Board of Studies in Geography

Syllabus for Bachelor of Arts (Autonomous) from the year 2023-24

Name of Programme	Bachelor of Arts In Geography
Level	UG/~~PG~~
No of Semesters	06/~~04~~
Year of Implementation	**2023-24**
Programme Specific Outcomes (PSO)	1 Learner shall know the major branches of Geography 2 Learner shall be able to read maps and represent geographical data 3Learner shall acquire skill required in Geographical domain like sketching, measuring and interpretation of data 4 Learner shall understand relationship between geographical concepts and the things happening around him 5 Learner shall be able to apply geographical knowledge to natural calamities
Relevance of PSOs to the local, regional, national, and global developmental needs (200 words)	Geographical processes operate at Global, Regional and local level. The effects of these are seen at all these levels but they are more relevant at local level as human life is more tagged to local geographical processes and events. Better understanding of the global processes help the student to visualize the scale, path and expected outcome of the process. Regionally there are modifications guided by regional geographical attributes like relief, terrain, human processes, etc. These modifications, when studied, help in understanding resource supply, climate resilience and economic prospects. Locally the human life is largely controlled by variety of geographical processes. The curriculum design of the B.A. Geography programme is based on these lines. Courses that help in understanding varied geographical processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum. The skill set, comprising of hard and soft skills, acquired during the completion of programme shall make him employable.

Name of the Course	Earth Formation and the Processes
Course Code	UAGEO101
Class	FYBA
Semester	I
No of Credits	4
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	This core paper is designed to acquaint students to the fundamental concepts in Physical Geography, a major branch of Geography. The purpose is to inform them about processes that were responsible for formation of the surface of the Earth, which provided substratum for all other branches of Geography.

Nomenclature: Earth's Formation and Processes

Course Outcomes:

CO1 – Learner shall understand the events that happened during formation of the Earth

CO2 – Learner shall be acquainted with the effects of Earth formation processes

CO3 – Learner shall know various forces that shaped the surface of the Earth

CO4 – Learner shall understand the processes that shaped the surface

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Formation of the Earth	1.1 Nebular Hypothesis 1.2 Structure of the Solar system 1.3 Movements of the Earth 1.4 Formation of the Interior of the Earth	12
2	Formation of the Earth Surface (Internal Forces)	A) Slow movements 2.1 Folding 2.2 Faulting B) Rapid movements 2.3 Earthquake 2.4 Volcanism	24
3	Formation of the Earth Surface	3.1 Weathering 3.2 Mass Wasting 3.3 Rocks and Minerals 3.4 Types of rocks	24

Learning Resources recommended:

1. Physical Geography, Strahler and Strahler, Prentice Hall Publication (2013)
2. Fundamentals of Physical Geography, F J Monkhouse, McMillan Publication (1990)
3. Physical Geography, Savindra Singh, Prayag Pustak Bhavan, (2008)
4. प्राकृतिक भूविज्ञान, दाते आणि दाते, निराली प्रकाशन, (२०१३)
५. प्राकृतिक भूगोल, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Formation of the Earth	14/08/2023	Chalk and Talk, AV resources, Blogs,
2	Formation of the Earth Surface (Internal Forces)	20/09/2023	Chalk and Talk, AV resources,
3	Formation of the Earth Surface	20/10/2023	Chalk and Talk, AV resources, Blogs, Field Visit

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Assignment	15
Class Test	15
Classroom performance	10

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Marks	
1	1	Long answer question / Notes 2 out of 3	(20)
2	2	Long answer question / Notes 2 out of 3	(20)
3	3	Long answer question / Notes 2 out of 3	(20)

Name of the Course	Introduction to Human Geography
Course Code	UAGEO201
Class	FYBA
Semester	II
No of Credits	2
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	This core paper is designed to acquaint students to the major branch of Geography. Students shall learn branches of Human Geography and their content. They shall ne acquainted with the Population Geography and Settlement Geography in detail.

Nomenclature: Earth's Formation and Processes

Course Outcomes:

CO1 – Learner shall understand the development and branches of Human Geography
CO2 – Learner shall be acquainted with basic concepts in Population Geography
CO3 – Learner shall be introduced to basic learnings in Settlement Geography

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Development and Branches of Human Geography	1.1 Definition & Emergence of Human Geography 1.2 Branches of Human Geography 1.3 Concept of Determinism and Possibilism 1.4 Relevance of Human Geography	10
2	Population Geography	2.1 Global Population Growth 2.2 Global Distribution of Population 2.3 Demographic Transition Model	10
3	Settlement Geography	3.1 Definition and Functions of Settlements 3.2 Types of Rural Settlements 3.3 Types of Urban Settlements	10

Learning Resources recommended:

1. Human Geography, Majid Hussain, Kitab Mahal Publication (Ed. 2018)
2. Contemporary Human Geography - Culture, Globalization, Landscape, Roderick P. Neumann, Patricia L. 2018
3. *The Dictionary of Human Geography*, Gregory, D., Johnston, R., Pratt, G., Watts, M. and Whatmore, S. (2009) , London: Wiley-Blackwell
4. प्राकृतिक भूविज्ञान, दाते आणि दाते, निराली प्रकाशन, (२०१३)
५. प्राकृतिक भूगोल, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Development and Branches of Human Geography	11/12/2023	Chalk and Talk, AV resources, Blogs,
2	Population Geography	20/01/2023	Chalk and Talk, AV resources,
3	Settlement Geography	20/02/2023	Chalk and Talk, AV resources, Blogs, Field Visit

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Assignment	15
Class Test	15
Classroom performance	10

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Marks
1	1	Long answer question / Notes 2 out of 3 (20)
2	2	Long answer question / Notes 2 out of 3 (20)
3	3	Long answer question / Notes 2 out of 3 (20)

Name of the Course	Geography of Maharashtra
Course Code	UAGEO 301
Class	SYBA
Semester	III
No of Credits	03
Nature	Theory
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any)	Courses that help in understanding varied geographical & human processes operating at Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Geography of Maharashtra

Course Outcomes:

CO1- The learner shall be able to acquaint student with the location, administrative and physical environment of Maharashtra.

CO2 - The learner shall be able to make them understand the spatial distribution of various physical conditions of Maharashtra.

CO3 - The learner shall be able to assess various resources found in Maharashtra.

CO4 - The learner shall be able to make them understand the problems and measures to develop agricultural, livestock and fisheries resources of Maharashtra.

CO5 - The learner shall be able to acquaint students with different cartographic skills such as map reading and map-filling.

CO6 - The learner shall be able to provide students an insight to the subject of Geography of Maharashtra from the viewpoint of competitive examination as well as its application in daily life.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Maharashtra: Location, Physiography, Rives and Climate	1.1 Introduction –Location and its significance 1.2 Physiographic Divisions of Maharashtra 1.3 Major Rivers basins of Maharashtra 1.4 Maharashtra climate –seasons and monsoon distribution	09
II	Maharashtra: Soil, Forest, Minerals and Energy Resources	2.1 Definition of soil-Importance of soil, types of soils, soil related issues and conservation measures. 2.2 Definition of forest-Importance of Forest, types of forests, forest related issues and conservation of forest.	09

		2.3 Definition of Mineral- Types of Minerals, mineral related issues and its conservation 2.4 Define energy resources, types of Energy resources, problems related to energy resources. Need for conservation of energy, measures of energy conservation.	
III	Maharashtra: Agriculture, Livestock and Fishing	3.1 Definition of Agriculture- Types of agriculture - Major agricultural regions- 3.2 Problems associated with agriculture and solutions 3.3 Definition of Livestock resources- Distribution of livestock resources. Issues related with livestock resources and solutions 3.4 Define Fisheries – Types of fisheries - Fishing related issues and its conservation	09
IV	Industrial Regions, Transportation and Communication sector	4.1 Types and characteristics of Industries (Heavy industries, sugar industry, textile industry and chemical industry) 4.2 Factors of industrial location -Industrial regions of Maharashtra 4.3 Definition of Transport and Communication – Types of Transport – Network of Transport Development in Maharashtra 4.4 Issues related with industrial regions and Transport development	09
V	Practical	5.1 Map Filling of important geographical features on outline map of Maharashtra related to units covered with units I to IV 5.2 Construction of Map – Choropleth, Isopleth, Dot map and Pictogram and Flow map related to units covered with units I to IV	09

Learning Resources recommended:

01. Sharma, T.C.: (2013) Economic Geography of India, Rawat Publications.
02. Hussein Majid: (2017) Geography of India, McGraw Hill.
03. Oxford Student Atlas for India (2017), Oxford University Press
04. प्रा. सवदी ए. बी. : महाराष्ट्राचा भूगोल (२०२२) (१४ वी आवृत्ती) निराली प्रकाशन
05. सुमंत सोळंके : समग्र महाराष्ट्राचा व भारताचा भूगोल, ज्ञानदीप अकादमी (UPSC & MPSC), २०१८
06. प्रा. के. ए. खतीब – महाराष्ट्राचा भूगोल, के सागर प्रकाशन २०१९ (३३ वी आवृत्ती)
07. दिपक बाविस्कर : महाराष्ट्राचा भूगोल, दीपस्तंभ प्रकाशन २०१८ (३ री आवृत्ती)
08. डॉ. विठ्ठल घारपुरे – भारत व महाराष्ट्राचा भूगोल (MPSC), पिंपळापुरे प्रकाशन २०१२
09. प्रा. सवदी ए. बी. : प्राकृतिक भूगोलाची मूलतत्त्वे (२०१८) निराली प्रकाशन

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Maharashtra: Location, Physiography, Rives and Climate	03/07/2023	Chalk and Talk, AV resources
II	Maharashtra: Soil, Forest, Minerals and Energy Resources	24/07/2023	Chalk and Talk, AV resources
III	Maharashtra: Agriculture, Livestock and Fishing	14/08/2023	Chalk and Talk, AV resources
IV	Industrial Regions, Transportation and Communication sector	06/09/2023	Chalk and Talk, AV resources
V	Practical	27/09/2023	Chalk and Talk, Demonstration, AV resources

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test/Assignment	20
Presentation/Activity / workbook (Unit- V)	10
Active participation & attendance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long (15) / short answer (7.5) questions with internal options.	15
2	II	Long (15) / short answer (7.5) questions with internal options.	15
3	III	Long (15) / short answer (7.5) questions with internal options.	15
4	IV	Long (15) / short answer (7.5) questions with internal options.	15
	Total		**60**

Name of the Course	Geography of India
Course Code	UAGEO 401
Class	SYBA
Semester	IV
No of Credits	03
Nature	Theory
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in understanding varied geographical & human processes operating at National, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Geography of India

Course Outcomes:

CO1- The learner shall be able to acquaint student with the location, administrative and physical environment of the country.

CO2 - The learner shall be able to understand the distribution of physical and man-made environment in India.

CO3 - The learner shall be able to analyze the relation between physical and man-made environment.

CO4 - The learner shall be able to understand the problems, create awareness and promote interest for conservation of environment.

CO5 - The learner shall be able to develop the cartographic skills such as map reading and filling.

CO6 - The learner shall be able to acquaint student with use of geographic skills and knowledge and prepare them for competitive examination as well as for its implementation in their daily life.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	India: Location, Physiography and Climate	1.1 Location and origin of Indian subcontinent 1.2 Physiographic divisions of India 1.3 Major River-basins of India 1.4 Climate of India: Seasons and Origin and Pattern of Monsoon distribution	09
II	India: Soils, Vegetation and Minerals	2.1 Soils - types and regional distribution 2.2 Forest – types, regional distribution 2.3 Minerals: types and distribution 2.4 Issues related with soil, forest and mineral resources – Conservation and management of soil, forest and mineral resources.	09

III	India: Agriculture, Livestock and Fishery resources	3.1 Importance and characteristics of Indian agriculture 3.2 Agriculture types and distribution of major crops-related issues, policies and programmes 3.3 Livestock resources : types and distribution, white revolution related issues-policies and programmes 3.4 Fisheries – types and production, blue revolution- related issues, policies and programmes	09
IV	India: Energy resources, Industries, Transport and Trade	4.1 Energy resources : types and distribution-related issues-policies and programmes 4.2 Industries – types, location of major industrial regions- related issues and solutions 4.3 Transport and communication network– types and spatial distribution- issues related and solutions 4.4 Define trade- types of trade-Domestic and international trade	09
V	Practical	5.1 Map filling (India) – features related to unit I to IV 5.2 Thematic map reading (India) – Choropleth, Isopleth, dot map and pictogram and flow map	09

Learning Resources recommended:

1. Majid Husain – Geography of India
2. Gopal Singh - – Geography of India
3. Khullar D.R.- India – A Comprehensive Geography
4. Singh R.L.- India – A Regional Geography
5. R.C.Tiwari - Geography of india, Prayag Pustak Bhawan, Allahabad, 2008 (5th edition)
6. ए.डी.गडकरी – मराठी अनुवाद Geography of India, के सागर प्रकाशन २०१९
7. प्रा. के. ए. खतीब – भारताचा भूगोल, के सागर प्रकाशन २०१९
8. डॉ. विठ्ठल घारपुरे – भारताचा भूगोल, पिंपळापुरे प्रकाशन २०१६ (५ वी आवृत्ती)
9. प्र. ए.पी.चौधरी व सौ. अर्चना चौधरी – भारताचा भूगोल, प्रश्न पब्लिकेशन, २०१३
10. सप्तर्षी,मोरे, उगले, मुसमाडे – भारताचे भौगोलिक विश्लेषण, डायमंड पब्लिकेशन, २००९
11. दिपक बाविस्कर : भारताचा भूगोल, दीपस्तंभ प्रकाशन (२०१८)
12. प्रा. सवदी ए. बी. : प्राकृतिक भूगोलाची मूलतत्त्वे (२०१८) निराली प्रकाशन

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	India: Location, Physiography and Climate	11/12/2023	Chalk and Talk, AV resources
II	India: Soils, Vegetation and Minerals	10/01/2024	Chalk and Talk, AV resources
III	India: Agriculture, Livestock and Fishery resources	31/01/2024	Chalk and Talk, AV resources
IV	India: Energy resources, Industries, Transport and Trade	15/02/2024	Chalk and Talk, AV resources
V	Practical	28/02/2024	Chalk and Talk, Demonstration, AV resources

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test/Assignment	20
Presentation/Activity / workbook (Unit- V)	10
Active participation & attendance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long (15) / short answer (7.5) questions with internal options.	15
2	II	Long (15) / short answer (7.5) questions with internal options.	15
3	III	Long (15) / short answer (7.5) questions with internal options.	15
4	IV	Long (15) / short answer (7.5) questions with internal options.	15
	Total		**60**

Name of the Course	Agricultural Geography
Course Code	UAGEO 302
Class	SYBA
Semester	III
No of Credits	03
Nature	Theory
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	NA

Nomenclature: Agricultural Geography

Course Outcomes:

CO1- The learner shall be able to acquaint students with the importance of agriculture in human civilization.

CO2 - The learner shall be able to understand the physical and human factors affecting agriculture.

CO3 - The learner shall be able to know the types of agriculture and its spatial distribution pattern in the world.

CO4 - The learner shall be able to study the issues related with agriculture and suggest remedial measures to overcome them.

CO5 - The learner shall be able to develop and promote the cartographic skills such as map reading and statistical techniques.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Introduction to Agricultural Geography	1.1 Definition, nature and scope of Agricultural Geography 1.2 Origin of agriculture, major gene centers 1.3 Diffusion and change in agriculture 1.4 Agriculture and human civilizations in the world	09
II	Determinants of Agriculture	2.1 Physical and economic factors 2.2 Socio-cultural and political factors, role of technology 2.3 Critical appraisal of Agricultural land use model of Von Thunen 2.4 Measurement of agricultural productivity - Bhatia's Agricultural Productivity Index	09
III	Types of Agriculture and Distribution	3.1 Types of primitive and subsistence agriculture 3.2 Types of commercial agriculture, 3.3 Distribution and trade of major food-grains.	09

		3.4 Modern trends in industrial crops: horticulture, floriculture, sericulture, polyhouse etc.	
IV	Agricultural Problems and Sustainability of Agriculture	4.1 Environmental, socio-cultural and economic problems related with agriculture. 4.2 Green revolution, Genetic modification of crops and its impact 4.3 Agricultural policies and programmes 4.4 Sustainable agricultural practices, importance of organic Farming	09
V	Practical	5.1 Map filling related to 1 to 4 units on agriculture in world 5.2 Construction of statistical diagrams and graphs: line and bar graph, pie diagram, band graph representing agriculture information covering units 1 to 4.	09

Learning Resources recommended:

1. Bansil, B. C. (1975): 'Agricultural Problems of India', Delhi.
2. Gregor, H.P.: Geography of Agriculture. Prentice Hall, New York, 1970.
3. Grigg, D. (1984): 'An Introduction to Agricultural Geography', Hutchinson Publication, London
4. Grigg, D.B.(1974) : The Agricultural Systems of the World. Cambridge University Press, New York.
5. Singh J.(1997): Agricultural Development in South Asia: A Comparative A Study in the Green Revolution Experiences, national Books Organization, New Delhi.
6. Singh, J. and Dhillon, S. S. (1984): 'Agricultural Geography', McGraw Hill, New Delhi.
7. Singh, J. and Dhillon, S.S. (1988), "Agricultural Geography", 2nd edition, Tata McGraw- Hill, NewDelhi
8. डॉ. विठ्ठल घारपुरे – कृषी भूगोल, पिंपळापुरे प्रकाशन २०१३

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Introduction to Agricultural Geography	06/07/2023	Chalk and Talk, AV resources
II	Determinants of Agriculture	27/07/2023	Chalk and Talk, AV resources
III	Types of Agriculture and Distribution	18/08/2023	Chalk and Talk, AV resources
IV	Agricultural Problems and Sustainability of Agriculture	08/09/2023	Chalk and Talk, AV resources
V	Practical	27/09/2023	Chalk and Talk, Demonstration, AV resources

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test/Assignment	20
Presentation/Activity / workbook (Unit- V)	10
Active participation & attendance	10
Total	**40**

A. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long (15) / short answer (7.5) questions with internal options.	15
2	II	Long (15) / short answer (7.5) questions with internal options.	15
3	III	Long (15) / short answer (7.5) questions with internal options.	15
4	IV	Long (15) / short answer (7.5) questions with internal options.	15
	Total		**60**

Name of the Course	Geography of Tourism
Course Code	UAGEO 402
Class	SYBA
Semester	IV
No of Credits	03
Nature	Theory
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in understanding varied geography related tourism processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Geography of Tourism

Course Outcomes:

CO1- The learner shall be able to know the nature and scope of Tourism Geography.
CO2 - The learner shall be able to recognize the significance, recent trends and factors of tourism.
CO3 - The learner shall be able to realize the role of infrastructure and travel agency in tourism development.
CO4 - The learner shall be able to know the importance of planning and organization of tourism.
CO5 - The learner shall be able to study the impacts of tourism and concept of sustainable tourism.
CO6 - The learner shall be able to know the policies of tourism and places of tourist interest in India and Maharashtra.
CO7 - The learner shall be able to be able to mark the precise locations of tourist centres on the map of India.
CO8 - The learner shall be able to be able to read thematic maps of India to analyse tourism related Information.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Introduction to Geography of Tourism	1.1 Tourism Geography: definition, nature and scope 1.2 Tourism: Concept, Significance and importance of geography in tourism 1.3 Types of Tourism- Recent trends in tourism 1.4 Factors influencing tourism development – Physical, economical and socio-Political	09
II	Tourism Infrastructure and Travel Agency	2.1 Tourist accommodation: Concept and Types 2.2 Transport and tourism development – Road, Rail, Water and Air Transport	09

		2.3 Tourism Organisations: U.N.W.T.O., TAAI, IATO ,I.T.D.C. and M.T.D.C 2.4 Travel Agency: Features and Functions with reference to documentation	
III	Tourism Planning, Impacts and Sustainability	3.1 Tourism planning: Need, components and levels 3.2 Impacts of tourism on economy, society, culture and environment 3.3 Sustainable tourism: concept and practices 3.4 Eco-tourism and responsible tourism: concepts and need	09
IV	Tourism in India with Special Reference to Maharashtra	4.1 Places of physiographic attractions in India and Maharashtra: Hill stations, valleys, wild life sanctuaries, islands, beaches etc. 4.2 Places of religious importance in India and Maharashtra 4.3 Places of cultural importance in India and Maharashtra 4.4 Recent tourism policy of India and Maharashtra	09
V	Map-Filling and Thematic Map Reading Practical)	5.1 Map-filling on India outline map with reference to tourism 5.2 India thematic map-reading: located circles 5.3 India thematic map-reading: located squares 5.4 India thematic map-reading: located bars	09

Learning Resources recommended:

1. Anand M.M., Tourism & Hotel Industry in India, Prentice Hall of India, New Delhi,
2. Bhatia A.K., Tourism Development, Sterling Publishers Pvt. Ltd. New Delhi.
3. Bhatia A.K., International Tourism, Sterling Publishers Pvt. Ltd. New Delhi
4. Bhatia A.K.,- Tourism in India , Sterling Publishers Pvt. Ltd. New Delhi
5. Geetanjali, Tourism Geography, Centrum press publishers, New Delhi
6. T.K. Sathyadev, P. Manjunath- Tourism Planning, Pacific books Internationals, Delhi.
7. डॉ. विठ्ठल घारपुरे – भारताचा भूगोल, पिंपळापुरे प्रकाशन २०१०
8. डॉ. शैलजा सांगळे – पर्यटन भूगोल, डायमंड प्रकाशन, २०१५.
9. प्रा. सवदी ए. बी. : भूगोलाची मूलतत्त्वे (खंड दुसरा), निराली प्रकाशन,२०१३.

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Introduction to Geography of Tourism	09/12/2023	Chalk and Talk, AV resources
II	Tourism Infrastructure and Travel Agency	13/01/2024	Chalk and Talk, AV resources
III	Tourism Planning, Impacts and Sustainability	01/02/2024	Chalk and Talk, AV resources
IV	Tourism in India with Special Reference to Maharashtra	17/02/2024	Chalk and Talk, AV resources
V	Map-Filling and Thematic Map Reading Practical)	28/02/2024	Chalk and Talk, Demonstration, AV resources

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test/Assignment	20
Presentation/Activity / workbook (Unit- V)	10
Active participation & attendance	10
Total	**40**

A. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long (15) / short answer (7.5) questions with internal options.	15
2	II	Long (15) / short answer (7.5) questions with internal options.	15
3	III	Long (15) / short answer (7.5) questions with internal options.	15
4	IV	Long (15) / short answer (7.5) questions with internal options.	15
	Total		**60**

Name of the Course	Earth's Formation and Processes
Course Code	UAGEO501
Class	TYBA
Semester	V
No of Credits	4
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied geographical processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Earth's Formation and Processes

Course Outcomes:

CO1 – Learner shall understand the formational process and its association with movements, and interior of the Earth.

CO2 – Learner shall know about formation of Earth's crust.

CO3 – Learner shall understand the processes responsible in shaping the crust.

Curriculum:

Unit No	Title	Learning Points	No of Lectures
1	Earth's Formation	1.1 Origin of the Earth 1.2 Three motions of the Earth 1.3 Interior of the Earth – Structure, Properties and Association 1.4 Distribution of Land and Water	15
2	Formation of Crust	2.1 Endogenic Forces – Slow movements – Faulting 2.2 Endogenic Forces – Slow movements – Folding 2.3 Endogenic Forces – Rapid movements – Earthquake 2.4 Endogenic Forces – Rapid movements - Volcanism	15
3	Surface Processes	3.1 Weathering – Definition, Types, Products 3.2 Erosion – Definition, Types, Products 3.3 Origin of Rocks – Definition, Types 3.4 Planation - Types	30

Learning Resources recommended:

1. Physical Geography, Strahler and Strahler, Prentice Hall Publication (2013)
2. Fundamentals of Physical Geography, F J Monkhouse, McMillan Publication (1990)
3. Physical Geography, Savindra Singh, Prayag Pustak Bhavan, (2008)
4. प्राकृतिक भूविज्ञान, दाते आणि दाते, निराली प्रकाशन, (२०१३)
5. प्राकृतिक भूगोल, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१८)
6. भूरुपशास्त्र, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२००८)
7. भूगोलशास्त्र परिचय , विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१२)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Earth's Formation	25/07/2023	Chalk and Talk, AV resources
2	Formation of Crust	10/08/2023	Chalk and Talk, AV resources
3	Surface Processes	25/09/2023	Chalk and Talk, Field visit, Visit to museum

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Field Sketching	10
Test/Assignment	10
Assignment	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
2	2	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
3	3	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
Total			**60**

Name of the Course	Geomorphology
Course Code	UAGEO601
Class	TYBA
Semester	VI
No of Credits	4
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied geomorphological processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Geomorphology

Course Outcomes:

CO1 – The learner shall be able to understand process of external erosion.

CO2 – The learner shall be able to analyze various factors of erosion.

CO3 – The learner shall be able to integrate landforms & disasters.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Fluvial Landforms	1.1 River system – Concept & origin 1.2 Erosional cycle of river 1.3 Landforms of erosion 1.4 Transport work & landforms of deposition	20
2	Coastal & Aeolian Landforms	2.1 Coastal landforms of erosion 2.2 Coastal landforms of deposition 2.3 Aeolian landforms of erosion 2.4 Aeolian landforms of deposition	20
3	Glacial & Karst Landforms	3.1 Glacial landforms of erosion 3.2 Glacial landforms of deposition 3.3 Karst Landforms of erosion & deposition 3.4 Landforms & disasters	20

Learning Resources recommended:

1. Physical Geography, Strahler and Strahler, Prentice Hall Publication (2013)
2. Fundamentals of Physical Geography, F J Monkhouse, McMillan Publication (1990)
3. Physical Geography, Savindra Singh, Prayag Pustak Bhavan, (2008)

4. प्राकृतिक भूविज्ञान, दाते आणि दाते, निराली प्रकाशन, (२०१३)
5. प्राकृतिक भूगोल, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१८)
6. भूरुपशास्त्र, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२००८)
7. भूगोलशास्त्र परिचय, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१२)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Fluvial Landforms	20/12/2023	Chalk and Talk, AV resources, Field visit
2	Coastal & Aeolian Landforms	30/01/2024	Chalk and Talk, AV resources, Field visit
3	Glacial & Karst Landforms	27/02/2024	Chalk and Talk, AV resources, Field visit

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Field Sketching	10
Test/Assignment	10
Assignment	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
2	2	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
3	3	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
Total			**60**

Name of the Course	Introduction to Climatology
Course Code	UAGEO 502
Class	TYBA
Semester	V
No of Credits	04
Nature	Theory
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied climatic processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Introduction to Climatology

Course Outcomes:

CO1- The learner shall be able to understand the nature of atmosphere.
CO2 - The learner shall be able to better knowledge of distribution of climate factors on Earth.
CO3 - The learner shall be able to learn process behind climatic phenomenon occurring around.
CO4 – The learner shall be able to learn the process of Indian Monsoon.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Elements of atmosphere	1.1 Temperature – Influencing factors & distribution 1.2 Air pressure - Influencing factors & distribution 1.3 Humidity - Influencing factors & distribution 1.4 Winds - Influencing factors & distribution	20
II	Climate related processes	2.1 Condensation – Processes & forms 2.2 Precipitation - Processes & forms 2.3 Air masses – Concept, origin & type 2.4 Cyclone, anticyclone – Origin & distribution	20
III	Indian Monsoon	3.1 Origin 3.2 Distribution 3.3 Influencing factors 3.4 Changing Monsoon	20

Learning Resources recommended:

1. Ahrens, C.D. (2012): Essentials of Meteorology: An Invitation to the Atmosphere; Cengage Learning, Boston
2. Ahrens, C.D., Jackson, P.L., Jackson, C.E.J. and Jackson, C.E.O. (2012): Meteorology Today: An Introduction to Weather, Climate and the Environment; Cengage Learning; Boston
3. Barry, R.G. and Chorley, R.J. (2003): Atmosphere, Weather and Climate; Psychology

Press, Hove; East Sussex.
4. Chawan S.V. (ed) (2015): Physical Geography, Paper I, Published by Director (I/C), Institute of Distance and Open Learning, University of Mumbai.
5. Critchfield, H.J., (1975): general Climatology, Prentice Hall, New Jersey. Lal D.S. (1997): Climatology; Sharda Pustak Bhavan; Allahabad
6. Lydolph, P.E.(1985): The Climate of the Earth, Rowman Nad Allanheld, Totowa, New Jersey.
7. Mather, J.R.(1974): Climatology: Fundamentals and Applications; Mc Craw Hill Book Co., U.S.A.
8. Matthews, W. H., Kellogg, W., Robinson, G.D. (1971): Man's Impact on Climate; M.I.T. Press Design Dept. U.S.A.
9. Oliver, J.E. (1993): Climatology: An Atmospheric Science, Pearson Education India, New Delhi
10. Rosenberg, N.J., Blad, B.L., Verma, S.B.(1983): Micro-climate Biological Environment; John Wiley & Sons, U.S.A.
11. Rumney, G.R. (1968): Climatology and the World Climates, Macmillan, London.
12. Shinde P.; Pednekar H. et.al. (2010): Introduction to Geography, Sheth Publishers Pvt.Ltd., Mumbai.
13. Subrahmanyam, V.P. (ed) (1983): Contributions to Indian Geography a) Vol IIIGeneral Climatology, b) Volume IV- Applied Climatology. Heritage Publishers, New Delhi.
14. Trewartha, G.T. (1980): An Introduction to Climate; McGraw Hill, New York, 5th edition, (International Student Edition)
15. प्राकृतिक भूविज्ञान (२००४) – भागवत आणि कार्लेकर – रघुनाथ पब्लिकेशन, पुणे
16. प्रा. सवदी ए. बी. : भूगोलाची मूलतत्त्वे (खंड पहिला), निराली प्रकाशन,२०१३
http://www.yourarticlelibrary.com/agrometeorology/condensation-meaning-process-andtypes/88791
http://gescli.blogspot.in/2011/09/concept-of-climatology.html

Teaching plan:

Question No	Unit	Particular	Marks
1	1	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
2	2	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
3	3	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
Total			**60**

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Field Sketching	10
Test/Assignment	10
Assignment	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	a) Long answer question b) Notes/diagrams 2 out of 3	10 10
2	2	a) Long answer question b) Notes/diagrams 2 out of 3	10 10
3	3	a) Long answer question b) Notes/diagrams 2 out of 3	10 10
Total			**60**

Name of the Course	Introduction to Oceanography
Course Code	UAGEO 602
Class	TYBA
Semester	VI
No of Credits	04
Nature	Theory
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied Ocean related geographical processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Introduction to Oceanography

Course Outcomes:

CO1- The learner shall be able to understand the nature of ocean.
CO2 - The learner shall be able to correlate characteristics of ocean & their distribution.
CO3 - The learner shall be able to evaluate factors responsible for characteristics of ocean water.
CO4 – The learner shall be able to integrate ocean movement to daily life.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Nature of oceanography	1.1 Origin & development of oceanography 1.2 Oceanography – Meaning, definition, nature & scope 1.3 Branches of oceanography - Physical, chemical & biological 1.4 Ocean and their major characteristics 1.5 Importance f oceanography	20
II	Ocean floor & characteristics of ocean water	2.1 Ocean floor & their characteristics 2.2 Composition of ocean water 2.3 Temperature – distribution & influencing factors 2.4 Salinity – distribution & influencing factors 2.5 Density – distribution & influencing factors	20
III	Movement of ocean water	3.1 Wave – Origin & type 3.2 Tsunami & their coastal impact 3.3 Tides – concept & type 3.4 Equilibrium theory of tides 3.5 Ocean currents – type & impacts, El Nino, La Nina	20

Learning Resources recommended:

1. Bhatt, J.J. 91978): Exploring the Planet Ocean, D.Von Nostrand Co.New York.
2. Birla Economic Research Foundation, economic Research Division 91992): The Oceans, Allied Publishers Ltd. New Delhi.
3. Chandra, S. and Others (eds).(1993): The Indian Ocean and its islands: Strategic Scientific and Historical perspectives, sage Publications, New Delhi.
4. Chawan S.V. (ed) (2015): Physical Geography, Paper I, Published by Director (I/C), Institute of Distance and Open Learning, University of Mumbai. Fairbridge, R.W.ed)
5. Encyclopeadia of Oceanography, Reinholt, New York.
6. Sharma, R.C. (ed)(1985): The Oceans: realities and Prospects, Rajesh Publications, New Delhi.
7. Sengupta,R. and Desa E,(eds) (2001): The Indian Ocean: A Perspective Vol.,I and II Oxford and IBH Publishing Company Private Limited, New Delhi.
8. Paul, P.R.(1998): Invitation to Oceanography, Jones and Bartlett Publishing, Sudbury, Massachusetts.
9. Rajgopalan, R (ed) (1996): Voices for Oceans, A Report to the Independent World Commission on the Oceans, International Ocean Institute, Operational centre, Madras, India.
10. Qasim, S.Z(1998): Glimpses of Indian Ocean, Universities Press(India) Limited, Hyderabad.

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Nature of oceanography	20/12/2023	Chalk and Talk, AV resources, Field visit
II	Ocean floor & characteristics of ocean water	30/01/2024	Chalk and Talk, AV resources, Field visit
III	Movement of ocean water	27/02/2024	Chalk and Talk, AV resources, Field visit

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Field Sketching	10
Test/Assignment	10
Assignment	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
2	2	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
3	3	Long answer question (20) or Notes/diagrams 2 out of 3 (10)	20
Total			**60**

Name of the Course	Tools and Techniques in Geography for Spatial Analysis - I (Practical)
Course Code	UAGEO 503
Class	TYBA
Semester	V
No of Credits	03
Nature	Practical
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied geographical techniques for spatial data analysis are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Tools and Techniques in Geography for Spatial Analysis - I (Practical)

Course Outcomes:

CO1- The learner shall be able to understand the logic behind map making.

CO2 - The learner shall be able to develop skills in map making.

CO3 - The learner shall be able to learn to use softwares to represent geographical data.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Map Projections	1.1 Basic Concepts – Definition, scale, direction, azimuth, graticule, great circle, true meridian, types of projections, choice of projections 1.2 Zenithal Polar Projection - Equal Area 1.3 Cylindrical Projection - Equal Area 1.4 Conical Projection - One standard parallel 1.5 Mercator's projection	15
II	Survey of India Toposheets	2.1 Signs and symbols, marginal information 2.2 Study of physiography, drainage and vegetation (one full toposheet of hilly and plateau region each) 2.3 Study of settlements – size, pattern, utilities (one full toposheet of plains and urban region each) 2.4 Study of transport network (one full toposheet of plains and urban area each)	15
III	Weather Maps & Computer practicals on Google Earth	3.1 Weather maps - Signs and symbols 3.2 IMD – Daily weather map reading 3.3 Download Google earth Pro (Free), Identify your college location and its latitude and longitude with the help of Google earth pro 3.4 Google Earth – Practically use of Google earth tool – Collect location, Add Placement, Add polygon, Add path, Add Image over layer, Historical image comparison, Show rules, Google Map, Elevation profile	15

Learning Resources recommended:

1. Monkhouse F.J. - Maps & Diagrams, Methuen and Co., London, 1971 (3rd Edition, Revised).
2. NCERT - Textbook for Class-12, Practical Work in Geography Part II
3. Peter A. Rogerson - Statistical Methods for Geography, Sege Publishers -2001
4. Robinson A.H. - Elements of Cartography, Wiley
5. Sarkar Ashis - Practical Geography, Orient Black Swan – 2015
6. Sarkar Ashis –Quantitative Geography, Orient Black Swan – 2013
7. Singh R.L. & Singh P. B. - Elements of Practical Geography, Kalyani Publishers 2005
8. अहिरराव आणि करंजखेले– प्रात्यक्षिक भूगोल, सुदर्शन प्रकाशन – २००२
9. कार्लेकर श्रीकांत - प्रात्यक्षिक भूगोल, डायमंड पब्लिकेशन
10. कार्लेकर श्रीकांत – भूगोल शास्त्रातील संशोधन पद्धती, डायमंड पब्लिकेशन – २००७

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Map Projections	13/07/2023	Chalk and Talk, Demonstration, PPT, AV resources
II	Survey of India Toposheets	17/08/2023	Chalk and Talk, Demonstration, PPT, AV resources
III	Weather Maps & use of computer in data representation	27/09/2023	Chalk and Talk, Demonstration, PPT, AV resources

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	A. Construct Projection (1 out of 2) B. Write short note (2 out of 3)	10 10
2	II	A. Toposheet reading (Physical feature) B. Toposheet reading (Man-made feature)	10 10
3	III	A. Weather map reading (1 map) B. Google Earth – Practical (1 out of 2)	10 10
Total			**60**

Name of the Course	Tools and Techniques in Geography for Spatial Analysis - II (Practical)
Course Code	UAGEO 603
Class	TYBA
Semester	VI
No of Credits	03
Nature	Practical
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in understanding varied geographical techniques for spatial data collection & analysis are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Tools and Techniques in Geography for Spatial Analysis - II (Practical)

Course Outcomes:

CO1- The learner shall be able to learn to analyse geographical data using simple statistical techniques and interpret the results.

CO2 - The learner shall be able to collect, analyse & sort geographical data using various software & mobile apps.

CO3 - The learner shall be able to develop field observation skill through field visit.

CO4 - The learner shall be able to acquire report writing techniques & prepare a report.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Statistical techniques in geography	1.1 Meaning and types of data, variable, observation, observation value, simple, discrete data and continuous data 1.2 Measures of Central Tendency- mean, median and mode 1.3 Standard Deviation 1.4 Calculation of correlation coefficient - Pearson's and Spearman's methods	10
II	Geographical data collection & presentation using software & apps	2.1 Google forms, Epicollect App – Questionnaire preparation & data collection 2.2 Google Maps & Google lens 2.3 Construction of line graphs & simple and multiple bar graphs using MS-excel 2.4 Construction of divided bar graphs & pie charts using MS-excel	15
III	Surveying	3.1 Plane Table Surveying 3.2 Abney level Surveying 3.3 Prismatic compass surveying	15
IV	Field work in Geography	Study tour and report writing or Village Survey and report writing	05

Learning Resources recommended:

1. Monkhouse F.J. - Maps & Diagrams, Methuen and Co., London, 1971 (3rd Edition, Revised).
2. NCERT - Textbook for Class-12, Practical Work in Geography Part II
3. Peter A. Rogerson - Statistical Methods for Geography, Sege Publishers -2001
4. Robinson A.H. - Elements of Cartography, Wiley
5. Sarkar Ashis - Practical Geography, Orient Black Swan – 2015
6. Sarkar Ashis –Quantitative Geography, Orient Black Swan – 2013
7. Singh R.L. & Singh P. B. - Elements of Practical Geography, Kalyani Publishers 2005
8. अहिरराव आणि करंजखेले– प्रात्यक्षिक भूगोल, सुदर्शन प्रकाशन – २००२
9. कार्लेकर श्रीकांत - प्रात्यक्षिक भूगोल, डायमंड पब्लिकेशन
10. कार्लेकर श्रीकांत – भूगोल शास्त्रातील संशोधन पद्धती, डायमंड पब्लिकेशन – २००७

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Statistical techniques in geography	20/12/2023	Chalk and Talk, Demonstration, PPT, AV resources
II	Geographical data collection using software & apps	30/01/2024	Chalk and Talk, Demonstration, PPT, AV resources
III	Surveying	15/02/2024	Chalk and Talk, Demonstration, Hands on sessions, AV resources
IV	Field work in Geography of any one place / village	27/02/2024	Chalk and Talk, Demonstration, PPT, AV resources

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Field visit report	10
Class performance	10
Total	**40**

A. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Attempt any two questions out of three	20
2	II	Attempt any two questions out of three	20
3	III	Attempt any two questions out of three	20
Total			**60**

Name of the Course	Fundamentals in Geospatial Technology
Course Code	UAGEO507
Class	TYBA
Semester	V
No of Credits	4
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied Geospatial processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Fundamentals in Geospatial Technology

Course Outcomes:

CO1 – The learner shall be able to understand Geospatial Technology.
CO2 – The learner shall be able to aware about Remote Sensing.
CO3 – The learner shall be able to aware about Geographical Positioning System.
CO4 – The learner shall be able to aware about Geographical Information System.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Introduction to Geospatial Technology	1.1 Concept & Nature 1.2 Components & Importance 1.3 Applications of GST 1.4 Future of GST	15
2	Remote Sensing (RS)	2.1 Remote Sensing: Concept, Process and Geographical Applications 2.2 Electromagnetic Energy, EMR and EMS - Spectral Reflectance and Spectral Signature or Curve - Platforms, Sensors and Resolution 2.3 Aerial Photographs: Concept, Process and Types 2.4 Satellite - Types	15
3	Geographical Positioning System (GPS)	3.1 GPS : Concept, Segments, Applications 3.2 Types of GPS, GPS Data Accuracy and Errors 3.3 Factors Affecting GPS Data 3.4 Global Navigation System	15

4	Geographical Information System (GIS)	4.1 GIS: Concept, Components and Applications 4.2 Approaches of GIS 4.3 Map Projection and Coordinate System 4.4 GIS Data	15

Learning Resources recommended:

1. **कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**
2. **कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**
3. Afzal Sharieff and et. al. (Ed.) (2010): An Introduction to Remote Sensing, SARUP Book Publishers Pvt. Limited, New Delhi.
4. Anson, R. W. and Ormeling, F. J., (Ed.) (1993): Basic Cartography for Students and Technicians, Vol.I, International Cartographic Association and Elseiver Applied Science Publishers, London.
5. American Society of Photogrammetry (1983): Manual of Remote Sensing, ASP PalisChurch,V.A.
6. Agrawal, N.K.(2006), Essentials of GPS (Second Edition), Book Selection Centre, Hyderabad
7. Bhatia (2016): Remote Sensing and GIS, Oxford University Press, New Delhi.
8. Bhatia, S. C. (2008): Fundamentals of Remote Sensing, Atlantic Publishers and Distributors (P) Limited, New Delhi.
9. Bhatta Basudeb 2016: Remote Sensing and GIS, Oxford University Press, New Delhi
10. Barrett, E.G. and Curtis, L.F. (1992): Fundamentals of Remote Sensing in Air Photointerpretation,
McMillan, New York. 7.
11. Bernhardsen, Tor (2002): Geographical Information Systems: An Introduction, Third Edition, John Wiiey& Sons, Inc., New York.
12. Burrough, Peter A and McDonnell, R.A. (1998): Principles of Geographical Information Systems, Oxford University Press, Mumbai.
13. Campbell. J. (1989): Introduction to Remote Sensing, Guilford, New York.
14. Clarke, Keith C. (1998): Getting Started with Geographic Information Systems, Prentice-Hall Series in Geogl. Info. Science, Prentice-Hall, Inc. N.J.
15. Central Board of Secondary Education (New Delhi): Geospatial Technology Textbook, Class XI and XII
16. Chaisman, N. 1992: Exploring Geographical Information Systems, John Wiley and Sons Inc., New York. Lillesand, T.M. and Kiefer, R. W. 1994: Remote Sensing and Image Interpretation, 3rd edition, John Wiley and Sons, New York.
17. Dickinson, G. C. (1977) Statistical Mapping and the Presentation of Statistics, Edward Arnold Ltd., London.
18. George B and Kolte P. E. (2010): The GIS Book, Cengage Learning India Private Limited, New Delhi.
19. George Joseph (2013): Fundamentals of Remote Sensing, Second Edition, Universities Press (India) Private Limited, Himayatnagar, Hyderabad.
20. Heywood, I.et al (2002): An Introduction to Geological Systems, Pearson Education Limited, New Delhi.

21. Iliffe, J.C (2006), Datums and Map Projections for Remote Sensing, GIS and Surveying, Whittles Publishing, New York.
22. Jonson. R. J. (2003): Remote Sensing of the Environment-An Earth Resources Perspective
23. Kang-Tsang Chang (2010): Introduction to Geographic Information Systems, Tata McGraw Hill Edition, New Delhi.
24. Lillesand and Keifer (2010) Remote Sensing and Image Interpretation, Fourth Edition, Wiley.
25. Pearson Education Series in Geographical Information Science, Keith C. Clarke (Series editor) Pearson Educators Private Limited. (Singapore), New Delhi.
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29. Thomson O and Frank S (2000): Time Integrative Geographic Information System, Springer, New York.
30. Training Module of Capacity Building Training Programme in Geospatial Technology sponsored by Department of Science and Technology, Government of India in collaboration of Himachal Pradesh University.
31. Tutorials from the - http://dst-iget.in/tutorials
32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Introduction to Geospatial Technology	31/07/2023	Chalk and Talk, PPT, AV resources
2	Remote Sensing (RS)	20/08/2023	Chalk and Talk, PPT, AV resources
3	Geographical Positioning System (GPS)	10/09/2023	Chalk and Talk, PPT, AV resources
4	Geographical Information System (GIS)	30/09/2023	Chalk and Talk, PPT, AV resources

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test	10
Assignment	10
Presentation	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	One long answer question OR One long answer question / Two Short answer Questions	15
2	2	One long answer question OR One long answer question / Two Short answer Questions	15
3	3	One long answer question OR One long answer question / Two Short answer Questions	15
4	4	One long answer question OR One long answer question / Two Short answer Questions	15
Total			**60**

Name of the Course	Fundamentals in Geographical Information System
Course Code	UAGEO607
Class	TYBA
Semester	VI
No of Credits	4
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in understanding varied Geographical Information System operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Fundamentals in Geographical Information System

Course Outcomes:

CO1 – The learner shall be able to understand GIS Data.
CO2 – The learner shall be able to analyze geographical data.
CO3 – The learner shall be able to aware about challenge & opportunities in GIS.
CO4 – The learner shall be able to integrate internet resources for GIS.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	GIS Data	1.1 Data sources 1.2 GIS Data Acquisition and Types 1.3 Management of spatial data 1.4 Management of attribute data	15
2	Data Analysis	2.1 Measurement, classification, queries 2.2 Overlay, interpolation, visibility, network 2.3 Digital Image Processing 2.4 Analytical Models	15
3	Challenge & Opportunities in GIS	3.1 GIS becoming main branch of knowledge 3.2 Challenges of implementing GIS 3.3 Trend of GIS Development 3.4 Employment opportunities in GIS	15
4	Internet Resources for GIS	4.1 Open source GIS 4.2 Data resources 4.3 Internet based GIS 4.4 GIS & Research	15

Learning Resources recommended:

1. **कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**
2. **कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**

3. Afzal Sharieff and et. al. (Ed.) (2010): An Introduction to Remote Sensing, SARUP Book Publishers Pvt. Limited, New Delhi.
4. Anson, R. W. and Ormeling, F. J., (Ed.) (1993): Basic Cartography for Students and Technicians, Vol.I, International Cartographic Association and Elseiver Applied Science Publishers, London.
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18. George B and Kolte P. E. (2010): The GIS Book, Cengage Learning India Private Limited, New Delhi.
19. George Joseph (2013): Fundamentals of Remote Sensing, Second Edition, Universities Press (India) Private Limited, Himayatnagar, Hyderabad.
20. Heywood, I.et al (2002): An Introduction to Geological Systems, Pearson Education Limited, New Delhi.
21. Iliffe, J.C (2006), Datums and Map Projections for Remote Sensing, GIS and Surveying, Whittles Publishing, New York.
22. Jonson. R. J. (2003): Remote Sensing of the Environment-An Earth Resources Perspective
23. Kang-Tsang Chang (2010): Introduction to Geographic Information Systems, Tata McGraw Hill Edition, New Delhi.
24. Lillesand and Keifer (2010) Remote Sensing and Image Interpretation, Fourth Edition, Wiley.
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32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in
34. https://www.iirs.gov.in/

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	GIS Data	20/12/2023	PPT, Hands on Work
2	Data Analysis	15/01/2024	PPT, Hands on Work
3	Challenge & Opportunities in GIS	07/02/2024	PPT, Hands on Work
4	Internet Resources for GIS	27/02/2024	PPT, Hands on Work

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test	10
Assignment	10
Presentation	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	One long answer question OR One long answer question / Two Short answer Questions	15
2	2	One long answer question OR One long answer question / Two Short answer Questions	15
3	3	One long answer question OR One long answer question / Two Short answer Questions	15
4	4	One long answer question OR One long answer question / Two Short answer Questions	15
Total			**60**

Name of the Course	Digital Cartography
Course Code	UAGEO508
Class	TYBA
Semester	V
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in understanding varied practical in Digital Cartography operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Digital Cartography

Course Outcomes:

CO1 – The learner shall be able to understand practicals in terrain analysis.
CO2 – The learner shall be able to analyse water resources.
CO3 – The learner shall be able to aware about Land use & Land Cover Analysis.
CO4 – The learner shall be able to create maps with the help of population data analysis.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Practicals in Terrain Analysis	1.1 Area & contour analysis 1.2 Slop, aspect, hillshade analysis 1.3 Cross section	15
2	Practicals in Water Analysis	2.1 Stream ordering 2.2 Watershed analysis 2.3 Download & analysis open source data	15
3	Practicals in Land use& Land Cover Analysis	3.1 Unsupervised classification 3.2 Supervised classification 3.3 Download & analysis of LULC data- Bhuvan website	15
4	Practicals in Population Geography	4.1 Distribution & density of population 4.2 Sex Ratio & Migration 4.3 Birth rate & death rate	15

Learning Resources recommended:

1.**कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**

2.**कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**

3. AfzalSharieff and et. al. (Ed.) (2010): An Introduction to Remote Sensing, SARUP Book Publishers Pvt. Limited, New Delhi.

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23. Kang-Tsang Chang (2010): Introduction to Geographic Information Systems, Tata McGraw Hill Edition, New Delhi.
24. Lillesand and Keifer (2010) Remote Sensing and Image Interpretation, Fourth Edition, Wiley.
25. Pearson Education Series in Geographical Information Science, Keith C. Clarke (Series editor) Pearson Educators Private Limited. (Singapore), New Delhi.
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29. Thomson O and Frank S (2000): Time Integrative Geographic Information System, Springer, New York.
30. Training Module of Capacity Building Training Programme in Geospatial Technology sponsored by Department of Science and Technology, Government of India in collaboration of Himachal Pradesh University.
31. Tutorials from the - http://dst-iget.in/tutorials
32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in
34. https://www.iirs.gov.in/

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Practicals in Terrain Analysis	31/07/2023	PPT, Hands on Work
2	Practicals in Water Analysis	20/08/2023	PPT, Hands on Work
3	Practicals in Land use & Land Cover Analysis	10/09/2023	PPT, Hands on Work
4	Practicals in Population Geography	30/09/2023	PPT, Hands on Work

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

A. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Attempt any two questions out of three	15
2	II	Attempt any two questions out of three	15
3	III	Attempt any two questions out of three	15
4	IV	Attempt any two questions out of three	15
Total			**60**

Name of the Course	Research Project in Geography
Course Code	UAGEO608
Class	TYBA
Semester	VI
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in prepare Research Project in Geography with the subject at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Research Project in Geography

Course Outcomes:

CO1 – The learner shall be able to select research design.
CO2 – The learner shall be able to collect data and process it.
CO3 – The learner shall be able to analyse collected data.
CO4 – The learner shall be able to prepare a research report.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Selection of topic & finalization of research design	--	15
2	Data Collection and Processing	--	15
3	Data Analysis	--	15
4	Research Report Writing	--	15

Learning Resources recommended:

1.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संशोधन पद्धती, डायमंड प्रकाशन, पुणे

2.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संख्याशास्त्रीय पद्धती, डायमंड प्रकाशन, पुणे

3. K.L. Narasimha Murthy (2014): Research Methodology in Geography(A Text Book), Concept Publishing company Pvt Ltd, New Delhi

4. H. N. Misra, Vijai P. Singh(2002): Research Methodology in Geography – Social, Spatial and Policy Dimensions, Rawat Publications, Jaipur and New Delhi

5. Kothari C. R. (2004) : Research Methodology - Methods and Techniques, New Age International Publishers

6. Y.K.Singh, Dr. R.B. Bajpai(2008): Research Methodology-Techniques and Trends, A P H Publishing Corpn, New Delhi

7. R. Cauvery, U.k.SudhaNayak (2003): Research Methodology, S.Chand & Company Ltd., New Delhi

8. O. R. Krishnaswami, M. Ranganatham (2005): Methodology of Research in Social Sciences, Himalaya Publishing House, Mumbai

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12. BhattaBasudeb (2016): Remote Sensing and GIS, Oxford University Press, New Delhi, India

13. Husain Majid (2001): Evolution of Geographical Thought, Rawat Publications, Jaipur, India
14. Dickinson G.C. (1977): Statistical Mapping and Presentation of Statistics, Edward Arnold Ltd.,London
15. George Joseph (2003): Fundamental of Remote Sensing, Universities Press, Hyderabad
16. Karlekar S. and Kale M. (2005): Statistical Analysis of Geographical Data, Diamond Publication
17. Robinson A.H. (1985): Elements of Cartography, Vol.VI, John Wiley and Sons, New York
18. Saha P. and Basu P. (2013) : Advanced Practical Geography, Books and Allied (P) Ltd., Kolkata, India
19. Sarkar A. (2016) : Practical Geography - A Systematic Approach, Orient Blackswan Pvt. Ltd.,New Delhi, India
20. Sarkar A. (2013) : Quantitative Geography – Techniques and Presentations, Orient Blackswan, Pvt. Ltd., New Delhi, India
21. Taylor P.J. (1977): Quantitative Methods in Geography, Houghton Mifflin Company, Boston University Press, McGraw Hill, New York
22. IndiaTutorials from the - http://dst-iget.in/tutorials
23. bhuvan.nrsc.gov.in

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Selection of topic & finalization of research design	20/12/2023	PPT, Hands on Work
2	Data Collection and Processing	25/01/2024	PPT, Hands on Work
3	Data Analysis	10/02/2024	PPT, Hands on Work
4	Research Report Writing	27/02/2024	PPT, Hands on Work

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

A. Semester End Evaluation (Paper Pattern)

Question No	Unit	Method	Marks
1	I	Selection of topic & finalization of research design	15
2	II	Data Collection and Processing	15
3	III	Data Analysis	15
4	IV	Research Report Writing	15
		Total	**60**

Name of the Course	Geospatial Technology
Course Code	UAGEO509
Class	TYBA
Semester	V
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in understanding varied practical Geospatial processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Geospatial Technology

Course Outcomes:

CO1 – The learner shall be able to understand & apply Remote Sensing data.
CO2 – The learner shall be able to applications of Geographical Positioning System.
CO3 – The learner shall be able to apply basic Geographical Information System.
CO4 – The learner shall be able to analyse data and create output as thematic maps.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Remote Sensing (RS)	1.1 Interpretation of Aerial Photographs 1.2 Elements of Visual Image Interpretation - Mapping of Thematic Layers and Visual Image Interpretation of Physical and Manmade Features 1.3 Advanced Remote Sensing Technology - Use of Bhuvan website, 3D view of DEM	15
2	Geographical Positioning System (GPS)	2.1 Ground Survey and Demarcation of Point, Line and Polygon Features with GPS Device 2.2 Transfer GPS Data to Computer with Software's like -Easy GPS 2.3 Prepared map using QGIS software	15
3	Geographical Information System (GIS)- I	3.1 Introduction to QGIS, Importing Image & Projection 3.2 Geo-referencing & image registration 3.3 Creating Layers by Digitization of Point, Line and Polygon Features	15
4	Geographical Information System (GIS)- II	4.1 Spatial Database Analysis: Overlay, Merge, Query 4.2 Using Map-Composer for Map Layout and Design 4.3 Preparation of Thematic Maps	15

Learning Resources recommended:

1.**कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**

2.**कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**

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21. Iliffe, J.C (2006), Datums and Map Projections for Remote Sensing, GIS and Surveying, Whittles Publishing, New York.

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30. Training Module of Capacity Building Training Programme in Geospatial Technology sponsored by Department of Science and Technology, Government of India in collaboration of Himachal Pradesh University.
31. Tutorials from the - http://dst-iget.in/tutorials
32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in
34. https://www.iirs.gov.in/

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Introduction to Geospatial Technology	31/07/2023	PPT, Hands on Work
2	Remote Sensing (RS)	20/08/2023	PPT, Hands on Work
3	Geographical Positioning System (GPS)	10/09/2023	PPT, Hands on Work
4	Geographical Information System (GIS)	30/09/2023	PPT, Hands on Work

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

A. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long / short answer questions with internal options.	15
2	II	Long / short answer questions with internal options.	15
3	III	Long / short answer questions with internal options.	15
4	IV	Long / short answer questions with internal options.	15
Total			**60**

Name of the Course	Research Methodology in Geography
Course Code	UAGEO609
Class	TYBA
Semester	VI
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development	Courses that help in understanding varied practical of Research Methodology in Geography operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Research Methodology in Geography

Course Outcomes:

CO1 – The learner shall be able to understand Research Methodology in Geography.
CO2 – The learner shall be able to aware about Data Collection and Processing.
CO3 – The learner shall be able to analyse given data& represent it.
CO4 – The learner shall be able to Create Research Report Design.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Research Methodology in Geography	1.1 Research in Geography: Concept, Types, Steps and Significance 1.2 Research Methodology: Meaning and Types (Qualitative and Quantitative) 1.3 Defining the Research Problem: Meaning, Need and Techniques 1.4 Research Designs: Concept, Need and Features	15
2	Data Collection and Processing	2.1 Sample Design, Measurement and Scaling 2.2 Data Collection in Geography: Types (Primary and Secondary) and Methods (Observation, Questionnaire, Schedule, Interview, etc.) 2.3 Role of Internet in Research: Online Research Referencing (Shodhganga, INFLIBNET, Research Gate, Academia, Mendeley, etc.) 2.4 Data Processing: Editing, Coding, Classification and Tabulation	15
3	Data Analysis & Representation	3.1 Data Analysis: Meaning, Significance and Types 3.2 Using MS-Excel and SPSS for Data Analysis: Graphical, Descriptive andInferential Statistical Representation	15

		3.3 Hypothesis: Meaning, Types, Levels of Significance, Degrees of Freedomand Errors 3.4 Statistical Techniques for Hypothesis Testing	
4	Research Report Writing	4.1 Basics of Research Report Writing: Layout, Structure, Language, Bibliography, References and Footnotes 4.2 Ethics in Research: Plagiarism 4.3 Create Research Report Design on any One Theme in Physical Geography 4.4 Create Research Report Design on any One Theme in Human Geography	15

Learning Resources recommended:

1.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संशोधन पद्धती, डायमंड प्रकाशन, पुणे

2.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संख्याशास्त्रीय पद्धती, डायमंड प्रकाशन, पुणे

3. K.L. Narasimha Murthy (2014): Research Methodology in Geography(A Text Book), Concept Publishing company Pvt Ltd, New Delhi

4. H. N. Misra, Vijai P. Singh(2002): Research Methodology in Geography – Social, Spatial and Policy Dimensions, Rawat Publications, Jaipur and New Delhi

5. Kothari C. R. (2004) : Research Methodology - Methods and Techniques, New Age International Publishers

6. Y.K.Singh, Dr. R.B. Bajpai(2008): Research Methodology-Techniques and Trends, A P H Publishing Corpn, New Delhi

7. R. Cauvery, U.k.SudhaNayak (2003): Research Methodology, S.Chand& Company Ltd., New Delhi

8. O. R. Krishnaswami, M. Ranganatham (2005): Methodology of Research in Social Sciences, Himalaya Publishing House, Mumbai

9. https://www.utwente.nl

10. Abdel Baset I. M. Hasouneh(2003): Research Methodology, Sublime Publications, Jaipur,

11. Best J. W. and Khan J. V. (1998) : Research in Education, Allyn and Bacon, USA

12. BhattaBasudeb (2016): Remote Sensing and GIS, Oxford University Press, New Delhi, India

13. Husain Majid (2001): Evolution of Geographical Thought, Rawat Publications, Jaipur, India

14. Dickinson G.C. (1977): Statistical Mapping and Presentation of Statistics, Edward Arnold Ltd., London

15. George Joseph (2003): Fundamental of Remote Sensing, Universities Press, Hyderabad

16. Karlekar S. and Kale M. (2005): Statistical Analysis of Geographical Data, Diamond Publication

17. Robinson A.H. (1985): Elements of Cartography, Vol.VI, John Wiley and Sons, New York

18. Saha P. and Basu P. (2013) : Advanced Practical Geography, Books and Allied (P) Ltd., Kolkata, India

19. Sarkar A. (2016) : Practical Geography - A Systematic Approach, Orient Blackswan Pvt. Ltd., New Delhi, India

20. Sarkar A. (2013) : Quantitative Geography – Techniques and Presentations, Orient Blackswan, Pvt. Ltd., New Delhi, India

21. Taylor P.J. (1977): Quantitative Methods in Geography, Houghton Mifflin Company, Boston University Press, McGraw Hill, New York

22. IndiaTutorials from the - http://dst-iget.in/tutorials

23. bhuvan.nrsc.gov.in

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Research Methodology in Geography	20/12/2023	PPT, Hands on Work
2	Data Collection and Processing	25/01/2024	PPT, Hands on Work
3	Data Analysis	10/02/2024	PPT, Hands on Work
4	Research Report Writing	27/02/2024	PPT, Hands on Work

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

A. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long / short answer questions with internal options.	15
2	II	Long / short answer questions with internal options.	15
3	III	Long / short answer questions with internal options.	15
4	IV	Long / short answer questions with internal options.	15
Total			**60**

Name of the Course	Environmental Education - I
Course Code	UAVEE101
Class	FYBA
Semester	I
No of Credits	02
Nature	Theory
Type	VEC
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understand, analyze, evaluate and generalise varied environmental processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to use when they are working in/for industry, business, job, etc. It is useful for industry related environmental ethics, waste management, regulation related to resource utilization, etc.

Nomenclature: Environmental Education - I

Course Outcomes:

CO1- The learner shall be able to understand & apply man – environment relationship.
CO2 - The learner shall be able to aware about biodiversity.
CO3 - The learner shall be able to read, interpret & fill thematic maps.
CO4 - The learner shall be able to collect, analyze & present environmental data related local issues.
CO5 - The learner shall be able to understand importance of environment, aware about environmental problems, apply eco-friendly life style & create solutions for environmental problems at individual, society & government level.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Environment & Human	1.1 Man-environment relationship 1.2 Environmental ethics & values 1.3 Importance & multidisciplinary nature of environmental studies 1.4 Health, malnutrition & Food security 1.5 Waste management – techniques & role of citizens	08
II	Conservation of biological diversity	2.1 Types & importance of biodiversity 2.2 India as a mega biodiversity nation; Biodiversity hotspot – Western Ghats 2.3 Endangered & endemic species of India 2.4 Management & conservation of biological resources & biodiversity - Forest & wildlife conservation 2.5 Biodiversity at global, national & local level	08
III	Local environmental sensitive issues – Case study (Practical)	3.1 Climate change 3.2 Pollution, loss of mangroves 3.3 Impact of tourism on environment & Eco-tourism 3.4 CRZ & sanitation 3.5 Sacred grove, petroglyphs	08

IV	Reading of Thematic Maps and Map Filling (Practical)	4.1 Reading of Thematic Maps :- Located bars, Circles, Pie charts, Isopleths, Choropleth and Flow map, Pictograms - Only reading and interpretation 4.2 Map Filling :- Map filling of World (Environmentally significant features) using point, line and polygon segment	06

Learning Resources recommended:

(1) Environmental Geography : Singh Savindra, Prayag Pustak Bhavan, Allahabad, India (2011)
(2) Environmental Geography : Gautam Alka, Sharda Pustak Bhavan, Allahabad, India (2009)
(3) Environmental Studies : Erach Barucha, University Press(India), pvt. Lmt. Hyderabad (2005)
(4) पर्यावरण शास्त्र : डॉ. विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन नागपूर (२०१४)
(5) संपूर्ण परिस्थितीकी जैवविविधता व हवामान बदल (MPSC): साधना सुरेश नेतनकर, के सागर प्रकाशन (२०१५)
(6) परिस्थितीकी व पर्यावरण : सिद्धार्थ, मुखर्जी आणि अदिती कुमार (मराठी अनुवाद - श्रीकांत गोखले), के सागर प्रकाशन (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Environment & Human	31/07/2023	Chalk and Talk, PPT, AV resources
II	Conservation of biological diversity	31/08/2023	Chalk and Talk, PPT, AV resources
III	Local environmental sensitive issues – Case study (Practical)	13/09/2023	Chalk and Talk, PPT, AV resources/ Field visit/ Problem base/ Project base / Experiential learning
IV	Reading of Thematic Maps and Map Filling (Practical)	30/09/2023	Chalk and Talk, PPT, Work Book,

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test	20
Assignment	10
Active participation in classroom	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	IV	A) Reading & interpretation of world thematic map B) Map filling (World map)	08 07
2	I	Attempt any two from the following (Out of three)	15
3	II	Attempt any two from the following (Out of three)	15
4	III	Attempt any two from the following (Out of three)	15
Total			**60**

Name of the Course	Environmental Education - II
Course Code	UAVEE201
Class	FYBA
Semester	II
No of Credits	02
Nature	Theory
Type	VEC
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied environmental processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to use when they are working in/for industry, business, job, etc. like Green business, eco-friendly product, marketing, use of Geospacial technology, etc. It is helpful for understanding psychology about local peoples toward environment and create eco-friendly activity like organic farming, fruit processing, Eco-tourism, etc.

Nomenclature: Environmental Education - II

Course Outcomes:

CO1- The learner shall be able to aware about sustainable development & imbibe eco-friendly life style.
CO2 - The learner shall be able to aware about environmental movement & management.
CO3 - The learner shall be able to apply draw & fill map of Konkan & Mumbai.
CO4 - The learner shall be able to prepare a case study report for engagement of society in environmental conservation..
CO5 - The learner shall be able to encourage for participate environmental awareness activity in groups.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Sustainable development & living	1.1 Environmental Sustainability (MDG) 1.2 Human Development Index (HDI) & World Happiness Index (WHI) 1.3 Smart Cities & Sustainable Cities 1.4 Green Consumerism, Green Business & CSR towards environment 1.5 Green Energy & Eco-friendly life style	08
II	Environmental Movement & Management	2.1 Environmental movements in India – Narmada Bachav Movement, Chipko Movement, Save Western Ghats Movement 2.2 Local Environmental movement – Jaitapur Movement & Nanar-Barasu Movement 2.3 Environmental Management – Concept, need & relevance, concept of ISO 14000 & ISO 16000, concept of Carbon Bank & Carbon Credit	08

		2.4 Environmental provision in constitution, Environmental Protection Acts 2.5 Geospatial Technology – Concept & component, application of GST in environmental management	
III	Environment & Society – Case studies (Practical)	3.1 Water conservation 3.2 Organic farming 3.3 Cyclones 3.4 Citizen action groups, NGO 3.5 Interview / biography of environmentalist	08
IV	Map Filling (Practical)	Map filling using point, line and polygon segment (Environmentally significant features) 3.1 Map of Konkan 3.2 Map of Mumbai	06

Learning Resources recommended:

(1) Environmental Geography : Singh Savindra, Prayag Pustak Bhavan, Allahabad, India (2011)
(2) Environmental Geography : Gautam Alka, Sharda Pustak Bhavan, Allahabad, India (2009)
(3) Environmental Studies : Erach Barucha, University Press(India), pvt. Lmt. Hyderabad (2005)
(4) पर्यावरण शास्त्र : डॉ. विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन नागपूर (२०१४)
(5) संपूर्ण परिस्थितीकी जैवविविधता व हवामान बदल (MPSC): साधना सुरेश नेतनकर, के सागर प्रकाशन (२०१५)
(6) परिस्थितीकी व पर्यावरण : सिद्धार्थ, मुखर्जी आणि अदिती कुमार (मराठी अनुवाद - श्रीकांत गोखले), के सागर प्रकाशन (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Sustainable development & living	20/12/2023	Chalk and Talk, PPT, AV resources
II	Environmental Movement & Management	31/01/2024	Chalk and Talk, PPT, AV resources
III	Environment & Society – Case studies (Practical)	16/02/2024	Chalk and Talk, PPT, AV resources/ Field visit/ Problem base/ Project base / Experiential learning
IV	Map Filling (Practical)	27/02/2024	Chalk and Talk, PPT, Work Book,

Evaluation Pattern

C. Internal Evaluation

Method	Marks
Test	20
Assignment	10
Active participation in classroom	10
Total	**40**

D. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	IV	A) Map filling (Map of Konkan) B) Map filling (Map of Mumbai)	08 07
2	I	Attempt any two from the following (Out of three)	15
3	II	Attempt any two from the following (Out of three)	15
4	III	Attempt any two from the following (Out of three)	15
	Total		**60**

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Syllabus for Autonomous from the year 2023-24

Name of the Course	Environmental Geography - I
Course Code	UCOM109
Class	FYBCom
Semester	I
No of Credits	02
Nature	Theory
Type	VEC
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understand, analyze, evaluate and generalize varied environmental processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to use when they are working in/for industry, business, job, etc. It is useful for industry related environmental ethics, waste management, regulation related to resource utilization, etc.

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Environment & Human	8
2	Conservation of biological diversity	8
3	Local environmental sensitive issues – Case study (Practical)	8
4	Reading of Thematic Maps and Map Filling (Practical)	6
Total		**30**

Nomenclature: Environmental Geography - I

Course Outcomes:

CO1- The learner shall be able to understand & apply man – environment relationship.
CO2 - The learner shall be able to aware about biodiversity.
CO3 - The learner shall be able to read, interpret & fill thematic maps.
CO4 - The learner shall be able to collect, analyze & present environmental data related local issues.
CO5 - The learner shall be able to understand importance of environment, aware about environmental problems, apply eco-friendly life style & create solutions for environmental problems at individual, society & government level.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Environment & Human	1.1 Man-environment relationship 1.2 Environmental ethics & values 1.3 Importance & multidisciplinary nature of environmental studies 1.4 Health, malnutrition & Food security 1.5 Waste management – techniques & role of citizens	08
II	Conservation of biological diversity	2.1 Types & importance of biodiversity 2.2 India as a mega biodiversity nation; Biodiversity hotspot – Western Ghats 2.3 Endangered & endemic species of India 2.4 Management & conservation of biological resources & biodiversity - Forest & wildlife conservation 2.5 Biodiversity at global, national & local level	08
III	Local environmental sensitive issues – Case study (Practical)	3.1 Climate change 3.2 Pollution, loss of mangroves 3.3 Impact of tourism on environment & Eco-tourism 3.4 CRZ & sanitation 3.5 Sacred grove, petroglyphs	08
IV	Reading of Thematic Maps and Map Filling (Practical)	4.1 Reading of Thematic Maps :- Located bars, Circles, Pie charts, Isopleths, Choropleth and Flow map, Pictograms - Only reading and interpretation 4.2 Map Filling :- Map filling of World (Environmentally significant features) using point, line and polygon segment	06

Learning Resources recommended:

(1) Environmental Geography : Singh Savindra, Prayag Pustak Bhavan, Allahabad, India (2011) (2) Environmental Geography : Gautam Alka, Sharda Pustak Bhavan, Allahabad, India (2009)
(3) Environmental Studies : Erach Barucha, University Press(India), pvt. Lmt. Hyderabad (2005)
(4) पर्यावरण शास्त्र : डॉ. विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन नागपूर (२०१४)
(5) संपूर्ण परिस्थितीकी जैवविविधता व हवामान बदल (MPSC): साधना सुरेश नेतनकर, के सागर प्रकाशन (२०१५)
(6) परिस्थितीकी व पर्यावरण : सिद्धार्थ, मुखर्जी आणि अदिती कुमार (मराठी अनुवाद - श्रीकांत गोखले), के सागर प्रकाशन (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Environment & Human	31/07/2023	Chalk and Talk, PPT, AV resources
II	Conservation of biological diversity	31/08/2023	Chalk and Talk, PPT, AV resources
III	Local environmental sensitive issues – Case study (Practical)	13/09/2023	Chalk and Talk, PPT, AV resources/ Field visit/ Problem base/ Project base / Experiential learning
IV	Reading of Thematic Maps and Map Filling (Practical)	30/09/2023	Chalk and Talk, PPT, Work Book,

Evaluation Pattern 60:40

A) Internal Assessment: 40 % of 100 (40 Marks)

Sr. No.	Particulars	Marks
1	One Class Test / Online Examination to be conducted in the given semester [Duration: 40 Minutes]	20
2	One Assignment to be conducted in the given semester	10
3	Active participation in routine class instructional deliveries and overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic activities	10
	Total	**40**

B) **Semester End Evaluation 60% of 100 (60 Marks)**

Question Paper Pattern

Maximum Marks: 60
Questions to be set: 04
Duration: 2 Hours

Question No	**Particular**	**Marks**
Q-1	A) Reading & interpretation of world thematic map B) Map filling (World map)	08 Marks 07 Marks
Q-2	Answer the following Questions (Any Two) A) Full Length Question B) Full Length Question C) Full Length Question	15 Marks
Q-3	Answer the following Questions (Any Two) A) Full Length Question B) Full Length Question C) Full Length Question	15 Marks
Q-3	Answer the following Questions (Any Two) A) Full Length Question B) Full Length Question C) Full Length Question	15 Marks
Total		**60 Marks**

Name of the Course	Environmental Geography - II
Course Code	UCOM209
Class	FYBCom
Semester	II
No of Credits	02
Nature	Theory
Type	VEC
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied environmental processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to use when they are working in/for industry, business, job, etc. like Green business, eco-friendly product, marketing, use of Geospacial technology, etc. It is helpful for understanding psychology about local peoples toward environment and create eco-friendly activity like organic farming, fruit processing, Eco-tourism, etc.

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Sustainable development & living	08
2	Environmental Movement & Management	08
3	Environment & Society – Case studies (Practical)	08
4	Map Filling (Practical)	06
Total		**30**

Nomenclature: Environmental Geography - II

Course Outcomes:

CO1- The learner shall be able to aware about sustainable development & imbibe eco-friendly life style.
CO2 - The learner shall be able to aware about environmental movement & management.
CO3 - The learner shall be able to apply draw & fill map of Konkan & Mumbai.
CO4 - The learner shall be able to prepare a case study report for engagement of society in environmental conservation..
CO5 - The learner shall be able to encourage for participate environmental awareness activity in groups.

Curriculum:

Unit	Title	Learning Points	No of Lectures
I	Sustainable development & living	1.1 Environmental Sustainability (MDG) 1.2 Human Development Index (HDI) & World Happiness Index (WHI) 1.3 Smart Cities & Sustainable Cities 1.4 Green Consumerism, Green Business & CSR towards environment 1.5 Green Energy & Eco-friendly life style	08
II	Environmental Movement & Management	2.1 Environmental movements in India – Narmada Bachav Movement, Chipko Movement, Save Western Ghats Movement 2.2 Local Environmental movement – Jaitapur Movement & Nanar-Barasu Movement 2.3 Environmental Management – Concept, need & relevance, concept of ISO 14000 & ISO 16000, concept of Carbon Bank & Carbon Credit 2.4 Environmental provision in constitution, Environmental Protection Acts 2.5 Geospatial Technology – Concept & component, application of GST in environmental management	08
III	Environment & Society – Case studies (Practical)	3.1 Water conservation 3.2 Organic farming 3.3 Cyclones 3.4 Citizen action groups, NGO 3.5 Interview / biography of environmentalist	08
IV	Map Filling (Practical)	Map filling using point, line and polygon segment (Environmentally significant features) 3.1 Map of Konkan 3.2 Map of Mumbai	06

Learning Resources recommended:

(1) Environmental Geography : Singh Savindra, Prayag Pustak Bhavan, Allahabad, India (2011)
(2) Environmental Geography : Gautam Alka, Sharda Pustak Bhavan, Allahabad, India (2009)
(3) Environmental Studies : Erach Barucha, University Press(India), pvt. Lmt. Hyderabad (2005)
(4) पर्यावरण शास्त्र : डॉ. विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन नागपूर (२०१४)
(5) संपूर्ण परिस्थितीकी जैवविविधता व हवामान बदल (MPSC): साधना सुरेश नेतनकर, के सागर प्रकाशन (२०१५)
(6) परिस्थितीकी व पर्यावरण : सिद्धार्थ, मुखर्जी आणि अदिती कुमार (मराठी अनुवाद - श्रीकांत गोखले), के सागर प्रकाशन (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
I	Sustainable development & living	20/12/2023	Chalk and Talk, PPT, AV resources
II	Environmental Movement & Management	31/01/2024	Chalk and Talk, PPT, AV resources
III	Environment & Society – Case studies (Practical)	16/02/2024	Chalk and Talk, PPT, AV resources/ Field visit/ Problem base/ Project base / Experiential learning
IV	Map Filling (Practical)	27/02/2024	Chalk and Talk, PPT, Work Book,

Evaluation Pattern 60 :40

A) Internal Assessment: 40 % of 100 (40 Marks)

Sr. No.	Particulars	Marks
1	One Class Test / Online Examination to be conducted in the given semester [Duration: 40 Minutes]	20
2	One Assignment to be conducted in the given semester	10
3	Active participation in routine class instructional deliveries and overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic activities	10
	Total	**40**

B) **Semester End Evaluation 60% of 100 (60 Marks)**

Question Paper Pattern

Maximum Marks: 60
Questions to be set: 04
Duration: 2 Hours

Question No	Particular	Marks
Q-1	A) Map filling (Konkan) B) Map filling (Mumbai)	08 Marks 07 Marks
Q-2	Answer the following Questions (Any Two) A) Full Length Question B) Full Length Question C) Full Length Question	15 Marks
Q-3	Answer the following Questions (Any Two) A) Full Length Question B) Full Length Question C) Full Length Question	15 Marks
Q-4	Answer the following Questions (Any Two) A) Full Length Question B) Full Length Question C) Full Length Question	15 Marks
Total		**60 Marks**

Board of Studies in Geography

Name of Programme	**B.A./ B. Com./ B. Sc. General Elective (Geography)**
Level	UG/~~PG~~
No of Semesters	06/~~04~~
Year of Implementation	**2023-24**
Programme Specific Outcomes (PSO)	Not Applicable
Relevance of PSOs to the local, regional, national, and global developmental needs (200 words)	Not Applicable

Syllabus for Bachelor of Arts (Autonomous) from the year 2023-24

Name of the Course	Tourism: An Avenue for Future of Konkan
Course Code	UAGET103
Class	FYBA
Semester	I
No of Credits	2
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	~~Core~~/ Elective
Highlight revision specific to employability/ entrepreneurship/ skill development	This general elective is designed by the Department of Geography based on scientific understanding of the Tourism related activities. The learner shall be equipped to seek employment opportunities in tourism related activities in field as well as at back end.

Nomenclature: Tourism: An Avenue for Future of Konkan

Course Outcomes:

CO1 – Learner shall understand the scope of tourism related activities

CO2 – Learner shall be acquainted with existing places of conventional tourism in South Konkan

CO3 – Learner shall know emerging places of newly introduced tourist types in Konkan

CO4 – Learner shall interact and understand the success stories in Local Resource Based tourism in South Konkan

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Typology of Tourism	1.1 Definition and Concept of Tourism 1.2 Types of Tourism 1.3 Concept Modes of Recreation 1.4 Techno-tourism	5

2	Conventional Tourist Places in Konkan	2.1 Sites of Cultural Heritage 2.2 Sites of Architectural Heritage 2.3 Coastal Tourism Sites 2.4 Adventure Tourism Sites	10
3	Places of Off bit Tourist Activities	3.1 Biodiversity sites 3.2 Sacred Groves 3.3 Petroglyph Sites 3.4 Geo-morpho-sites	10
4	Success Stories	4.1 Turtle Festival 4.2 Ubhadanda Mangrove Safari 4.3 Anjarle Kayaking 4.4 Estuarine Boating	5

Learning Resources recommended:

1. Physical Geography, Strahler and Strahler, Prentice Hall Publication (2013)
2. Fundamentals of Physical Geography, F J Monkhouse, McMillan Publication (1990)
3. Physical Geography, Savindra Singh, PrayagPustakBhavan, (2008)
4. प्राकृतिक भूविज्ञान, दाते आणि दाते, निराली प्रकाशन, (२०१३)
५. प्राकृतिक भूगोल, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Typology of Tourism	14/08/2023	Chalk and Talk, AV resources, Blogs,
2	Conventional Tourist Places in Konkan	30/08/2023	Chalk and Talk, AV resources, Blogs, Field Visit
3	Places of Off bit Tourist Activities	15/09/2023	Chalk and Talk, AV resources, Blogs, Field Visit
4	Success Stories	30/09/2023	AV resources, Blogs, Field Visit, Interviews, Documentation using Apps

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Assignment	15
Class Test	15
Classroom performance	10

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Marks	
1	1	Long answer question / Notes 2 out of 3	(15)
2	2	Long answer question / Notes 2 out of 3	(15)
3	3	Long answer question / Notes 2 out of 3	(15)
4	4	Long answer question / Notes 2 out of 3	(15)

Syllabus for Bachelor of Arts (Autonomous) from the year 2023-24

Name of the Course	Tourism: An Avenue for Future of Konkan
Course Code	UAGET203
Class	FYBA
Semester	II
No of Credits	2
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	~~Core~~/ Elective
Highlight revision specific to employability/ entrepreneurship/ skill development	This general elective is designed by the Department of Geography based on scientific understanding of the Tourism related activities. The learner shall be equipped to seek employment opportunities in tourism related activities in field as well as at back end.

Nomenclature: Tourism: An Avenue for Future of Konkan

Course Outcomes:

CO1 – Learner shall understand the scope of tourism related activities

CO2 – Learner shall be acquainted with existing places of conventional tourism in South Konkan

CO3 – Learner shall know emerging places of newly introduced tourist types in Konkan

CO4 – Learner shall interact and understand the success stories in Local Resource Based tourism in South Konkan

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Web Resources in Tourism	1.1 Major websites 1.2 Booking Applications 1.3 Types of E-Resources 1.4 Rating standards	05
2	Major Indian Tour Operators	2.1 ITDC, MTDC 2.2 Hotel Groups 2.3 Travel agencies 2.4 Experiential Tourism	10
3	Types of Accommodation	3.1 Home stay 3.2 Resorts 3.3 Hotels 3.4 Eco-resorts	10
4	Major Tourist Events	Participation in any Event of regional scale and report writing	05

Learning Resources recommended:

1. Physical Geography, Strahler and Strahler, Prentice Hall Publication (2013)
2. Fundamentals of Physical Geography, F J Monkhouse, McMillan Publication (1990)
3. Physical Geography, Savindra Singh, PrayagPustakBhavan, (2008)
4. प्राकृतिक भूविज्ञान, दाते आणि दाते, निराली प्रकाशन, (२०१३)
५. प्राकृतिक भूगोल, विठ्ठल घारपुरे, पिंपळापुरे प्रकाशन, नागपूर (२०१८)

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Web Resources in Tourism	14/12/2023	Chalk and Talk, AV resources, Blogs
2	Major Indian Tour Operators	10/01/2024	Chalk and Talk, AV resources, Blogs, Field Visit
3	Types of Accommodation	10/02/2024	Chalk and Talk, AV resources, Blogs, Field Visit
4	Success Stories	28/02/2024	Visit and Documentation

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Assignment	15
Class Test	15
Classroom performance	10

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Marks	
1	1	Long answer question / Notes 2 out of 3	(15)
2	2	Long answer question / Notes 2 out of 3	(15)
3	3	Long answer question / Notes 2 out of 3	(15)
4	4	Long answer question / Notes 2 out of 3	(15)

Syllabus for Post-Graduate Diploma in GIS (Autonomous) from the year 2023-24

Name of the Course	Fundamentals in Geospatial Technology
Course Code	DIP101
Class	PG Diploma
Semester	I
No of Credits	4
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied Geospatial processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Fundamentals in Geospatial Technology

Course Outcomes:

CO1 – The learner shall be able to understand Geospatial Technology.

CO2 – The learner shall be able to aware about Remote Sensing.

CO3 – The learner shall be able to aware about Geographical Positioning System.

CO4 – The learner shall be able to aware about Geographical Information System.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Introduction to Geospatial Technology	1.1 Concept & Nature 1.2 Components & Importance 1.3 Applications of GST 1.4 Future of GST	15
2	Remote Sensing (RS)	2.1 Remote Sensing: Concept, Process and Geographical Applications 2.2 Electromagnetic Energy, EMR and EMS - Spectral Reflectance and Spectral Signature or Curve - Platforms, Sensors and Resolution 2.3 Aerial Photographs: Concept, Process and Types 2.4 Satellite - Types	15
3	Geographical Positioning System	3.1 GPS : Concept, Segments, Applications	15

	(GPS)	3.2 Types of GPS, GPS Data Accuracy and Errors 3.3 Factors Affecting GPS Data 3.4 Global Navigation System	
4	Geographical Information System (GIS)	4.1 GIS: Concept, Components and Applications 4.2 Approaches of GIS 4.3 Map Projection and Coordinate System 4.4 GIS Data	15

Learning Resources recommended:

1. **कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**
2. **कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**
3. Afzal Sharieff and et. al. (Ed.) (2010): An Introduction to Remote Sensing, SARUP Book Publishers Pvt. Limited, New Delhi.
4. Anson, R. W. and Ormeling, F. J., (Ed.) (1993): Basic Cartography for Students and Technicians, Vol.I, International Cartographic Association and Elseiver Applied Science Publishers, London.
5. American Society of Photogrammetry (1983): Manual of Remote Sensing, ASP PalisChurch,V.A.
6. Agrawal, N.K.(2006), Essentials of GPS (Second Edition), Book Selection Centre, Hyderabad
7. Bhatia (2016): Remote Sensing and GIS, Oxford University Press, New Delhi.
8. Bhatia, S. C. (2008): Fundamentals of Remote Sensing, Atlantic Publishers and Distributors (P) Limited, New Delhi.
9. Bhatta Basudeb 2016: Remote Sensing and GIS, Oxford University Press, New Delhi
10. Barrett, E.G. and Curtis, L.F. (1992): Fundamentals of Remote Sensing in Air Photointerpretation,
McMillan, New York. 7.
11. Bernhardsen, Tor (2002): Geographical Information Systems: An Introduction, Third Edition, John Wiiey& Sons, Inc., New York.
12. Burrough, Peter A and McDonnell, R.A. (1998): Principles of Geographical Information Systems, Oxford University Press, Mumbai.
13. Campbell. J. (1989): Introduction to Remote Sensing, Guilford, New York.
14. Clarke, Keith C. (1998): Getting Started with Geographic Information Systems, Prentice-Hall Series in Geogl. Info. Science, Prentice-Hall, Inc. N.J.
15. Central Board of Secondary Education (New Delhi): Geospatial Technology Textbook, Class XI and XII
16. Chaisman, N. 1992: Exploring Geographical Information Systems, John Wiley and Sons Inc., New York. Lillesand, T.M. and Kiefer, R. W. 1994: Remote Sensing and Image Interpretation, 3rd edition, John Wiley and Sons, New York.
17. Dickinson, G. C. (1977) Statistical Mapping and the Presentation of Statistics, Edward Arnold Ltd., London.
18. George B and Kolte P. E. (2010): The GIS Book, Cengage Learning India Private Limited, New Delhi.
19. George Joseph (2013): Fundamentals of Remote Sensing, Second Edition,

Universities Press (India) Private Limited, Himayatnagar, Hyderabad.
20. Heywood, I.et al (2002): An Introduction to Geological Systems, Pearson Education Limited, New Delhi.
21. Iliffe, J.C (2006), Datums and Map Projections for Remote Sensing, GIS and Surveying, Whittles Publishing, New York.
22. Jonson. R. J. (2003): Remote Sensing of the Environment-An Earth Resources Perspective
23. Kang-Tsang Chang (2010): Introduction to Geographic Information Systems, Tata McGraw Hill Edition, New Delhi.
24. Lillesand and Keifer (2010) Remote Sensing and Image Interpretation, Fourth Edition, Wiley.
25. Pearson Education Series in Geographical Information Science, Keith C. Clarke (Series editor) Pearson Educators Private Limited. (Singapore), New Delhi.
26. Monkhouse, F. J. and H. R. Wilkinson, (1971): Maps and Diagrams, Methuen & Co. Ltd., London.
27. Robinson, A. H. and Others (1995): Elements of Cartography, VI Edition, John Wiley & Sons, New York.
28. Sudhakar S (1993) : Forest Type and Density Mapping in Meghalaya through Digital Image Processing of Indian Remote Sensing Satellite Data, Collaborative project report by Meghalaya State Forest Dept. and RRSSC, Kharagpur.
29. Thomson O and Frank S (2000): Time Integrative Geographic Information System, Springer, New York.
30. Training Module of Capacity Building Training Programme in Geospatial Technology sponsored by Department of Science and Technology, Government of India in collaboration of Himachal Pradesh University.
31. Tutorials from the - http://dst-iget.in/tutorials
32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Introduction to Geospatial Technology	31/07/2023	PPT, Hand on Exercise
2	Remote Sensing (RS)	20/08/2023	PPT, Hand on Exercise
3	Geographical Positioning System (GPS)	10/09/2023	PPT, Hand on Exercise
4	Geographical Information System (GIS)	30/09/2023	PPT, Hand on Exercise

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test	10
Assignment	10
Presentation	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	One long answer question OR One long answer question / Two Short answer Questions	15
2	2	One long answer question OR One long answer question / Two Short answer Questions	15
3	3	One long answer question OR One long answer question / Two Short answer Questions	15
4	4	One long answer question OR One long answer question / Two Short answer Questions	15
Total			**60**

Name of the Course	Fundamentals in Geographical Information System
Course Code	DIP102
Class	PG Diploma
Semester	II
No of Credits	4
Nature	Theory/ ~~Practical/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied Geographical Information System operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Fundamentals in Geographical Information System

Course Outcomes:

CO1 – The learner shall be able to understand GIS Data.

CO2 – The learner shall be able to analyze geographical data.

CO3 – The learner shall be able to aware about challenge & opportunities in GIS.

CO4 – The learner shall be able to integrate internet resources for GIS.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	GIS Data	1.1 Data sources 1.2 GIS Data Acquisition and Types 1.3 Management of spatial data 1.4 Management of attribute data	15
2	Data Analysis	2.1 Measurement, classification, queries 2.2 Overlay, interpolation, visibility, network 2.3 Digital Image Processing 2.4 Analytical Models	15
3	Challenge & Opportunities in GIS	3.1 GIS becoming main branch of knowledge 3.2 Challenges of implementing GIS 3.3 Trend of GIS Development 3.4 Employment opportunities in GIS	15
4	Internet Resources for GIS	4.1 Open source GIS 4.2 Data resources 4.3 Internet based GIS 4.4 GIS & Research	15

Learning Resources recommended:

1. **कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**
2. **कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**
3. Afzal Sharieff and et. al. (Ed.) (2010): An Introduction to Remote Sensing, SARUP Book Publishers Pvt. Limited, New Delhi.

4. Anson, R. W. and Ormeling, F. J., (Ed.) (1993): Basic Cartography for Students and Technicians, Vol.I, International Cartographic Association and Elseiver Applied Science Publishers, London.
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6. Agrawal, N.K.(2006), Essentials of GPS (Second Edition), Book Selection Centre, Hyderabad
7. Bhatia (2016): Remote Sensing and GIS, Oxford University Press, New Delhi.
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24. Lillesand and Keifer (2010) Remote Sensing and Image Interpretation, Fourth Edition, Wiley.
25. Pearson Education Series in Geographical Information Science, Keith C. Clarke (Series editor) Pearson Educators Private Limited. (Singapore), New Delhi.
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31. Tutorials from the - http://dst-iget.in/tutorials
32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in
34. https://www.iirs.gov.in/

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	GIS Data	20/12/2023	PPT, Hand on Exercise
2	Data Analysis	15/01/2024	PPT, Hand on Exercise
3	Challenge & Opportunities in GIS	07/02/2024	PPT, Hand on Exercise
4	Internet Resources for GIS	27/02/2024	PPT, Hand on Exercise

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Test	10
Assignment	10
Presentation	10
Classroom performance	10
Total	**40**

B. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	1	One long answer question OR One long answer question / Two Short answer Questions	15
2	2	One long answer question OR One long answer question / Two Short answer Questions	15
3	3	One long answer question OR One long answer question / Two Short answer Questions	15
4	4	One long answer question OR One long answer question / Two Short answer Questions	15
Total			**60**

Name of the Course	Digital Cartography
Course Code	DIP103
Class	PG Diploma
Semester	I
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied practical in Digital Cartography operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Digital Cartography

Course Outcomes:

CO1 – The learner shall be able to understand practicals in terrain analysis.

CO2 – The learner shall be able to analyse water resources.

CO3 – The learner shall be able to aware about Land use & Land Cover Analysis.

CO4 – The learner shall be able to create maps with the help of population data analysis.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Practicals in Terrain Analysis	1.1 Area & contour analysis 1.2 Slop, aspect, hillshade analysis 1.3 Cross section	15
2	Practicals in Water Analysis	2.1 Stream ordering 2.2 Watershed analysis 2.3 Download & analysis open source data	15
3	Practicals in Land use& Land Cover Analysis	3.1 Unsupervised classification 3.2 Supervised classification 3.3 Download & analysis of LULC data- Bhuvan website	15
4	Practicals in Population Geography	4.1 Distribution & density of population 4.2 Sex Ratio & Migration 4.3 Birth rate & death rate	15

Learning Resources recommended:

1.**कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**

2.**कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**

3. AfzalSharieff and et. al. (Ed.) (2010): An Introduction to Remote Sensing, SARUP Book Publishers Pvt. Limited, New Delhi.

4. Anson, R. W. and Ormeling, F. J., (Ed.) (1993): Basic Cartography for Students and Technicians, Vol.I, International Cartographic Association and Elseiver Applied Science

Publishers, London.
5. American Society of Photogrammetry (1983): Manual of Remote Sensing, ASP PalisChurch,V.A.
6. Agrawal, N.K.(2006), Essentials of GPS (Second Edition), Book Selection Centre, Hyderabad
7. Bhatia (2016): Remote Sensing and GIS, Oxford University Press, New Delhi.
8. Bhatia, S. C. (2008): Fundamentals of Remote Sensing, Atlantic Publishers and Distributors (P) Limited, New Delhi.
9. BhattaBasudeb 2016: Remote Sensing and GIS, Oxford University Press, New Delhi
10. Barrett, E.G. and Curtis, L.F. (1992): Fundamentals of Remote Sensing in Air Photointerpretation,
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11. Bernhardsen, Tor (2002): Geographical Information Systems: An Introduction, Third Edition, John Wiiey& Sons, Inc., New York.
12. Burrough, Peter A and McDonnell, R.A. (1998): Principles of Geographical Information Systems, Oxford University Press, Mumbai.
13. Campbell. J. (1989): Introduction to Remote Sensing, Guilford, New York.
14. Clarke, Keith C. (1998): Getting Started with Geographic Information Systems, Prentice-Hall Series in Geogl.Info. Science, Prentice-Hall, Inc. N.J.
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16. Chaisman, N. 1992: Exploring Geographical Information Systems, John Wiley and Sons Inc., New York. Lillesand, T.M. and Kiefer, R. W. 1994: Remote Sensing and Image Interpretation, 3rd edition, John Wiley and Sons, New York.
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22. Jonson. R. J. (2003): Remote Sensing of the Environment-An Earth Resources Perspective
23. Kang-Tsang Chang (2010): Introduction to Geographic Information Systems, Tata McGraw Hill Edition, New Delhi.
24. Lillesand and Keifer (2010) Remote Sensing and Image Interpretation, Fourth Edition, Wiley.
25. Pearson Education Series in Geographical Information Science, Keith C. Clarke (Series editor) Pearson Educators Private Limited. (Singapore), New Delhi.
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28. Sudhakar S (1993) : Forest Type and Density Mapping in Meghalaya through Digital Image Processing of Indian Remote Sensing Satellite Data, Collaborative project report by Meghalaya State Forest Dept. and RRSSC, Kharagpur.
29. Thomson O and Frank S (2000): Time Integrative Geographic Information System, Springer, New York.
30. Training Module of Capacity Building Training Programme in Geospatial Technology sponsored by Department of Science and Technology, Government of India in collaboration of Himachal Pradesh University.
31. Tutorials from the - http://dst-iget.in/tutorials
32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in
34. https://www.iirs.gov.in/

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Practicals in Terrain Analysis	31/07/2023	PPT, Hand on Exercise
2	Practicals in Water Analysis	20/08/2023	PPT, Hand on Exercise
3	Practicals in Land use & Land Cover Analysis	10/09/2023	PPT, Hand on Exercise
4	Practicals in Population Geography	30/09/2023	PPT, Hand on Exercise

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

C. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Attempt any two questions out of three	15
2	II	Attempt any two questions out of three	15
3	III	Attempt any two questions out of three	15
4	IV	Attempt any two questions out of three	15
Total			**60**

Name of the Course	Research Project in Geography
Course Code	DIP201
Class	PG Diploma
Semester	II
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in prepare Research Project in Geography with the subject at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Research Project in Geography

Course Outcomes:

CO1 – The learner shall be able to select research design.

CO2 – The learner shall be able to collect data and process it.

CO3 – The learner shall be able to analyse collected data.

CO4 – The learner shall be able to prepare a research report.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Selection of topic & finalization of research design	--	15
2	Data Collection and Processing	--	15
3	Data Analysis	--	15
4	Research Report Writing	--	15

Learning Resources recommended:

1.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संशोधन पद्धती, डायमंड प्रकाशन, पुणे

2.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संख्याशास्त्रीय पद्धती, डायमंड प्रकाशन, पुणे

3. K.L. Narasimha Murthy (2014): Research Methodology in Geography(A Text Book), Concept Publishing company Pvt Ltd, New Delhi

4. H. N. Misra, Vijai P. Singh(2002): Research Methodology in Geography – Social, Spatial and Policy Dimensions, Rawat Publications, Jaipur and New Delhi

5. Kothari C. R. (2004) : Research Methodology - Methods and Techniques, New Age International Publishers

6. Y.K.Singh, Dr. R.B. Bajpai(2008): Research Methodology-Techniques and Trends, A P H Publishing Corpn, New Delhi

7. R. Cauvery, U.k.SudhaNayak (2003): Research Methodology, S.Chand & Company Ltd., New Delhi

8. O. R. Krishnaswami, M. Ranganatham (2005): Methodology of Research in Social Sciences,

Himalaya Publishing House, Mumbai
9. https://www.utwente.nl
10. Abdel Baset I. M. Hasouneh(2003): Research Methodology, Sublime Publications, Jaipur,
11. Best J. W. and Khan J. V. (1998) : Research in Education, Allyn and Bacon, USA
12. BhattaBasudeb (2016): Remote Sensing and GIS, Oxford University Press, New Delhi, India
13. Husain Majid (2001): Evolution of Geographical Thought, Rawat Publications, Jaipur, India
14. Dickinson G.C. (1977): Statistical Mapping and Presentation of Statistics, Edward Arnold Ltd.,London
15. George Joseph (2003): Fundamental of Remote Sensing, Universities Press, Hyderabad
17. Robinson A.H. (1985): Elements of Cartography, Vol.VI, John Wiley and Sons, New York
18. Saha P. and Basu P. (2013) : Advanced Practical Geography, Books and Allied (P) Ltd., Kolkata, India
19. Sarkar A. (2016) : Practical Geography - A Systematic Approach, Orient Blackswan Pvt. Ltd.,New Delhi, India
20. Sarkar A. (2013) : Quantitative Geography – Techniques and Presentations, Orient Blackswan, Pvt. Ltd., New Delhi, India
21. Taylor P.J. (1977): Quantitative Methods in Geography, Houghton Mifflin Company, Boston University Press, McGraw Hill, New York
22. IndiaTutorials from the - http://dst-iget.in/tutorials
23. bhuvan.nrsc.gov.in

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Selection of topic & finalization of research design	20/12/2023	PPT, Hand on Exercise
2	Data Collection and Processing	25/01/2024	PPT, Hand on Exercise
3	Data Analysis	10/02/2024	PPT, Hand on Exercise
4	Research Report Writing	27/02/2024	PPT, Hand on Exercise

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

C. Semester End Evaluation (Paper Pattern)

Question No	Unit	Method	Marks
1	I	Selection of topic & finalization of research design	15
2	II	Data Collection and Processing	15
3	III	Data Analysis	15
4	IV	Research Report Writing	15
		Total	**60**

Nomenclature: Geospatial Technology

Name of the Course	Geospatial Technology
Course Code	DIP202
Class	PG Diploma
Semester	I
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied practical Geospatial processes operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Course Outcomes:

CO1 – The learner shall be able to understand & apply Remote Sensing data.

CO2 – The learner shall be able to applications of Geographical Positioning System.

CO3 – The learner shall be able to apply basic Geographical Information System.

CO4 – The learner shall be able to analyse data and create output as thematic maps.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Remote Sensing (RS)	1.1 Interpretation of Aerial Photographs 1.2 Elements of Visual Image Interpretation - Mapping of Thematic Layers and Visual Image Interpretation of Physical and Manmade Features 1.3 Advanced Remote Sensing Technology - Use of Bhuvan website, 3D view of DEM	15
2	Geographical Positioning System (GPS)	2.1 Ground Survey and Demarcation of Point, Line and Polygon Features with GPS Device 2.2 Transfer GPS Data to Computer with Software's like -Easy GPS 2.3 Prepared map using QGIS software	15
3	Geographical Information System (GIS)- I	3.1 Introduction to QGIS, Importing Image & Projection 3.2 Geo-referencing & image registration 3.3 Creating Layers by Digitization of Point, Line and Polygon Features	15
4	Geographical Information System (GIS)- II	4.1 Spatial Database Analysis: Overlay, Merge, Query 4.2 Using Map-Composer for Map Layout and Design 4.3 Preparation of Thematic Maps	15

Learning Resources recommended:

1.**कार्लेकर, श्रीकांत (२००६) – भौगोलिक माहिती प्रणाली, डायमंड प्रकाशन, पुणे**

2.**कार्लेकर, श्रीकांत (२०१२) – दूर संवेदन, डायमंड प्रकाशन, पुणे**

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9. BhattaBasudeb 2016: Remote Sensing and GIS, Oxford University Press, New Delhi
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McMillan, New York. 7.
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15. Central Board of Secondary Education (New Delhi): Geospatial Technology Textbook, Class XI and XII
16. Chaisman, N. 1992: Exploring Geographical Information Systems, John Wiley and Sons Inc., New York. Lillesand, T.M. and Kiefer, R. W. 1994: Remote Sensing and Image Interpretation, 3rd edition, John Wiley and Sons, New York.
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18. George B and Kolte P. E. (2010): The GIS Book, Cengage Learning India Private Limited, New Delhi.
19. George Joseph (2013): Fundamentals of Remote Sensing, Second Edition, Universities Press (India) Private Limited, Himayatnagar, Hyderabad.
20. Heywood, I.et al (2002): An Introduction to Geological Systems, Pearson Education Limited, New Delhi.
21. Iliffe, J.C (2006), Datums and Map Projections for Remote Sensing, GIS and Surveying, Whittles Publishing, New York.
22. Jonson. R. J. (2003): Remote Sensing of the Environment-An Earth Resources Perspective
23. Kang-Tsang Chang (2010): Introduction to Geographic Information Systems, Tata McGraw Hill Edition, New Delhi.
24. Lillesand and Keifer (2010) Remote Sensing and Image Interpretation, Fourth Edition, Wiley.
25. Pearson Education Series in Geographical Information Science, Keith C. Clarke (Series editor) Pearson Educators Private Limited. (Singapore), New Delhi.
26. Monkhouse, F. J. and H. R. Wilkinson, (1971): Maps and Diagrams, Methuen & Co.

Ltd., London.
27. Robinson, A. H. and Others (1995): Elements of Cartography, VI Edition, John Wiley & Sons, New York.
28. Sudhakar S (1993) : Forest Type and Density Mapping in Meghalaya through Digital Image Processing of Indian Remote Sensing Satellite Data, Collaborative project report by Meghalaya State Forest Dept. and RRSSC, Kharagpur.
29. Thomson O and Frank S (2000): Time Integrative Geographic Information System, Springer, New York.
30. Training Module of Capacity Building Training Programme in Geospatial Technology sponsored by Department of Science and Technology, Government of India in collaboration of Himachal Pradesh University.
31. Tutorials from the - http://dst-iget.in/tutorials
32. bhuvan.nrsc.gov.in/
33. https://www.isro.gov.in
34. https://www.iirs.gov.in/

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Introduction to Geospatial Technology	31/07/2023	PPT, Hand on Exercise
2	Remote Sensing (RS)	20/08/2023	PPT, Hand on Exercise
3	Geographical Positioning System (GPS)	10/09/2023	PPT, Hand on Exercise
4	Geographical Information System (GIS)	30/09/2023	PPT, Hand on Exercise

Evaluation Pattern

B. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

D. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long / short answer questions with internal options.	15
2	II	Long / short answer questions with internal options.	15
3	III	Long / short answer questions with internal options.	15
4	IV	Long / short answer questions with internal options.	15
Total			**60**

Name of the Course	Research Methodology in Geography
Course Code	DIP203
Class	PG Diploma
Semester	II
No of Credits	4
Nature	~~Theory~~/ Practical~~/ Project/ other (please specify)~~
Type	Core (Major)
Highlight revision specific to employability/ entrepreneurship/ skill development (if any) 100 words	Courses that help in understanding varied practical of Research Methodology in Geography operating at Global, Regional and Local level are included in the curriculum. Also the application part is taken care of so that the learner shall be able to connect the phenomena around him with the curriculum.

Nomenclature: Research Methodology in Geography

Course Outcomes:

CO1 – The learner shall be able to understand Research Methodology in Geography.
CO2 – The learner shall be able to aware about Data Collection and Processing.
CO3 – The learner shall be able to analyse given data& represent it.
CO4 – The learner shall be able to Create Research Report Design.

Curriculum:

Unit	Title	Learning Points	No of Lectures
1	Research Methodology in Geography	1.1 Research in Geography: Concept, Types, Steps and Significance 1.2 Research Methodology: Meaning and Types (Qualitative and Quantitative) 1.3 Defining the Research Problem: Meaning, Need and Techniques 1.4 Research Designs: Concept, Need and Features	15
2	Data Collection and Processing	2.1 Sample Design, Measurement and Scaling 2.2 Data Collection in Geography: Types (Primary and Secondary) and Methods (Observation, Questionnaire, Schedule, Interview, etc.) 2.3 Role of Internet in Research: Online Research Referencing (Shodhganga, INFLIBNET, Research Gate, Academia, Mendeley, etc.) 2.4 Data Processing: Editing, Coding, Classification and Tabulation	15
3	Data Analysis & Representation	3.1 Data Analysis: Meaning, Significance and Types 3.2 Using MS-Excel and SPSS for Data Analysis:	15

		Graphical, Descriptive andInferential Statistical Representation 3.3 Hypothesis: Meaning, Types, Levels of Significance, Degrees of Freedomand Errors 3.4 Statistical Techniques for Hypothesis Testing	
4	Research Report Writing	4.4 Basics of Research Report Writing: Layout, Structure, Language, Bibliography, References and Footnotes 4.5 Ethics in Research: Plagiarism 4.6 Create Research Report Design on any One Theme in Physical Geography 4.7 Create Research Report Design on any One Theme in Human Geography	15

Learning Resources recommended:

1.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संशोधन पद्धती, डायमंड प्रकाशन, पुणे

2.कार्लेकर, श्रीकांत (२००७) – भूगोल शास्त्रातील संख्याशास्त्रीय पद्धती, डायमंड प्रकाशन, पुणे

3. K.L. Narasimha Murthy (2014): Research Methodology in Geography(A Text Book), Concept Publishing company Pvt Ltd, New Delhi

4. H. N. Misra, Vijai P. Singh(2002): Research Methodology in Geography – Social, Spatial and Policy Dimensions, Rawat Publications, Jaipur and New Delhi

5. Kothari C. R. (2004) : Research Methodology - Methods and Techniques, New Age International Publishers

6. Y.K.Singh, Dr. R.B. Bajpai(2008): Research Methodology-Techniques and Trends, A P H Publishing Corpn, New Delhi

7. R. Cauvery, U.k.SudhaNayak (2003): Research Methodology, S.Chand& Company Ltd., New Delhi

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University Press, McGraw Hill, New York
22. IndiaTutorials from the - http://dst-iget.in/tutorials
23. bhuvan.nrsc.gov.in

Teaching plan:

Unit	Title	Expected date of completion	Teaching methods
1	Research Methodology in Geography	20/12/2023	PPT, Hand on Exercise
2	Data Collection and Processing	25/01/2024	PPT, Hand on Exercise
3	Data Analysis	10/02/2024	PPT, Hand on Exercise
4	Research Report Writing	27/02/2024	PPT, Hand on Exercise

Evaluation Pattern

A. Internal Evaluation

Method	Marks
Journal	10
Viva voce	10
Presentation/Activity	10
Class performance	10
Total	**40**

D. Semester End Evaluation (Paper Pattern)

Question No	Unit	Particular	Marks
1	I	Long / short answer questions with internal options.	15
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3	III	Long / short answer questions with internal options.	15
4	IV	Long / short answer questions with internal options.	15
Total			**60**