, Internal Assessment: 25)

Course Objective: The objective of this course is to enable the student to become familiar with Physical Geography.

After completing this course, the learner will be able to:

CO1: understand about the agents and processes of change on the surface of earth.
CO2: enrich knowledge about atmosphere and its climate.
CO3: attain knowledge about ocean surface configuration and circulation in oceanic water.
CO4: attain skills in solving practical problems associated with physical geography.

Unit	Topics
I	1. Interior of the earth, geological time scale, rocks and their types. 2. Theory of isostasy, continental drift and plate tectonic; earthquakes and volcanoes.
II	3. Degradational processes: weathering, mass wasting and resultant landforms. 4. Weather and climate: Atmosphere-composition and structur
III	5. Surface configuration of ocean floors: surface relief of the Pacific, Atlantic and Indian Ocean. 6. Circulation of oceanic waters: current of the Pacific, Atlantic and Indian Ocean.

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**

Practical Record: A project file consisting of 8 exercises on the below mentioned themes: -

1. Identification and collection of rock samples: granite, basalt, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite (1 exercise).
2. Extraction of physiographic information from Survey of India 1:50000 topographical maps of mountain, plateau and plain regions (2 exercises).
3. Measurement of weather elements using analogue instruments: temperature (maximum, minimum and mean) relative humidity, rainfall and preparation of climograph, hythergraph and hyetograph (3 exercises).
4. Interpretation of a daily weather map of India: Pre-Monsoon, Monsoon and Post-Monsoon (2 exercises).

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Critchfield, H (2002) General Climatology, Prentice-Hall of India, New Delhi.
2. Kale, V and Gupta, A (2001) Element of Geomorphology, Oxford University Press, Calcutta.
3. Khullar, DR (2014) Physical Geography, Kalyani Publishers, New Delhi.
4. Monkhouse, FJ (1960) Principles of Physical Geography. Hodder and Stoughton, London.
5. Singh, S (1998) Geomorphology, Prayag Publication, Allahabad.
6. Singh, S (2012) Physical Geography, Prayag Publication, Allahabad.

BA/BSC/MD/GEO/1/MIC/101: General Geography of Haryana

Duration: 3 Hours **Credit 02, Maximum Marks: 50**
(External Evaluation: 35, Internal Assessment: 15)

Course Objective: The objective of this course is to help the students in understanding the geographical structure and resources.

After completing this course, the learner will be able to:

CO1: Acquaint with physiography and climate of state. Understand the agriculture and industrial status of the state.

CO2: Familiarize with population distribution and literacy of the state.

Unit	Topics
I	1. Physiography, relief and climate of Haryana. Drainage, soils and natural vegetation. 2. Agriculture: cropping pattern and challenges. Major industries and industrial centres of Haryana.
II	3. Population: distribution, density and growth. Population composition: structure and literacy. 4. Pattern of trade and transport. Cultural regions of Haryana.

Instructions for Paper- Setter

The question paper will consist of five questions in all. The first question will be compulsory and will consist of seven short questions of 1 marks each covering the whole syllabus. In addition, four more questions of 14 marks each will be set unit-wise comprising of two questions from each of the two units. The candidates are required to attempt one compulsory question and two more questions selecting at least one question from each unit.

Suggested Readings:

1. Census of India (1981) Regional Division in Haryana.
2. Census of India (2001) Administrative Atlas of Haryana.
3. Deshpande CD (1992) India: A Regional Interpretation, ICSSR and Northern Book Centre.
4. FICCI (2007) State of Infrastructure in Haryana.
5. Singh, Jasbir (1976) Agricultural Geography of Haryana, Vishal Publishers, Kurukshetra.
6. Singh, R.L. (1971) India-A Regional Geography, National Geographical Society, Varanasi

BA/BSC/MD/GEO/1/MDC/101: Physical Geography of India

Duration: 3 Hours **Credit 02, Maximum Marks: 50**
(External Evaluation: 35, Internal Assessment: 15)

Course Objective: The objective of this course is, the students gets the knowledge of physical geography such as climate, air and relief features.

After completing this course, the learner will be able to:

CO1: Understand the geological and physiographic structure of India.
CO2: Enrich skills about drainage system and various hydrological regimes.
CO3: Understand the climate and its characteristics.
CO4: Attain skills in solving various practical problem associated with physical aspects of India.

Unit	Topics
I	1. Geological history and regions of India. Physiographic structure and divisions. 2. Drainage system and its evolution. 3. Hydrological regimes of Indian rivers.
II	4. Climate: distribution of temperature, pressure and rainfall; classification and affecting factors. 5. Natural vegetation: classification, distribution and inter-relationships. 6. Soils: classification, distribution and inter-relationships.

Instructions for Paper- Setter

The question paper will consist of five questions in all. The first question will be compulsory and will consist of seven short questions of 1 marks each covering the whole syllabus. In addition, four more questions of 14 marks each will be set unit-wise comprising of two questions from each of the two units. The candidates are required to attempt one compulsory question and two more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**

Practical Record: A project file consisting of 8 exercises on the below mentioned themes: -

1. Hydrological regimes of peninsular and Himalayan Rivers (2 exercises).
2. Annual trend of temperature for more than three decades (maximum, minimum and mean) (2 exercises).
3. Comparative analysis of seasonal variability of rainfall from different climatic reasons of India (2 exercises).
4. Preparation of an inventory of flora and fauna in India (1 exercise).
5. Preparation of an inventory of major geological disasters in past one decade in India (1 exercise).

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Deshpande, C.D. (1992) India-A Regional Interpretation, Northern Book Depot, New Delhi.
2. Hussain Majid (2015) Geography of India, Mc Graw Hill Education.
3. Shafi, M. (2000) Geography of South Asia, McMillan and Company, Calcutta.
4. Singh, Gopal (2006) Geography of India, Atma Ram and Sons, New Delhi.
5. Singh, R.L. (1971) India: A Regional Geography, National Geographical Society, India, Varanasi.

BA/BSC/MD/GEO/1/SEC/101: Maps and Scales (Practical)

Duration: 3 Hours **Credit 03, Maximum Marks: 75**

Course Objective: To impart basic knowledge of the maps and scales for geography practical.

After completion of the course, learners will be able to:

CO1: Knowledge about cartographic skills.
CO2: Provides understanding about map scales.
CO3: Measurement skills of distances and areas on maps.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**

Practical Record: A project file consisting of 12 exercises on the below mentioned themes: -

1. Introduction to Cartography.
2. Maps and their types.
3. Map Scales.
   (i) Methods of Expressing a scale 2 exercise
   (ii) Conversion of Statement of Scale into R.F. and vice-versa. 1 exercise
   (iii) Plain Scale (km and mile) 1 exercise
   (iv) Comparative Scale 2 exercise
   (v) Diagonal Scale 2 exercise
4. Measurement of Distances and Areas on Maps 2 exercise
5. Enlargement and Reduction of Maps 2 exercise

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each. The candidates are required to attempt one compulsory question and three more questions.

Suggested Readings:

1. F.J. Monkhouse and H.R. Wilkinson (1972) Maps and Diagrams, Methuen and Co. Ltd., London
2. L.R. Singh and Raghuvander Singh (1973), Map Work and Practical Geography, Central Book Depot, Allahabad.
3. R.L. Singh and P.K. Dutt (1968), Elements of Practical Geography, Students Friends, Allahabad.
4. Singh Gopal (2004). Map Work and Practical Geography, Vikas Publication House.

BA/BSC/MD/GEO/3/DSC/201: Human Geography

Duration: 3 Hours **Credit 04, Maximum Marks: 100**
(External Evaluation: 70, Internal Assessment: 30)

Objective: The course aims to develop the knowledge of students about human aspects like density of population, sex composition, literacy rate etc.

After completing this course, the learner will be able to:

CO 1: gain knowledge about the fundamentals of human geography.
CO 2: enhance the knowledge of race and religion.
CO 3: understand the organization of space.
CO4: gain knowledge of mapping socio – economic and demographic data.

Unit	Topics
I	1. Definition, nature and scope of human geography. 2. Development of human geography approaches to study human geography, branches and relation with other social sciences.
II	3. Human race: Meaning, classification of races and their global diffusion and distribution. 4. Religion: Meaning, nature and classification. Evolution and global distribution of major religions in the world.
III	5. Organization of space: central place theory, agricultural location model and industrial location model. 6. Distribution, density, growth, migration of population: Determinants and world pattern.
	Note for the Paper Setter: The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation
Credit 01, Maximum Marks: 25
Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**
Practical Record: A project file consisting of 8 exercises on the below mentioned themes: -

1. Composition of major religions of the world (1 exercise).
2. Methods of representing population distribution and density (2excercises).
3. Flow diagram of migration streams of world population (1excercise).
4. Plotting of isotims and isodapane (2 exercises).
5. Spatial and temporal growth of world population (2 exercises).

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Agarwal, A et al (1999) The Citizen's Fifth Citizen's Report, Centre for Science & Environment, New Delhi.
2. Alexander, John. W. (1988) Economic Geography, Prentice Hall of India Ltd., New Delhi.
3. Bergwan, Edward E. (1985) Human Geography: Culture Connections and Landscape, Prentice-Hall, New Jersey.
4. Carr, M. Patterns (1987) Process and Change in Human Geography, McMillan Education, London.
5. Carter, H. (1972) The study of Urban Geography, Edward Arnold, London.

BA/BSC/MD/GEO/2/MIC/102: General Geography of India

Duration: 3 Hours **Credit 02, Maximum Marks: 50**
(External Evaluation: 35, Internal Assessment: 15)

Course Objective: To give the basic knowledge of the India location, relief structure, climate, vegetation, population, industries etc.

After completing this course, the learner will be able to:

CO1: Understand the location, geographical expansion, and physiography.

CO2: Internalize the concept of unity in diversity of our nation.

Unit	Topics
I	1. India: Locational setting and geographical expansion. Physiographic divisions of India. Drainage system and climate. Soil and natural vegetation.
II	1. The Peopling of India. Population distribution, density and growth. Population composition: ethnic and socio-cultural attributes (castes and tribes). Unity in diversity in India.

Instructions for Paper- Setter

The question paper will consist of five questions in all. The first question will be compulsory and will consist of seven short questions of 1 marks each covering the whole syllabus. In addition, four more questions of 14 marks each will be set unit-wise comprising of two questions from each of the two units. The candidates are required to attempt one compulsory question and two more questions selecting at least one question from each unit.

Suggested Readings:

1. Bose, A. et. al. eds (2001) Population in India's Development, 1947-2000, Vikas, New Delhi.
2. Deshpande C. D. (1992) India: A Regional Interpretation, ICSSR, New Delhi.
3. Johnson, B. L. C., ed. (2001) Geographical Dictionary of India. Vision Books, New Delhi.
4. Sdyasuk Galina and P Sengupta (1967) Economic Regionalisation of India, Census of India
5. Sharma, T. C. (2003) India - Economic and Commercial Geography. Vikas Publ., New Delhi.

BA/BSC/MD/GEO/2/MDC/102: Human Geography of India

Duration: 3 Hours **Credit 02, Maximum Marks: 50**
(External Evaluation: 35, Internal Assessment: 15)

Course Objective: The objective of this course is to help the students in understanding the human aspects of Geography.

After completing this course, the learner will be able to:

CO1: gain knowledge about population characteristics of India.
CO2: have understanding about distribution of tribes in India
CO3: acquaint with distribution of religion in India
CO4:understand the mapping of racial and cultural characteristics of Indian population

Unit	Topics
I	1. Population distribution, density and growth. 2. Population composition, sex ratio and literacy.
II	3. Pattern and growth of urbanization. 4. Working population: composition and distribution.
III	5. Linguistic and cultural diversity in India. 6. Distribution of scheduled tribe population in India Religion: distribution of major religions in India.

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**

Practical Record: A project file consisting of 8 exercises on the below mentioned themes: -

1. Age and sex pyramid of Indian population (1 exercise).
2. State wise distribution and composition of working population in India (1 exercises).
3. Map the scheduled tribe population distribution in India (1 exercises).
4. Concentration of urban population by location quotient (1 exercise).
5. Distribution of scheduled caste population (1 exercises).
6. Composition of the major religions in India (1 exercises).
7. Distribution of literacy –rural - urban and male-female (2 exercises).

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Agarwal, A et al (1999) The Citizen's Fifth Citizen's Report, Centre for Science & Environment, New Delhi.
2. Alexander, John. W. (1988) Economic Geography, Prentice Hall of India Ltd., New Delhi.
3. Bergwan, Edward E (1985) Human Geography: Culture Connections and Landscape, Prentice-Hall, New Jersey.
4. Carr, M. Patterns (1987) Process and Change in Human Geography, McMillan Education, London.
5. Carter, H. (1972) The study of Urban Geography, Edward Arnold, London.
6. Chandna, R.C. (2016) A Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi.

BA/BSC/MD/GEO/2/SEC/102: Maps and Diagrams

Duration: 3 Hours **Credit 03, Maximum Marks: 75**

Course Objective: To impart basic knowledge of the geographical maps and diagrams.

After completing this course, the learner will be able to:

CO1: Knowledge about different types of thematic maps.
CO2: Skill acquisition for construction of qualitative distribution maps.
CO3: Ability to construct quantitative thematic maps.

Distribution of Marks for Evaluation

Experiment and Written Part = 50 **Viva-voce = 15** **Lab Records= 10**

Practical Record: A project file consisting of 8 exercises on the below mentioned themes: -

1. Principal of map design and layout
2. Symbolization: point, line and area symbol
3. Lettering and toponomy
4. Mechanics of map construction
5. Distribution maps

   (i) Qualitative distribution maps

   - Choro schematic maps 1 Exercise
   - Choro chromatic maps 2 Exercise

(ii) Quantitative distribution Maps

- Isopleth maps 3 Exercises
- Choropleth maps 3 Exercises
- Dot maps 3 Exercises
- Diagrammatic maps 3 Exercises.

6. Chain and tape survey

Note for the Paper Setter: The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks, the candidates are required to attempt one compulsory question and three more questions in all.

Suggested Readings:

1. Mishra RP and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
2. Monkhouse FJ and Wilkinson HR. 1972. Maps and Diagrams, Methuen Press, London
3. Singh Gopal. 2004. Map Work and Practical Geography, Vikas Publication House, New Delhi.
4. Singh RL. 1979. Elements of Practical Geography, Kalyani Publishers, New Delhi

BA/BSC/MD/GEO/3/DSC/201: Geography of India

Duration: 3 Hours **Credit 03, Maximum Marks: 75**
(External Evaluation: 50, Internal Assessment: 25)

Course Objective: To give the basic knowledge of the India location, relief structure, climate, vegetation, population, industries etc.

After completing this course, the learner will be able to:

CO1: provide knowledge about the physiography of our nation.
CO2: understand the agriculture and irrigation system.
CO3: understand the basic demographic structure and literacy.
CO4: acquire knowledge of socio-economic and demographic data

I	1. Physical divisions and drainage system. 2. Climate, soils and natural vegetation.
II	3. Agricultural crops: major crops and cropping pattern, green revolution and its impacts. 4. Development of irrigation sources - canals and tubewells.
III	5. Population: distribution, density and growth. Population composition: sex ratio, rural and urban, Resources: Production and distribution of iron ore, coal, petroleum. 6. Industries: iron and steel, sugar and cotton textile;

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**

Practical Record: A project file consisting of 8 exercises on the below mentioned themes: -

1. Identification and delineation of watershed of major rivers on map
2. Landuse pattern of India (pie chart)
3. Occupational structure of India (pie chart)
4. Distribution and population density map of India (choropleth and dot method)
5. Age and sex structure (pyramid diagram)
6. Identification of the major industrial region of India by cartogram
7. Rainfall deviation diagram of at least 20 years. Cropping intensity and irrigation intensity (bivariate method)

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Deshpande C. D. (1992) India: A Regional Interpretation, ICSSR, New Delhi.
2. Hussain M. (1992) Geography of India, Tata McGraw Hill Education
3. Johnson, B. L. C., ed. (2001) Geographical Dictionary of India. Vision Books, New Delhi.
4. Mamoria C. B. (1980) Economic and Commercial Geography of India, Shiva Lal Agarwala.
5. Mandal R. B. (ed.), (1990) Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective.

BA/BSC/MD/GEO/3/MIC/201: Resource Geography of India

Duration: 3 Hours **Credit 03, Maximum Marks: 75**
(External Evaluation: 50, Internal Assessment: 25)

Course Objective: The objective of this course is to familiarize the students with natural resources and their management.

After completing this course, the learner will be able to:

CO1: understand regional diversity of India with respect to its agriculture, water, energy and mineral resources.

CO2: enhance knowledge about policies and problems of resource management in India.

CO3: to develop ideas on different aspects of resources, and the linkages with development issues that geographers usually address.

CO4: attain skills in plotting graphs, correlation and time series analysis of resource-based data.

I	1. Agriculture: Environmental, technological and institutional factors affecting Indian Agriculture and dry land agriculture. 2. Distribution and production of rice, wheat, sugarcane and tea.
II	3. Water resources: development and means of irrigation, intensity of irrigation. 4. Development and management of water resources, national water mission and policy; Jal Shakti Abhiyan.
III	5. Economic significance of minerals; production, distribution and trade of metallic minerals (iron ore and bauxite).problems of mining industry and conservation of minerals. 6. Energy resources: production, distribution and trade of coal, and petroleum.

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 Viva-voce = 05 Lab Records= 05

Practical Record: A project file consisting of 8 exercises on the below mentioned themes: -

1. Distribution of net sown area India or Haryana (1 exercises).
2. Proportion of irrigated area by choropleth method (1 exercise).
3. Trend of food grains production (rice, wheat, maize) and pulshes production (gram and Tur or arhar) in India by line and poly graph (2 exercises).
4. Time series analysis of the trend of coal/crude oil/natural gas production in India since 1950-51 using 3/5/10-year moving average method (3 exercises).
5. Proportional distribution of conventional and non - conventional energy using comparative BA/BSCr diagram (1exercise).

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Deshpande, CD (1992) India: A Regional Interpretation, ICSSR, New Delhi.
2. Husain, M (2020) Geography of India, McGraw Hill, Chennai.
3. Iyer, RR (2003) Water Perspective, Issues and Concerns, SAGE Publications, New Delhi.
1. Johnson, BLC (2001) Geographical Dictionary of India, Vision Books, New Delhi.
2. Khullar, DR (2011) India-A Comprehensive Geography, Kalyani Publishers, New Delhi.
3. Misra, R (2002) Fresh Water Environment, Anmol Publications, New Delhi.
4. Misra, RP and Sundaram, KV (1979) Rural Area Development: Perspectives and Approaches, Sterling Publications, New Delhi.
5. Pathak, CR (2003) Spatial Structure and Processes of Development in India. Regional Science Association, Kolkata.

BA/BSC/MD/GEO/3/MDC/201: Geographical Landscapes: Exploration beyond the classroom learning

Duration: 3 Hours **Credit 02, Maximum Marks: 50**
(External Evaluation: 35, Internal Assessment: 15)

Course Objective: The objective of this course is to help the students in understanding the geographical structure and resources

After completing this course, the learner will be able to:

CO1: understand the nature of physical and cultural landscapes

CO2: internalize the processes shaping natural and cultural landscapes

CO3: enhance students' observational, analytical, and critical thinking about their surrounding environment.

I	1. Landscapes: concept, definition and classification. 2. Major land surface features and divisions: continents and oceans and their characteristics.
II	3. Natural landscapes characteristics, types and significance. 4. Processes involved in shaping natural landscapes – plate tectonics, weathering and erosional agents.

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**

Project report of a landscape by individual students based on field survey focusing on

1. Type and characteristics of the landscape
2. Identification of factors transforming landscape

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Alanen, A.R. and Melnick, R.Z. (2000) Preserving cultural landscape in America.
2. Hayden, D (1995) The power of place: Urban landscape as public history, The MIT press.
3. Hess, D. (2013) Physical Geography: A landscape appreciation, Pearson.
4. Hoss, T.A. (2016) Appreciating physical landscape: Three hundred years of geo-tourism.
5. Johnson, L.M. and Hunn, E.S. (2010) Landscape ethno ecology (concepts of biotic and physical space)

BA/BSC/MD/GEO/3/SEC/201: Representation of Climatic Data (Practical)

Duration: 3 Hours **Credit 03, Maximum Marks: 75**

Course Objective: To impart basic knowledge of the practical measurements and graphs.

Course Learning Outcomes: After completion of the course, learners will be able to:

CO1: Capability of measurement of climatic data.

CO2: Ability to represent the temperature and rainfall data.

CO3: Development of skill to read and interpret the weather maps.

Distribution of Marks for Evaluation

Experiment and Written Part = 50 **Viva-voce = 15** **Lab Records= 10**

Practical Record:

1. Measurement of temperature, rainfall, pressure and humidity.
2. Representation of temperature and rainfall.
   - (i) Line and Bar Graph — 1 exercise
   - (ii) Distribution of temperature — 1 exercise
   - (iii) Distribution of rainfall — 1 Exercise.
   - (iv) Hythergraph — 1 exercise.
   - (v) Rainfall deviation diagram — 1 exercise.
3. Climograph (wet and dry places) — 2 exercise.
4. Distribution of pressure — 2 Exercise.
5. Weather map Interpretation (January & July) — 2 exercise.
6. Prismatic Compass Survey — 2 Exercise.

Note for the Paper Setter: The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each, the candidates are required to attempt one compulsory question and three more questions in all.

Suggested Readings:

1. Khan, A.A. 1996. Text Book of Practical Geography, Concept, New Delhi.
2. Lawrence, GRP. 1968. Cartographic Methods, Methuen, London.
3. Monkhouse, F.J. and Wilkinson, H.R1994. Maps and Diagrams, Methuen, London.
4. Mishra R.P. and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
5. Singh, R.L., 1979. Elements of Practical Geography, Kalyani Publisher, New Delhi.
6. Sarkar, A.K 1997: Practical Geography-A Systematic Approach, Orient Longman, Calcutta

BA/BSC/MD/GEO/4/DSC/203: Fundamentals of Economic Geography

Duration: 3 Hours **Credit 03, Maximum Marks: 75**
(External Evaluation: 50, Internal Assessment: 25)

Course Objective: The objective of this course is to provide the student basic knowledge of world economy and various processes of globalization.

After completing this course, the learner will be able to:

CO1: Provides knowledge about the fundamental concepts of economic geography.
CO2: Acquisition of knowledge about resources and their conservation.
CO3: Enrichment of knowledge about distribution of crops, minerals and energy resources.
CO4: Attain skills in solving practical problems associated with economic geography.

Unit	Topics
I	1. Nature and scope of economic geography and its relationship with economics. 2. Classification of economic activities and their impact on environment.
II	3. Natural resources: types, bases of classification. Utilization and conservation of natural resources. 4. World distribution of food crops (rice and wheat), commercial crops (cotton and sugarcane) and plantation crops (tea and coffee).
III	5. International trade and transport and major oceanic trade routes. 6. World distribution and production of iron and steel industry, textile industry, sugar industry and automobile industry.

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 **Viva-voce = 05** **Lab Records= 05**

Practical Record: A project file consisting of 8 exercises on the below mentioned themes:

1. Choropleth mapping of state-wise variation in GDP and PCI (2 exercises).
2. Computation of rail and road transport network accessibility index (2 exercises).
3. Time series analysis of world food, commercial and plantation crops production and trade using polygraph method (2 exercises).
4. Representation of coal and sugar production of major countries of the world using compound bar diagram (1 exercise).
5. Representation of decadal production of major petroleum and iron and steel producing countries using multiple bar diagram (1 exercise).

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Suggested Readings:

1. Gautam, A. 2010. Advanced Economic Geography. Sharda Pustak Bhawan, Allahabad.
2. Hartshorne, T. A. and Alexander, J. W. 2001. Economic Geography. Prentice Hall of India. New Delhi.
3. Hudson, R. 2005. Economic Geography. Sage Publication, New Delhi.
4. Jones, C. F. and Drakenwarld, G. G. Economic Geography. The Macmillan and Company. New York.
5. Knox, P. 2003. The Geography of World Economy. Arnold, London.
6. Saxena, H.M. 2013. Economic Geography. Rawat Publications, Jaipur.

BA/BSC/MD/GEO/4/MIC/202: Introduction to Geographical Information System (GIS)

Duration: 3 Hours **Credit 03, Maximum Marks: 75**
(External Evaluation: 50, Internal Assessment: 25)

Course Objective: The purpose of this course is to acquaint the students with the fundamentals knowledge of GIS.

After completing this course, the learner will be able to:

CO1: Understand what is GIS.
CO2: The spatial and non-spatial data.
CO3: The principle of making maps.
CO4: Develop skills of computer map making.

Unit	Topics
I	1. Geographical Information System (GIS): Definition, historical development and significance. 2. Components of GIS- Hardware, software, data and sources of data.
II	3. GIS data type (spatial and non-spatial) and data sources. 4. Data models: vector and raster. Data capture: input; editing and error correction.
III	5. The basis of GIS mapping: map projections, datum and coordinate systems. Application of GIS in resource mapping. 6. Application of GIS in monitoring and management of resources.

Instructions for Paper- Setter

The question paper will consist of seven questions in all. The first question will be compulsory and will consist of four short questions of 2 marks each covering the whole syllabus. In addition, six more questions of 14 marks each will be set unit-wise comprising of two questions from each of the three units. The candidates are required to attempt one compulsory question and three more questions selecting at least one question from each unit.

Distribution of Marks for Evaluation

Credit 01, Maximum Marks: 25

Experiment and Written Part = 15 Viva-voce = 05 Lab Records= 05

Practical Record: A project file consisting of 8 exercises on the below mentioned themes:

1. Spatial data input in GIS format- Scanning and Geo-referencing (1 exercise).
2. digitization and creation of layers: Point, line and polygon (3 exercises).
3. Entry of non-spatial/ attribute data (1 exercise).
4. linking of spatial and non-spatial data (labelling) (1 exercise).
5. Display of data by choropleth method (1 exercise)
6. Making of layout (1 exercise).

Note for the Paper Setter: The question paper will consist of three questions in all. The first question will be compulsory and will consist of five short questions of 1 marks each covering the whole syllabus. In addition, two more questions of 10 marks each. The candidates are required to attempt one compulsory question and one more question.

Recommended Books/e-resources/LMS:

1. Bhatta, B. (2010) Remote Sensing and GIS, Oxford University Publications.
2. Burrough, P.A., and McDonnell, R.A. (2000) Principles of Geographical Information System-Spatial Information System and Geo-statistics. Oxford University Press
3. Chauniyal, D.D. (2010) Sudur Samvedan evam Bhogolik Suchana Pranali, Sharda Pustak Bhawan, Allahabad
4. Heywoods, I., Cornelius, S and Carver, S. (2006) An Introduction to Geographical Infromation system. Prentice Hall.
5. Jha, M.M. and Singh, R.B. (2008) Land Use: Reflection on Spatial Informatics Agriculture and Development, New Delhi: Concept.
6. Nag, P. (2008) Introduction to GIS, Concept India, New Delhi.