B.A. / B.Sc. (Geography) Degree

(Basic / Honours with Research)

Scheme & Syllabus - NEP-2020 & CBCS

Semester	Course Code	Course Title	Teaching Hours	Hours / Week	Examination Pattern Max. & Min. Marks / Paper			Duration of the Exam (hours)	Total Marks / Paper	Credits
					Theory / Practical					
				Theory / Practical	Max.	Min.	IA	Theory / Practical		Theory / Practical
First	DSC.T-1	Principles of Geomorphology	56	4	60	21	40	2	100	4
	DSC.P-1	Geomorphological Mapping Techniques	56	4	25	9	25	2	50	2
	OE-1.1	Introduction to Natural Resources	42	3	60	21	40	2	100	3
	OE-1.2	Introduction to Physical Geography								
	L1-1.1	English	42	3	60	21	40	2	100	3
	L2-1.2	Kannada / Hindi / …..	42	3	60	21	40	2	100	3
	SEC.S-1	Digital Fluency	28	2	30	9	20	2	50	2
	SEC.V-1		14	1			25	1	25	1
	SEC.V-2		14	1			25	1	25	1

Semester	Course Code	Course Title	Teaching Hours	Hours / Week	Examination Pattern Max. & Min. Marks / Paper			Duration of the Exam (hours)	Total Marks / Paper	Credits
					Theory / Practical					
				Theory / Practical	Max.	Min.	IA	Theory / Practical		Theory / Practical
Second	DSC.T-2	Introduction to Climatology	56	4	60	21	40	2	100	4
	DSC.P-2	Interpretation of Weather Maps	56	4	25	9	25	2	50	2
	OE-2.1	Introduction to Human Geography	42	3	60	21	40	2	100	3
	OE-2.2	Fundamentals of Natural Disasters								
	L1-2.1	English	42	3	60	21	40	2	100	3
	L2-2.2	Kannada / Hindi / …..	42	3	60	21	40	2	100	3
	AECC-1	Environmental Studies	28	2	30	9	20	2	50	2
	SEC.V-3		14	1			25	1	25	1
	SEC.V-4		14	1			25	1	25	1

B.A. / B.Sc Semester – I
Title of the Course: DSC.T- 1 Principles of Geomorphology

Number of Theory Credits	Number of theory hours
4	56

Course Learning Outcomes:

After the completion of this course, student should be able to:
1. Define the field of Geomorphology and to explain the essential principles of Geomorphology.
2. To outline the mechanism of dynamic nature of the Earth's surface and it's interior.
3. To illustrate and explain the forces affecting the crust of the earth and its effect.
4. To understand the conceptual and dynamic aspects of landform development.

Course Objectives:

This course aims to:
1. To define the concepts in Geomorphology and Physical Geography.
2. To introduce various concept to understand cycles of the solid Earth surface.
3. To understand the dynamic nature of the Earth's surface, various processes and landforms.
4. To study the impact human on geomorphic system.

	Content of Theory Course	56
Unit – 1	**Introduction**: 1.1 Introduction to Physical Geography – Branches of Physical Geography, Inter Relationship between Physical and Human Geography. 1.2 Geological Time Scale, Importance of Quaternary Period. 1.3 Origin and evolution of the earth's crust. Physical conditions of the earth's interior. 1.4 Factors Controlling landforms development. Isostasy – Pratt and Airy Views	 04 04 02 04
Unit – 2	**Order of Landforms – First Order of Landforms – Continents and Oceans -Origin and Theories** 2.1 Introduction to first order landforms. Endogenetic and exogenetic forces. 2.2 Tetrahedron Theory by Lowthian Green, 2.3 Continental Drift Theory by Alfred Wegener: Geological, Biological and Climatological Evidence. Merits and Criticisms. Geosynclines. 2.4 Convectional Current Theory by Arthur Holmes -Types of Convection currents. Fundamentals of geomagnetism. 2.5 **Assignment:** Students should visit nearby locality and observe landforms types and characteristics and submit a report.	 02 03 04 03 02
Unit – 3	**Second Order Landforms: Origin and Theories. (How mountains Plateau and Plains are formed?)** 3.1 Plate Tectonic Theory – Major and Minor Plates., Causes of Plate Movements, 3.2 Plate Boundaries and Plate Margins 3.3 Associated Landforms – Volcanic Causes and Types, (Endogenetic) 3.4 Earthquakes & Tsunamis - Causes, Waves and its Impact. (Endogenetic) 3.5 Recent Views on Mountains Building- Folded and Faulted Mountains. Sea Floor spreading.	 06 02 02 02 02
	Third Order Landforms (Geomorphological Landforms)	

Unit –4	4.1. Ten Concepts in Geomorphology. Geomorphic cycles and landscape development. Cycle of erosion- Davis and Penck. 4.2. Agents of Denudation - Fluvial, Wind, Glacial, Tides & Waves, Karst and Underground Water – Erosion, Transportation and Depositional landform features. Rejuvenated and polycyclic landforms. 4.4 Rocks - Types, Characteristics and Importance, Weathering: Meaning, Types and Controlling Factors. 4.5 Denudation Chronology; channel morphology; erosion surfaces; slope development 4.6. Soil Formation and Soil Profile 4.6 **Field Study:** Students must be taken to nearby region to observe local land formation and degradation and write a report on their effectiveness.	02 05 02 02 01 02

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2. Strahler A.N. (1968) The Earth Sciences, Harper & Row Intl. Edn, New York
3. Thornberry W.D. (1969) Principles of Geomorphology 2nd Edition, Wiley International Edn. & Wiley Eastern Reprints 1984.
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5. Woodridge S.W and R.S. Morgan (1991) An Outline of Geomorphology, The Physical Basis of Geography, Orient Longman, Kolkata.
6. Dayal P. (1995) A Text Book of Geomorphology 2nd Edition. Sukla Book/Dept. Patna.
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10. Brunsden D. (1985) Geomorphology in the Service of Man: The Future of Geography, Methnen, U.K.
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13. William D. Thornbury(2004). Principles of Gomorphology, 2nd Edition, CBS Publisher and Distributor Pvt. Ltd, New Delhi
14. Vishwas S. Kale, Avijit Gupta (2018), Introduction to Geomorphology, Universities Press.

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3. https://www.gsi.gov.in/webcenter/portal/OCBIS
4. https://www.usgs.gov/
5. https://www.moes.gov.in/

B.A. / B.Sc. Semester – I

Title of the Course: DSC.P- 1 Geomorphological Mapping Techniques

Number of Theory Credits	Number of theory hours
2	56

Course Learning Outcomes:

After the completion of this course, student should be able to:

1. Define the field of Geomorphology and to explain the essential principles.
2. To outline the mechanism of dynamic nature of the Earth's surface and it's interior.
3. To illustrate and explain the forces affecting the crust of the earth and its effect.
4. To understand the conceptual and dynamic aspects of landform development.

Course Objectives:

This course aims to:

1. To define the concepts in Geomorphology and Physical Geography.
2. To introduce various concept to understand cycles of the solid Earth surface.
3. To understand the dynamic nature of the Earth's surface, various processes and landforms.
4. To study the impact human on geomorphic system.

	Content of Practical Course	56
Exercise 1	Collection of Rock types and Rock Samples: Igneous, Sedimentary and Metamorphic rock Samples, (Granite, Basalt, Limestone. Sandstone, Quartzite, Marble and Shale).	7
Exercise 2	Soil Profile: Preparation of Soil profile layers Such as oo, Ao, A, B, C and D soil layers.	7
Exercise 3	Construction of Land forms through Contour from Toposheets –Hill, Plateau, Gorge, Escarpment.	7
Exercise 4	**Field Study:** Students have to visit nearby stream and submit report regarding stream order.	7
Exercise 5	Marginal Information of Topographical Maps.Extraction of geomorphic landforms from topographical maps such as Contour Lines, Form Lines, Spot Heights, Bench-Mark.	7
Exercise 6	Profile drawing using contour from toposheet. Profiles –serial, superimposed, projected and composite.	7
Exercise 7	Delineation of watershed using Topographical sheets or Google map by marking water divide line and Identification of stream orders.	7
Exercise 8	Slope analysis - Wentworth's Method and Hypsometric curve.	7

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1. Ahmed E. (1985) Geomorphology, Kalyani Publishers, New Delhi.

2. Strahler A.N. (1968) The Earth Sciences, Harper & Row Intl. Edn, New York
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B.A. / B.Sc. Semester – I

Title of the Course: OE.- 1.1 Introduction to Natural Resources

Number of Theory Credits	Number of Theory hours
3	42

Course Learning Outcomes:

At the end of the course the students will:

1. Understand basic the concepts in natural resources management.
2. Familiarization of sustainable use of natural resources.
3. Optimal use of land and water resources.
4. Able to understand the causes and consequences of water stress and draw water conservation and management plans.
5. Study the integrated approaches to natural resources management.
6. Learn to use modern technologies in sustainable development and utilization of natural resources.

Course Objectives:

This course aims to

1. Explain the types of natural resources that exist.
2. Study the role of government and different agencies in the natural resource management.
3. Study the threat to the natural resources and the policies to solve it.

	Content of Theory Course	42 h
Unit – 1	**Introduction to Natural Resource Bases**: 1.1 Concept of resource, classification of natural resources. 1.2 Factors influencing on resource availability, distribution. 1.3 Interrelationships among different types of natural resources. 1.4 Ecological, social and economic dimension of resource management. 1.5 Natural resources and development.	 **02** **02** **02** **02** **02**
Unit – 2	**Biotic Resources:** 2.1 Forest resources, status and distribution, use and over-exploitation and deforestation. 2.2 Timber extraction, mining, dams and their effects on forest and tribal people, Forest products. Strategies for development of forestry. 2.3 Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. 2.4 Food resources: World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity. 2.5 Fish and other marine resources: Production, status, dependence on fish resource, unsustainable harvesting, issues and challenges. 2.6 **Assignment**: Students should study water crises in their locality and submit a report.	**02** **02** **02** **02** **02** **02**
Unit – 3	**Land resources:** 3.1 Land as a resource. Land use classification, land use planning and desertification. Land resource management and major issues. 3.2 Water resources: Use and over-utilization of surface and ground water, drought, conflicts over water, dams-benefits and problems. Water ecology and management. 3.3 Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.	**03** **03** **02**

Unit – 4	**Approaches in Resource Management:** **4.1** Resource Management Paradigms, Ecological approach; economic approach; implications of the approaches; 4.2 Management of Common International Resources: Ocean, climate, international fisheries and management commissions; 4.3 integrated resource management strategies, ISRO-NNRMS project on Integrated Mission on Sustainable Development (IMSD), 4.4 Use of modern technologies (RS, GIS, GNSS, Web-GIS, Google Earth Engine, Bhuvan-ISRO Geospatial Portal) as information sources for managing the natural resources. 4.5 **Field Study:** Students have to study the distribution of Natural Resources and their optimal utilization and prepare a report.	**02** **02** **02** **04** **02**

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B.A. / B.Sc. Semester – I
Title of the Course: OE.- 1.2 Introduction to Physical Geography

Number of Theory Credits	Number of Theory hours
3	42

Course Learning Outcomes:

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

1. Students will be able to understand the fundamental concepts in Earth Science.
2. Understands basic terminology used to describe physical processes and landscape.
3. Describe elements of the atmosphere and the oceans.

Course Objectives:

This course aims to

1. Study basic principles of the Earth Science.
2. Understand the landforms formed by various atmospheric and geomorphic agents.
3. Know relief features of ocean bottoms.

	Content of Theory Course	42 h
Unit – 1	**Motions of the earth:** 1.1 Origin, Shape and Size of the Earth, 1.2 Structure of the Earth. 1.3 Movement of the Earth-Rotation and Revolution, 1.4 Effects of the movement of Earth, 1.5 Coordinates - Latitude, Longitude and Time.	 **02** **02** **02** **02** **02**
Unit – 2	**Weathering and Denudation:** 2.1 Rocks-types, significance, 2.2 Weathering–types. Agents of Denudation-River, Glacier, Wind and Groundwater. 2.3 Volcanicity, Earthquakes and Tsunamis. 2.4 **Assignment:** Students will have to study a local weather and prepare report.	 **02** **04** **02** **02**
Unit – 3	**Weather and Climate:** **3.1** Structure and Composition of Atmosphere, 3.2 Weather and Climate. Atmospheric Temperature, 3.3 Heat Budget of the atmosphere. 3.4 Atmospheric Pressure, 3.5 Winds and Precipitation.	 **02** **02** **02** **02** **02**
Unit – 4	**Distribution of Land & Sea:** **4.1** Distribution of Land and Sea, Submarine Relief of the Ocean, 4.2 Temperature and Salinity of Sea Water. Ocean Tides, Waves and Deposits, 4.3 Ocean currents-Atlantic, Pacific and Indian Oceans. 4.4 Marine Resources: Biotic, mineral and energy resources. **4.5 Field Study:** Students need to visit the nearby fields and identify various types of landforms and process behind their formation and submit a report.	 **02** **02** **04** **02** **02**

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1. Worcester P.G. (1965), A Text Book of Geomorphology, Can North and 2nd Edition, East West Edn. New Delhi.
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B.A. / B.Sc. Semester – II
Title of the Course: DSC.T- 2 Introduction to Climatology

Number of Theory Credits	Number of theory hours
4	56

Course Outcomes:

After the completion of this course, students should be able to

1. Define the field of climatology and to understand the atmospheric composition and structure.
2. To outline the mechanism and process of solar radiation transfer to earth surface and to ex-plain the temperature distribution and variation according to time and space.
3. To illustrate and explain the air-pressure system, wind regulating forces and the formation of the Atmospheric Disturbance.
4. To understand and compute the air humidity as well as to explain the process of Condensation and formation of precipitation and its types.

Course Objectives:

This course aims to:

1. To define the field of climatology and components of the climate system
2. To introduce various dimensions of climatology like structure and composition.
3. To understand the global atmospheric pressure, temperature, and wind system.
4. To study the concept of atmospheric moisture and its types

	Content of Theory Course	56 h
Unit – 1	**Composition and Structure of the Atmosphere:** **1.1** Nature and Scope of Climatology; Climatology and Meteorology. **1.2** Structure: Troposphere, Stratosphere, Mesosphere, Ionosphere, Exosphere and their characteristics. **1.3** Composition of the atmosphere. **1.4** Weather and Climate.	 **02** **03** **02** **01**
Unit – 2	**Atmospheric Temperature:** 2.1. Insolation: Definition, Mechanism, Solar Constant. Factors affecting the Insolation: Angle of incidence, length of the day, Sun spots, 2.2 Heating and cooling process of the atmosphere-Radiation, Conduction, convection, and advection. 2.3 Temperature Distribution: Influencing factors. Vertical, Horizontal, and Inversion of temperature. Atmospheric stability and instability. 2.4 Global Energy Budget: Incoming short-wave, solar radiation, outgoing long-wave, Terrestrial radiation, albedo. Net Radiation and Latitudinal Heat Balances. 2.5 **Assignment:** Students have to observe heating and cooling process of built-up area, agriculture area, water-body and open space of their surrounding and prepare a report.	 **02** **03** **03** **04** **02**
Unit – 3	**Atmospheric Pressure and Winds:** 3.1 Atmospheric Pressure: Influencing factors, Vertical and Horizontal Distribution, 3.2 Pressure Belts, Pressure Gradient. Tri-cellular - Hadley, Ferrel's and Polar Cells. 3.3 Atmospheric Circulation, Winds - Influencing factors, Types - planetary, seasonal, local. Monsoons and jet streams. 3.4 Variable winds – Cyclones and anti-cyclones. 3.5 Air-Masses and Fronts: Definition, Nature, Source Regions and Classification.	 **03** **03** **04** **04** **04**
	Atmospheric Moisture: Humidity:	

Unit –4	**4.1** Sources, influencing factors and types -Absolute, Relative and Specific. 4.2 Hydrological cycle: process of evaporation, condensation. 4.4 Precipitation: Types and distribution. 4.5 Koppen's, Thornthwaite's and Trewartha's classification. 4.6 Global Climate Change**:** Causes and consequences, role and response of man. 4.7 **Field Study:** Students will have to visit and study a local area Weather Station and prepare report how it gathers data and sends to the main station.	**03** **03** **02** **02** **04** **02**

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B.A. / B.Sc. Semester – II

Title of the Course: DSC.P- 2 Interpretation of Weather Maps

Number of Practical Credits	Number of Practical hours
2	56

Course Outcomes:

After the completion of this course, students should be able to

1. Define the field of climatology and to understand the atmospheric composition and structure.
2. To outline the mechanism and process of solar radiation transfer to earth surface and to ex-plain the temperature distribution and variation according to time and space.
3. To illustrate and explain the air-pressure system, wind regulating forces and the formation of the Atmospheric Disturbance.
4. To understand and compute the air humidity as well as to explain the process of Condensation and formation of precipitation and its types.

Course Objectives:

This course aims to:

1. To define the field of climatology and components of the climate system
2. To introduce various dimensions of climatology like structure and composition.
3. To understand the global atmospheric pressure, temperature, and wind system.
4. To study the concept of atmospheric moisture and its types

	Content of Practical Course	56 h
Exercise 1	Understanding functions of the Indian Meteorological Department (IMD) and Acquisition of Climate Variables.	**7**
Exercise 2	Plotting of variables using graphical methods: line-graph / bar-graph. (Manual and Automated).	**7**
Exercise 3	Elementary Instrumental Observation: Centigrade and Fahrenheit thermometer for measuring temperature.	**7**
Exercise 4	Mercurial Barometer and Aneroid Barometer for measuring atmospheric pressure	**7**
Exercise 5	Derivation of Actual and Potential Evapotranspiration	**7**
Exercise 6	Derivation of Drought Indices (Standard Precipitation Index, Aridity Index)	**7**
Exercise 7	Interpretation of Indian Daily Weather charts. (*Download weather charts of any two seasons).*	**7**
Exercise 8	**Field Activity**: Measurement of Water-Balance in the field, Study of erosional and run-off nearby area.	**7**

References

1. Lutgens, Frederic K. & Tarbuck, Edward J. (2010).The Atmosphere: An Introduction to Meteorology. New Jersey: Pearson Prentice Hall.
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B.A. / B.Sc. Semester – II

Title of the Course: OE.- 2.1 Introduction to Human Geography

Number of Theory Credits	**Number of Theory hours**
3	**42**

Course Learning Outcomes:

After the completion of this course, students should be able to

1. Students learn how human and physical components of the world interact.
2. Students will be familiarized with economic processes such as globalization, trade and their impacts on economic, cultural and social activities.
3. The student will describe what geography and human geography are.
4. Understand population dynamics and migration.

Course Objectives:

This course aims to

1. Understand the basics concepts of human geography
2. Study population attributes and dynamic nature of it.
3. Introduce economic, cultural, and trade activities and their impact on the regional development.

	Content of Theory Course	**42 hrs**
Unit – 1	**Introduction to Human Geography:** 1.1 Nature, scope and Development. 1.2 Environmental Determinism and Possiblism, Neo-determinism (stop and go determinism). 1.3 Approaches to human geography: Exploration and Descriptive approach, regional analysis Approach, Areal Differentiation Approach, Spatial organization Approach. 1.4 Modern approaches: Welfare or Humanistic Approach, Radical Approach, Behavioural Approach, Post-Modernism in geography.	**02** **02** **04** **02**
Unit – 2	**Broad racial group and Cultural Patterns of the world:** 2.1 Broad groups of races, main characteristics and distribution in the world. 2.2 Major Religions and their Distribution: Hinduism, Christianity, Islam and Buddhism. 2.3 Concept of Culture, Material and Non-material culture Cultural Regions, cultural Traits and Complexes, cultural Hearths, cultural Diffusion. 2.3 **Assignment:** Students will have to select nearby area and study religions and their characteristics and submit the report.	**02** **04** **02** **02**
Unit – 3	**Human Economic Activities:** 3.1 Primary Economic Activities – Agriculture, Types: Primitive Subsistence, Intensive subsistence, Plantation Agriculture, Extensive Commercial grain cultivation, Mixed Farming, Dairy Farming. Forestry, fishing and mining 3.2 Secondary Activities: Manufacturing – Cotton Textile and Iron & Steel. Concept of Manufacturing Region. Special Economic Zones. 3.3 Tertiary Activities: Trade and commerce, Retail Trading services, wholesale trading.	**04** **04** **02**
Unit – 4	**Transport and communications and Human Settlements:** 4.1 Transport and communications: Factors, Types and Distribution of Roads, Railway, airway and waterways. Services: Informal and Non formal sector. Information technology. 4.2 Human Settlements: Concepts, rural vs. urban – origin and evolution of	**04** **04**

	settlements - influencing factors of settlements- types and patterns of settlements. Trends and patterns of world Urbanization. 4.3 **Field Study:** Students will have to select nearby town and study various activities performed and submit the report.	**02**

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B.A. / B.Sc. Semester – II

Title of the Course: OE.- 2.2 Fundamentals of Natural Disasters

Number of Theory Credits	**Number of Theory hours**
3	**42**

Course Learning Outcomes:

After the completion of this course, students should be able to

1. Understand the basics concepts in natural disasters
2. Study types of natural disasters and their effects
3. To understand to create disaster awareness on human and natural habit
4. Learn to use modern technologies like remote sensing and GIS in reducing their impact.

Course Objectives:

The course aims to

1. To provide a general concept in the dimensions of disasters caused by nature beyond the human control.
2. Introduce a holistic classification of natural disasters considering the Earth Sciences
3. Demonstrate the devastating effect of natural disasters to society.

	Content of Theory Course	**42 h**
Unit – 1	**Introduction to Natural Disaster:** 1.1 Meaning, definition, and scope of Natural Disasters study. 1.2 Natural and human-made disasters. 1.3 Commonly occurring disaster in India, their impact on Indian economy. 1.4 Disaster management structure in India.	 **04** **02** **02** **02**
Unit – 2	**Natural Disasters of atmospheric, Lithospheric, hydrospheric and Biotic origin:** **2.1** Heat wave and wildfires, Cloud burst, hailstorm, Drought and famines and effects. 2.2 Earthquakes, volcanoes, Tsunami its effects and preparedness. 2.3 Cyclones, Floods and flash floods. 2.4 Epidemics and pandemics, Covid -19 and their effects. 2.5 Impact of climate change on the frequency and severity of disasters. 2.6 **Assignment:** Students will have to assess heat and droughts in local area and prepare report for its impact on human life.	 **02** **02** **02** **02** **02** **02**
Unit – 3	**Techniques and technology to mitigate natural disasters:** 3.1 Satellite remote sensing and Global Navigation Satellite Systems for data collection. 3.2 Geographic Information Systems for data processing and visualization, 3.3 Mobile GIS information collection (crowd sourcing). 3.4 Internet / Web GIS for information dissemination and public participation.	 **02** **02** **02** **02**
Unit – 4	**Success stories of managing the disasters in India and national/ international policy Frameworks:** **4.1** Cyclonic early warning by IMD 4.2 Flood early warning and damage assessment by NESAC, Shillong 4.3 Landslide hazard assessment by Centre for Ecology, IISc, Bangalore 4.4 COVID-19 management inputs given by KSRSAC, Bangalore 4.5 Information services being supplied by Karnataka State Disaster Monitoring Centre (KSNDMC), Bangalore. 4.6 National and international policies for disaster management 4.6 UN Sustainable Development Goals (SDGs) related to disaster management. 4.7 **Field Study:** Students will have to study COVID-19 situation in local area and prepare report for its impact on society.	 **01** **01** **01** **01** **01** **02** **03** **02**

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B.A. / B.Sc. (Geography) Degree

(Basic / Honours with Research)

Scheme & Syllabus - NEP-2020 & CBCS

Semester	Course Code	Course Title	Teaching Hours	Hours / Week	Examination Pattern Max. & Min. Marks / Paper			Duration of the Exam (hours)	Total Marks / Paper	Credits
				Theory / Practical	Theory / Practical					
					Max.	Min.	IA	Theory / Practical		Theory / Practical
Third	DSC.T-3	Fundamentals of Human Geography	56	4	60	21	40	2	100	4
	DSC.P-3	Techniques in Human Geography	56	4	25	9	25	2	50	2
	OE-3.1	Geography of India	42	3	60	21	40	2	100	3
	OE-3.2	Geography of Tourism								
	L1-3.1	English	42	3	60	21	40	2	100	3
	L2-3.2	Kannada / Hindi /….	42	3	60	21	40	2	100	3
	SEC.S-2	Artificial Intelligency	28	2	30	9	20	2	50	2
	SEC.V-5		14	1			25	1	25	1
	SEC.V-6		14	1			25	1	25	1

Semester	Course Code	Course Title	Teaching Hours	Hours / Week	Examination Pattern Max. & Min. Marks / Paper			Duration of the Exam (hours)	Total Marks / Paper	Credits
				Theory / Practical	Theory / Practical					
					Max.	Min.	IA	Theory / Practical		Theory / Practical
Fourth	DSC.T-4	Regional Geography of India	56	4	60	21	40	2	100	4
	DSC.P-4	Representation of Geographical Features of India	56	4	25	9	25	2	50	2
	OE-4.1	Geography of Karnataka	42	3	60	21	40	2	100	3
	OE-4.2	Regional Planning and Development								
	L1-4.1	English	42	3	60	21	40	2	100	3
	L2-4.2	Kannada / Hindi / …..	42	3	60	21	40	2	100	3
	AECC-2	Constitution of India	28	2	30	9	20	2	50	2
	SEC.V-7		14	1			25	1	25	1
	SEC.V-8		14	1			25	1	25	1

B.A. / B.Sc. Semester – III

Title of the Course: DSC.T- 3 Fundamentals of Human Geography

Number of Theory Credits	**Number of theory hours**
4	**56**

Course Learning Outcomes:

After the completion of this course, students should be able to

1. Students learn how human and physical components of the world interact.
2. Students will be familiarized with economic processes such as globalization, trade and their impacts on economic, cultural and social activities.
3. The student will describe what geography and human geography are.
4. Understand population dynamics and migration.

Course Objectives:

This course aims to

1. Understand the basic concepts of human geography
2. Study population attributes and dynamic nature of it.
3. Introduce economic, cultural, and trade activities and their impact on the regional development.

	Content of Theory Course	**56 h**
Unit – 1	**Introduction to Human Geography:** **1.1** Nature, scope and growth of human geography, Branches in human geography. **1.2** Themes in Geography, man-environment debate in human Geography. **1.3** Approaches to man-environment relationship: Environmental Determinism and Possibilism, Neo-determinism (stop and go determinism), Approaches to study human geography – Descriptive approach, Regional approach, Areal Differentiation approach and spatial organization approach. Quantitative revolution and locational analysis. **1.4** Welfare or Humanistic approach, Radical approach, Behavioral approach. Regional Synthesis.	02 04 06 02
Unit – 2	**Cultural Patterns and Process:** 2.1 Concept of Culture, Material and Non-material culture Cultural Regions, cultural Traits and Complexes, cultural Hearths. Major cultural realms of the world. 2.2 Race: Characteristics and classification. Broad racial groups of the world and their distribution. Linguistic and ethnic diversity. 2.3 Major Religions and their Distribution: Hinduism, Christianity, Islam and Buddhism. 2.4 **Assignment:** Students will have to select nearby area and study religions and their characteristics and submit the report.	04 04 04 02
Unit – 3	**Human Economic Activities:** 3.1 Primary Economic Activities. Agriculture: Primitive Subsistence, Intensive subsistence, Plantation Agriculture, Extensive Commercial grain cultivation, Mixed Farming, Dairy Farming. Forestry, fishing and mining 3.2 Secondary Activities: Manufacturing – Cotton Textile and Iron & Steel. Concept of Manufacturing Region. Industrial Regions of the world. New Industrial Policy. 3.3 Tertiary Activities: Trade and commerce, Retail Trading services, wholesale trading. Trade balance and trade policy. 3.4 Major tribes, tribal areas and their problems.	04 04 02 04
	Population, Transport & Communication & Settlements: **4.1** Population: Resource Relationships and regional resource development**.**	**02**

Unit –4	**4.2** Transport and communications: Factors, Types and Distribution of Roads, Railway, airway and waterways. Services: Formal and Informal sector. Information technology. **4.3** Urban Settlements: Origin and evolution, hierarchy, trends and patterns of urban settlements. Urban morphology. Concept of Primate City and rank size rule. Functional classification of towns, Rural-urban fringe. Problems and remedies of urbanization. Central Place theory **4.4** Rural Settlements – types, patterns and factors influencing on distribution. **4.5 Field Study:** Students have to study human resource development in local area and prepare a report.	**04** **04** **02** **02**

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B.A. / B.Sc. Semester – III
Title of the Course: DSC.P- 3 Techniques in Human Geography

Number of Practical Credits	Number of Practical hours
2	56

Course learning Outcomes:

After the completion of this course, students should be able to

1. Students will learn how human, physical, and environmental components of the world interact.
2. Students will be familiarized with economic processes such as globalization, trade and their impacts on economic, cultural and social activities.
3. The student will describe what geography and human geography are.
4. Understand population dynamics and migration.

Course Objectives:

This course aims to

1. Understand the basics concepts of human geography
2. Study population attributes and dynamic nature of it.
3. Introduce economic, cultural, and trade activities and their impact on the development to the region.

	Content of Practical Course	56 h
Exercise 1	**Maps:** Definition, Elements of maps (scale, direction, map projection, conventional signs and symbols, legend), Types of maps, Uses of maps	7
Exercise 2	**Map Scales:** Definition and Types- Verbal Scale (VS), Representative Fraction (RF), Graphical Scale.	**7**
Exercise 3	Conversion of scale - VS into RF and RF into VS (Minimum 2 examples each), Exercise on measuring distance on map and converting map distance into ground distance.	**7**
Exercise 4	**Field-based Activity:** Students are to be prepared a report by reading of maps in the field and collection of data and its representation.	**7**
Exercise 5	**Meaning and purpose of latitudes and longitude.** **Map Projections:** Classification of map projections and their properties.	**7**
Exercise 6	Construction of Cylindrical Projections - Cylindrical Equal Area Projection.	**7**
Exercise 7	Construction of the Conical Projections - Conical Projection with one and two standard parallel.	**7**
Exercise 8	Construction of the Zenithal projections - Zenithal Polar Gnomonic Projection. **Introduction to UTM Projection.**	**7**

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B.A. / B.Sc Semester – III
Title of the Course: OE 3.1 Geography of India

Number of theory Credits	Number of theory hours
3	42

Course Outcomes:

After the completion of this course, students should be able to

1. Understanding holistically about the geography of India
2. Interpret and apply the concepts on resource distribution of India and related economic activities
3. Demonstrate the economic development through the connectivity of transport and communication

Course Objectives:

The course aims to

1. Understand the basics geographical setting of India
2. Study physiographic divisions with drainage, soil and vegetation of India.
3. Gets exact information regarding mechanism of monsoon and its impact.

	Content of Theory Course	42 h
Unit – 1	**Physical Setting** : 1.1 Location and Extension of India, 1.2 Physiographic divisions, 1.3 Climate, Drainage system, 1.4 Soil Types and its distribution, 1.5 Natural Vegetation. 1.6 Water Disputes: River Brahmaputra and Indus. 1.7 Geopolitical Issues: Indo-china, Indo-Pakistan.	 **01** **02** **02** **01** **01** **02** **01**
Unit – 2	**Irrigation and Agriculture:** 2.1 Need for irrigation, types and distribution. Multipurpose river valley projects Significance of Agriculture, Types of farming. 2.3 Agro Climatic Regions of India 2.4 Agricultural Crops: Rice, Wheat, Sugarcane, cotton, Tea and Coffee. 2.4 Green Revolution, White Revolution, Blue revolution, Blue Revolution. 2.5 **Assignment:** Selecting a mining / quarrying / industrial region students have to study the locational factors and prepare a report.	 **02** **02** **01** **01** **02** **02** **02**
Unit – 3	**Minerals, Energy Resources and Industries:** 3.1 Significance and locational factors. 3.2 Distribution of Iron ore, Manganese, Bauxite, Coal, Petrol. 3.3 Distribution and production of industries: Cotton Textile, Jute, Iron and Steel, Aluminum and Paper. 3.4 Special Economic Zones	 **02** **01** **04** **01**
Unit – 4	**Transportation and Communication in Regional Development:** 4.1 Roadways, Railway, airways waterways. 4.2 Ports and National Water Ways 4.3 Indian *Space* Programme. 4.4 Population: Growth, distribution**,** Structure and Density of Population. 4.5 **Field Study:** Selecting a region students have to carry out transportation system and prepare a report.	 **02** **02** **02** **02** **02**

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B.A. / B.Sc. Semester – III
Title of the Course: OE 3.2 Geography of Tourism

Number of theory Credits	Number of theory hours
3	42

Course Learning Outcomes:

After the completion of this course, students should be able to

1. To elucidate the basic concepts, and assess different forms of tourism
2. To identify role of geography along with economic, social, and environmental importance of tourism industry
3. To provide skills in terms of tourism management, environmental preservation, and conservation

Course Objectives:

Upon completing this course, students will be able to:

1. Contextualize tourism within broader physical, cultural, environmental, and economic dimensions of society,
2. Critique tourism practices for their implications locally and globally.
3. Interpret and evaluate tourism as a phenomenon and as a business system
4. Plan, lead, organize and control resources for effective and efficient tourism

	Content of Theory Course	42 h
Unit – 1	**Introduction:** 1.1 Scope and Content of Tourism Geography 1.2 Economic and Social significance of tourism 1.3 Tourism Components: Accessibility, Accommodation, Attraction – Motivation – Seasonality 1.4 Impacts of Tourism: Socio Cultural, Economic, and Environmental impacts 1.5 Effects on employment - Development of infrastructure 1.6 Tourism as a foreign exchange earner	 **02** **02** **02** **02** **01** **01**
Unit – 2	**Types of Tourism:** 2.1 Types of Tourism: Religious, Cultural, Historical, Recreational, Coastal, Ecological and Medical tourism 2.2 Forms of Tourism: National tourism (Domestic) 2.3 International Tourism (Inbound and Outbound Tourism) 2.4 New Forms of Tourism: Adventure, Green Tourism, Eco tourism, Health, MICE Tourism, Soft Tourism, Sports Tourism and Rural tourism. 2.5 **Assignment:** Students have to study eco-tourism and submit a report.	 **02** **02** **02** **02** **02**
Unit – 3	**Tourism Management & Planning:** 3.1 Tourism Management – Objective, Strategies and Types of Tourism Management. 3.2 Tourism Planning Process and Approaches 3.3 Types of Tourism Planning: Sectoral, Spatial, Integrated, Complex, Centralized and Decentralized 3.4 Tourism Demand: Determinants and Measurement - Cost benefit analysis - Multiplier effect 3.5 Role of IT and GIS in tourism management.	 **02** **02** **02** **02** **02**
Unit – 4	**Tourism development in India**: 4.1 Tourism development in India 4.2 Tourism development in Karnataka 4.3 Tourism and Environmental management - Sustainable Tourism Management, Wildlife Management, Environmental Preservation and Conservation, Community	 **02** **02** **04**

	Involvement and participation 4.4 Tourism policies and programme 4.5 **Field Study:** Selecting a region / district students have to study development of tourism and prepare a report.	**02** **02**

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B.A. / B.Sc. Semester – IV
Title of the Course: DSC.T- 4 Regional Geography of India

Number of Theory Credits	Number of Theory hours
4	56

Course Learning Outcomes:

After the completion of this course, students should be able to
1. Understanding holistically about the geography of India
2. Interpret and apply the concepts on resource distribution of India and related economic activities
3. Demonstrate the economic development through the connectivity of transport and communication

Course Objectives:

The course aims to
1. Understand the basics geographical setting of India
2. Study physiographic divisions with drainage, soil and vegetation of India.
3. Gets exact information regarding mechanism of monsoon and its impact.

	Content of Theory Course	56 h
Unit – 1	**Physical Setting:** 1.1 Location, size and extent. Major physiographical regions (northern mountains, northern great plains, peninsular plateau and coastal plains and islands) and their characteristics; 1.2 Climate: Seasonal weather characteristics, climatic zones. Mechanism and characteristics of Indian monsoons; 1.3 Tropical cyclones and western disturbances; 1.4 Floods and droughts. 1.5 Drainage system. 1.6 Soil: types, erosion and conservation. 1.7 Vegetation: Types, distribution, afforestation, social forestry programs, national parks, wildlife sanctuaries, and biosphere reserves.	**04** **04** **02** **01** **01** **02**
Unit – 2	**Water and Agricultural Resources:** 2.1 Water resources of India, surface and groundwater, water demand and utilization. 2.2 Irrigation: Sources, types and intensity. Issues and challenges: water resources scarcity, water conservation and management 2.3 watershed management, rainwater harvesting, recycle and reuse of water. Interlinking of rivers, 2.4 National water policies, national water mission, jalashakti Abhiyaan. Command area development and water management. Central Water Commission and Water Tribunal and their role. **2.5** Agriculture: Landuse and cropping pattern – meaning and concepts, landuse and cropping Patten in India, agro-climatic regions, green revolution – causes and effects, hunger index and malnutrition; food security and right to food to achieve Zero hunger and Good Health and Wellbeing. 2.6 **Assignment:** Selecting a region students have to study the locational factors nearby industry and prepare a report.	**02** **03** **02** **03** **04** **02**
Unit – 3	**Industries, transportation and communication:** 3.1 Locational factors of industries, major industrial regions and their characteristics, 3.2 Classification of Industries: Agro-based, mineral-based, forest-based and animal-based industries. 3.3 Special Economic Zones: Industrial / economic corridor. 3.4 Transport & Communication: Significance, growth and development – Road ways,	**02** **02** **02** **04**

	railway, waterway, airway and pipeline networks and their complementary and competition. 3.5 Communication: Means of communication their significance.	**02**
Unit –4	**Human Resource:** 4.1 Growth, distribution and density of population. 4.2 Composition of population: Age, sex, rural-urban population composition. 4.3 Migration: meaning, factors, types, causes and consequences. 4.4 Human Development in India: Measures, levels of development based on HDI, Human Gender Development Index (GDI0 4.5 **Field Study:** Selecting a region / district students have to examine the levels of Human Development using HDI and prepare a report.	**02** **04** **02** **04** **02**

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3. https://tourism.gov.in/
4. https://www.resourcedata.org/dataset/rgi-ministry-of-minerals-energy-and-water-resources
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7. https://www.fao.org/soils-portal/en/

B.A. / B.Sc. Semester – IV

Title of the Course: DSC.P- 4 Representation of Geographical Features of India

Number of Practical Credits	Number of Practical hours
2	56

Course Learning Outcomes:

After the completion of this course, students should be able to

1. Understanding holistically about the geography of India
2. Interpret and apply the concepts on resource distribution of India and related economic activities
3. Demonstrate the economic development through the connectivity of transport and communication

Course Objectives:

The course aims to

1. Understand the basics geographical setting of India
2. Study physiographic divisions with drainage, soil and vegetation of India.
3. Gets exact information regarding mechanism of monsoon and its impact.

	Content of Practical Course	56 h
Exercise 1	Prepare various landforms using toposheets and interpret.	7
Exercise 2	Construct soil fertility (NPK) and distribution (India / Karnataka / District) map by using choropleth method and interpret.	7
Exercise 3	Construct rainfall distribution map of India / Karnataka / District by using isopleth method and interpret.	7
Exercise 4	**Field Activity:** Candidates are to be taken for field work to nearest local place of natural / cultural area and ask them to prepare report how natural / cultural landscape change over the time and submit a report.	7
Exercise 5	Mapping temperature distribution in India / Karnataka / District by using isopleth method and interpret.	7
Exercise 6	Construct a map regarding impact of industries in India by using buffer analysis digitally / manually and interpret.	7
Exercise 7	Prepare flow-diagrams relating to air and railway transportation of India / Karnataka / District and interpret.	7
Exercise 8	Construct special need and tourism interest map of India / Karnataka / District and interpret.	7

References

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B.A. / B.Sc. Semester – IV

Title of the Course: OE- 4.1 Geography of Karnataka

Number of Theory Credits	Number of Theory hours
3	42

Course Learning Outcomes:

After the completion of this course, students should be able to

1. Understand the site and situation of Karnataka
2. Intellectual connect to the resources and economic activities of Karnataka
3. Assess demographic composition of Karnataka state

Course Objectives:

The curse aims to

1. To introduce geographical setting
2. To make students understand various physical and cultural features of Karnataka
3. To make students comprehend natural resources and their optimal use in the state

	Content of Theory Course	42 h
Unit – 1	**Introduction:**: 1.1 Geographical Location, size and Administrative divisions. 1.2 Coastal Regions, Western Ghats, Malanadu Regions and Maidana Regions of Karnataka. 1.3 **Weather and Climate:** Seasons, Distribution of Rainfall and Temperature, Climatic regions, Drought prone areas in Karnataka. 1.4 **Drainage Systems:** East flowing rivers and west flowing rivers.	**02** **02** **02** **02** **02**
Unit – 2	**Soils, Natural Vegetation and Irrigation:** 2.1 Introduction, soil types and characteristics. 2.2 **Natural Vegetation**: Types of vegetation, Distribution of forest in Karnataka, Protection and Conservations. Reserve Forest and Protected Forest in Karnataka, National Parks and Bird Sanctuaries in Karnataka. 2.3 **Irrigation**: Importance, Distribution of water resources, Irrigations – sources of irrigation, multipurpose river valley projects. 2.4 River Disputes in Karnataka and River Linkages. 2.5 **Assignment**: Students need to visit local fields and get to know how soil conservation plans are prepared and submit report.	**02** **03** **02** **01** **02**
Unit – 3	**Agriculture**: 3.1 Introduction, Agriculture regions of Karnataka. 3.2 **Major Food Crops** – Paddy, Ragi, Maize, Wheat, Pulses. 3.3 **Commercial Corps** – Cotton, Sugarcane, Tobacco, Coffee, Species, Mulberry crop. Fishing and Nomadic Herding. 3.4 **Energy Resources**: Types, Importance and their distributions. 3.5 Agro-climatic regions	**02** **02** **03** **02** **01**
Unit –4	**Minerals**: 4.1 Gold, Iron, Manganese, Lime Stone. 4.2 **Industries**: Sugar Industries, Silk Industries, Iron and Steel Industries, Cotton Industries, IT and BT Industries.	**02** **02**

	4.3 Industrial Policies of Karnataka. 4.4 **Transportation**: Types of Transportation, Distribution of Transportation. 4.5 Population: Distribution of Population, Sex ratio, Literacy. Tourism: Potential zones, ecotourism and tourism development. 4.6 **Field Study**: Students need to observe and prepare report regarding local industries and their role development of the region.	**02** **02** **02** **02**

References

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3. R. N. Tikka (2002),Physical Geography
4. Misra R.P(1969) Geography of Mysore State
5. Sarmah Dipak (2019), Forest of Karnataka-A Paronomic View, Notion Press
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7. Karnataka State Gazetteer Volume- I & II

Websites:

1. https://ksrsac.karnataka.gov.in/
2. https://ksdma.karnataka.gov.in/english
3. https://raitamitra.karnataka.gov.in/english
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B.A. / B.Sc. Semester – IV

Title of the Course: OE.- 4.2 Regional Planning and Development

Number of Theory Credits	Number of Theory hours
3	42

Course Outcomes:

After the completion of this course, students should be able to

1. Basic understanding of regional planning and development
2. Analyse the distribution natural resources and human population
3. Identifying imbalance and backward regions and planning for the sustainable development

Course Objectives:

The course aims to

1. To make students aware of concept of regional planning
2. To realize students how regional planning are prepared and executed.
3. To know how regional balance and sustainable development can be achieved in the region.

	Content of Theory Course	42 h
Unit – 1	**Regional concept in Geography**: 1.1 Types, hierarchy and characteristics of regions, 1.2 Delineation methods of regions 1.3 Formal, Functional and Nodal. 1.4 Geography and regional planning. 1.5 Concept and scope of Regional Planning. Regional Approaches. Principles, methods, techniques of regional planning, need for planning.	**02** **02** **02** **02** **02**
Unit – 2	**Conceptual and theoretical frame work of regional planning:** 2.1 Growth pole and growth foci. 2.2 Planning Processes: Sectoral, Multilevel, decentralized planning. 2.3 Integrated Area Development Planning (IADP). 2.4 Planning for tribal and hilly areas, drought prone areas, command areas and watershed. 2.5 Planning for metropolitan region: CDP, satellite towns, urban green belt. 2.6 **Assignment**: Students need to visit local government institution and get to know how local area plans are prepared and submit report.	**02** **02** **02** **02** **02** **02**
Unit – 3	**Regional Development:** 3.1 Concept of Development, Indicators of development. 3.2 Regional imbalance. Regional development strategies. Problems and issues in regional planning. Planning for sustainable development. 3.3 Regionalization of India: Based on natural, economic and administration (macro and meso levels only). 3.4 Regional policies in Indian five-year plans, experience of regional planning in India; Evolution, nature and scope of town planning with special reference to India; fundamentals of town and country planning.	**02** **02** **03** **03**
Unit – 4	**Theories of regional development:** 3.1 Central Place Theory, Diffusion theory (Hegerstand's). The role of locational theories in regional planning process. 3.2 An evaluation of regional disparities / imbalances – backward regions of India. Identification of backward areas, Planning backward area. Causes and consequences regional of disparities. Measures of disparities.	**02** **03**

	3.3 Harnessing the information through GIS, Remote Sensing, GPS for regional planning and development. 3.4 **Field Study**: Students need to observe and prepare report regarding regional disparities and imbalance in their own surrounding.	**03** **02**

References

1. Singh Jagadish (2003) India – A Comprehensive Systematic Geography, Gyanodaya Prakashan, Gorakhpur, U.P.
2. Mishra RP (1969) Regional Planning Concepts Techniques Policies and case studies, Prasaranga, The Mysore University, Mysore.
3. V.K.R.V. Rao (1978). Planning in Perspective, Allied Publishers Private Limited, Bombay.
4. Mahesh Chand and Viney K. Puri (1985), Regional Planning in India, Allied Publishers Pvt. Ltd., Bombay
5. Mishra R.P. (1979) Regional Planning and National Development, Vikas Publishing House Pvt. Ltd., New Delhi.
6. Laxmidevi (1997) Planning Development and Regional Disparities, Anmol Publication Pvt. Ltd., New Delhi.
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8. Kanan Chatterjee (2017), Regional Planning Concept Theory and practice, Concept Publishing Company Pvt. Ltd.
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10. R.C. Chandana (2016)- Regional planning and Development, Kalyani publishers

Websites:

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2. http://tcpo.gov.in/
3. https://ncrpb.nic.in/
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5. https://www.esri.in/industries/government/urban-regional-planning

MANGALORE UNIVERSITY

Curriculum Framework for Undergraduate

V and VI Semester Syllabus for

BA / BSc. In

GEOGRAPHY

Syllabus Aims:

The aims of the syllabus describe the B.A. / B.Sc. in Geography at 5th, 6th. These aims outline the educational context in which syllabus content should be viewed. Many of these aims may be delivered by the use of suitable case-studies, through application of geographical skills and through practical field visits.

The BA. / B.Sc. Geography syllabus aims to enable students to:

1. Know the significance of scale in studying geography
2. Know the processes functioning at various scales within physical and human environments
3. Improve a sense of space, place and location
4. Develop consciousness of the relevance of geography to understanding and solving contemporary environmental problems
5. Realization of the main fundamentals of physical geography and human geography and the interconnectedness between them
6. Explain the causes and effects of change over space and time on physical and human environments
7. Develop an insight into the nature, value, limitations and importance of different approaches to analyse and explanation in geography
8. Increase the knowledge and ability to use and apply appropriate skills and techniques including fieldwork
9. Improve a logical approach in order to present a structured, coherent and evidence-based argument
10. Develop a concern for accuracy and objectivity in extracting, recording, processing, presenting, analysing and interpreting geographical data

Program Outcomes (POs) By the end of the program the students will be able to:		
PO1	Geographical Knowledge:	Give an explanation of relevant terms and concept of geography includingdefinitions
PO2	Project Management:	Recognize geographical principles, theories and models to manage projects and achieve its objectives.
PO3	Problem Analysis:	Find solution to environmental and Human problems
PO4	Modern Tool:	Application of modern tools and techniques to interpret how processes bring changes in systems, distributions and environments.
PO5	Research of Complex Problems:	Apply research-based knowledge to provide valid conclusions and demonstrateskill of analysis and synthesis of geographical information.
PO6	Communication:	Communicate effectively by identifying human activities and use geographical data to identify trends and patterns.
PO7	Design / development of solutions:	Carry out investigation into the complex and interactive nature of physical andhuman environments.
PO8	Geography andSociety:	To inspect the environmental and societal issues and compare between theplaces, environments and people.
PO9	Multi-disciplinary Settings:	Assemble geographical evidence, ideas and arguments with multi-disciplinary setting.
PO10	Ethics:	Develop ethical principles and commit to professional ethics and responsibilities and norms of scientific practices.
PO11	Life-long Learning:	Understand the effects of geographical processes and change on physical and human environments and life-long learning of geographical studies.
PO12	Environment and Sustainability:	Assess how the viewpoints of different groups of people, potential conflicts ofinterest and other factors interact in the management of physical and human environments to bring environmental sustainability.

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**5**
Course Title	**Population Resources and Dynamics**		
Course Code:	**GEO C9-T**	No. of Credits	**4**
Contact hours	**60 Hours**	Duration of Sem End Exam	**2 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Pre-requisite(s): No Pre-requisite course(s)

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1 Apply critical analysis skills on the demographic composition of a country.
CO2 Classify and evaluate migrations and their types.
CO3 Understanding the population resources.
CO4 Analyze population growth issues and challenges.
CO5 Investigate how migration takes place

	Contents	60 Hrs.
Unit: 1	**Introduction**: Nature and Scope of Population Geography, Population Geography and Demography, Sources of Population Data. Density of Population. World Population: Measures, patterns, and determinants. Growth, distribution, and problems.	10
Unit: 2	**Population Change**: Concept of over, under & optimum population; Growth of Population in the World and India, Components of Population Change. Fertility and Mortality Analysis: Indices, determinants, and world patterns. Demographic Attributes and Demographic Transition. Theories of Population Growth: Malthus, Sadler, and Ricardo. **Assignment**: Students have to prepare report regarding population change in their own area and submit a report.	20
Unit: 3	**Migration:** Meaning, types, causes, consequences, and models. Theories of Migration Ravenstein & Lee. Population composition and characteristics. Age, Sex, rural-urban, occupational structure, and educational level. **Field Activity**: Students need to visit a nearby rural area and get to know how and why migration takes place and submit a report.	15
Unit: 4	**Population as Resource**, Population Resource Regions. Population Policy of India. Policy issues; Social well-being and quality of lif e; population as social capital. Contemporary Issues – Ageing of Population; Declining Sex Rati and its reasons. Population policies in developed and developing countries. Human Development Index (HDI)	15

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-15)

Course Outcomes (COs) / Program Outcomes (POs)	Program Outcomes (POs)											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	1	-	3	-	-	-	-	-	2	-	2	-
CO2	1	-	-	-	-	1	-	1	2	-	2	-
CO3	3	-	-	-	-	2	1	1	2	-	2	-
CO4	1	-	3	-	-	1	2	1	2	-	2	-
CO5	1	1	2	-	2	1	3	1	2	1	2	-

Pedagogy: Interactive Lectures, Inquiry-based learning, Blended learning, Case Studies.

Formative Assessment for Theory	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	10
Sessional Tests-2	10
Seminars / Presentations / **Assignment**	10
Case study / **Field-Study** / Project work etc.	10
Total	**40 Marks**
Formative Assessment as per guidelines.	

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**5**
Course Title	**Techniques in Population Geography**	Practical Credits	**02**
Course Code	**GEO C10-P**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**

Course Pre-requisite(s): No Pre-requisite course(s)

Course Outcomes (COs):
After the successful completion of the course, the student will be able to:
CO1 Learn various methods of representative of demographic data.
CO2 Apply various technologies in representation of demographic data.
CO3 Analyze the trend and pattern of demographic data.
CO4 Construct different diagrams using the data.
CO5 Formulate the future trend of the data.

1. Sources of population data: Census of India, UNPD (united nations population division), birth and death registry VSS (Vital statistics survey), NSS (National Sample Survey), NFHS (National Family and Health Survey),
2. Population distribution and density
   a) Thematic maps for population Distribution-patterns (dot map, Choropleth maps).
   b) Calculation of Population Growth rate,
   c) Calculation of population projection, arithmetic method,
   d) Calculation of population Density, arithmetic density, and agriculture density.
3. Calculation of different types of fertility and mortality rates for any one region Ex: India / Karnataka /District, using the Census of India latest data.
   a) Crude birth rate,
   b) General fertility rate, Total fertility rate
   c) Crude death rate/ Mortality rate, Infant mortality rate
   d) Age-specific mortality rate
   e) Sex-specific mortality rate
4. Thematic maps for Population composition: construction of population pyramids for Age, Sex, Rural and Urban, for important places on outline map Ex: India / Karnataka /District, using the Census of India latest data.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-15)

Course Outcomes (COs) / Program Outcomes (POs)	**Program Outcomes (POs)**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1	3	-	-	-	-	1	-	-	2	-	2	-
CO2	2	-	-	3	-	1	-	-	2	-	2	-
CO3	1	-	3	-	-	1	2	-	2	-	2	--
CO4	1	-	1	-	-	1	-	-	2	-	2	-
CO5	1	-	1	-	1	1	2	-	2	-	2	-

Pedagogy: Interactive Lectures, Inquiry-based Learning, Cooperative Learning.

Formative Assessment for Practical	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	05
Sessional Tests-2	05
Case study /Assignment / Field-activity / Project work etc	05
Practical Record Maintenance	10
Total	**25 Marks**
Formative Assessment as per guidelines.	

References	
1	Chandna R.C. (2009), Geography of Population, Kalyani Publicishers, Aneari Road, Daryaganj, New Delhi.
2	Majid Hussain (1999), Human Geography, Rawat publications, Jaipur.
3	Trewartha GT. (1959) A Geography of Population, world Patterns, John Wiley and Sons Inc. New York.
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5	Jingam ML. B.K. Bhat, JN Deasi (2003) Demography, Urinda Publishers Pvt. Ltd. Delhi.
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7	Kayastha SL. (1998) Geography of Population, Rawat publications, jaipur.
8	Clerk I (1984) Geography of populations, approaches and applications, pergamon press, Oxford, UK.
9	Ritu Malik (2013), Changes in population Dynamics, Sanjay Prakashan
10	Prthvish Nag, G.C.Debnath (2021), Population Geography, Bharti Prakashan, Varanasi
11	ಮಾನವ ಭೂಗೋಳಶಾಸ್ತ್ರ - ಪ್ರೊ. ಪಿ.ಮಲ್ಲಪ್ಪ,
12	ಮಾನವ ಭೂಗೋಳದ ಮೂಲ ತತ್ವಗಳು. - ಡಾ.ರಂಗನಾಥ್,
13	ಕರ್ನಾಟಕದ ಜನಸಂಖ್ಯೆ ಮತ್ತು ಭೂಗೋಳ. - ಡಾ. ಕೆ. ಚಿನ್ನಸ್ವಾಮಿ
14	ಜನಸಂಖ್ಯಾ ಭೂಗೋಳ: ಸಿದ್ಧಾಂತ ಮತ್ತು ಅನ್ವೇಷಣೆ - ಪ್ರೊ. ಸಿ. ಮಹದೇವಸ್ವಾಮಿ
15	ಜನಸಂಖ್ಯೆ ಮತ್ತು ಭೂಗೋಳ - ಡಾ. ಎಸ್. ಆರ್. ರಂಗನಾಥನ್
16	ಜನಸಂಖ್ಯೆ ಭೂಗೋಳ - ಡಾ. ಆರ್. ವಿ. ರಾಜೇಶ್ವರಿ
	Resource Websites:
1	https://censusindia.gov.in/census.website/
2	https://mea.gov.in/icm.htm
3	https://population.un.org/wpp/
4	https://www.popcouncil.org/research/india
5	https://www.cdc.gov/csels/dsepd/ss1978/lesson3/section3.html

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**V**
Course Title	**Fundamentals of Remote Sensing**		
Course Code:	**GEO C11-T**	No. of Credits	**04**
Contact hours	**60 Hours**	Duration of Sem End Exam	**2 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Pre-requisite(s): No Pre-requisite course(s)

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1. Define and describe the components of remote sensing and explain the history of remote sensing.
CO2. Differentiate between the types of remote sensing sensors and platforms.
CO3. Interpret aerial photographs and identify and compare digital and analog data.
CO4. Evaluate the applications of remote sensing, including the new satellite programs of India.
CO5. Analyze ground truth verification using Google Earth and evaluate its usefulness.

	Contents	**60 Hrs.**
Unit:1	**Introduction to Remote Sensing:** Definition and Components, History of Remote Sensing, Electromagnetic Magnetic Spectrum, Interaction of EMR with the atmosphere and with the surface feature, Atmospheric window, spectral reflectance of land covers (minerals, rocks, water, vegetation,and urban area).	15
Unit: 2	**Sensors & Platforms:** Types of orbits-sun-synchronous and geosynchronous, Sources of energy, Classification of remote sensors - Active, Passive, Electro-mechanical, and optical sensors. Resolution concept - Spectral, Radiometric, and temporal resolution. Platform types and characteristics, Launch of space vehicles. Angular characteristics-FOV and IFOV, push broom and whiskbroom cameras, Panchromatic, multispectral, hyperspectral scanners, and geometric characteristics of the imageries. **Assignment**: Students need to prepare a report on how satellite images are captured, processed, anddistributed to the end users by citing Bhuvan, ISRO, ISAC, NRSC, and SGC Websites.	20
Unit: 3	**Aerial Photography:** Elements, Types and interpretation of Aerial photography, Principles, Classification of Aerial photographs based on Height and Tilt, Scales, Components of camera,film, Aerial platforms. Elements of Aerial photo interpretation, Digital and Analog data, Image formats, Stereo pairs, Applications of Aerial Photography.	**15**
Unit: 4	**Applications of Remote Sensing:** Indian remote sensing Centers and their activities, new satellite programs of India. Different Satellites and their Application in Land Resources, Meteorology, and Hydrology. Ground truth verification using Google Earth. Field Activity: Students need to visit a nearbyvillage and get to know how remote sensing images and real world looks and submit a report.	**10**

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-15)

Course Outcomes (COs) / Program Outcomes (POs)	Program Outcomes (POs)											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1	3	-	-	-	-	2	-	-	2	-	2	-
CO2	2	-	-	-	-	2	2	-	2	-	2	-
CO3	1	--	1	3	-	2	2	-	2	-	2	-
CO4	1	-	2	-	-	2	2	-	2	-	2	-
CO5	1	-	3	3	-	2	2	-	2	-	2	-

Pedagogy: Blended learning, Interactive Lectures, MOOCs

Formative Assessment for Theory	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	10
Sessional Tests-2	10
Seminars / Presentations / **Assignment**	10
Case study / **Field-Study** / Project work etc.	10
Total	**40 Marks**
Formative Assessment as per guidelines.	

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**V**
Course Title	**Interpretation of Aerial Photos and Satellite Images**	Practical Credits	**02**
Course Code	**GEO C12-P**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**

Course Pre-requisite(s): No Pre-requisite course(s)

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1. Learn remote sensing techniques
CO2. Apply modern technology in various geographical area
CO3. Interpret remotely sensed data.
CO4. Analyze digital imageries.
CO5. Analyze ground truth verification using Google Earth and evaluate its usefulness.

Practical Content

1. Basic information of the image (projection histogram, layers, pixel)
2. Visual interpretation: location, color, texture, association, pattern, tone, shape.
3. Satellite Products and Band Characteristics, band combination.
4. Satellite image downloading portals: Bhuvan, USGS explorer.
5. Image Pre-Processing: Radiometric correction, Geometric correction.
6. Image Enhancement: Image Reduction, Image Magnification.
7. Layers Stacking.
8. Image Transformation: Spectral Indices, NDVI.
9. Image Classification: Supervised and Unsupervised
10. Change Detection.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-15)

Course Outcomes (COs) / Program Outcomes (POs)	**Program Outcomes (POs)**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1	3	-	-	2	-	-	-	-	2	-	2	-
CO2	2	-	-	3	-	-	2	-	2	-	2	-
CO3	1	--	-	3	-	2	2	-	2	-	2	-
CO4	1	-	3	3	-	-	2	-	2	-	2	-
CO5	1	-	2	3	1	-	3	-	2	-	2	-

Pedagogy: Interactive Lectures, Inquiry-based Learning, MOOC

Formative Assessment for Theory	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	05
Sessional Tests-2	05
Case study /Assignment / Field-activity / Project work etc.	05
Practical Record Maintenance	10
Total	**25 Marks**
Formative Assessment as per guidelines.	

References	
	Books
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	MOOC
1	Remote Sensing: https://nptel.ac.in/courses/105/108/105108077/
2	Introduction to Remote Sensing: https://nptel.ac.in/courses/121/107/121107009/
3	Digital Image Processing of Remote Sensing Data: https://nptel.ac.in/courses/105/107/105107160/
4	Remote Sensing and GIS: https://nptel.ac.in/courses/105/103/105103193/
5	Remote Sensing Essentials: https://nptel.ac.in/courses/105/107/105107201/
6	Remote Sensing: Principles and Applications: https://nptel.ac.in/courses/105/101/105101206/
7	Basics of Remote sensing, GIS & GNSS technology and their applications:
8	https://onlinecourses.swayam2.ac.in/aic20_ge05/preview
9	http://rst.gsfc.nasa.gov/Front/tofc.html.
	Web Resources
1	Projections: https://map-projections.net/imglist.php
2	Textbook of Canadian Remote Sensing: https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/earthsciences/pdf/resource/tutor/fun dam/pdf/fundamentals_e.pdf
3	ITC Netherlands, Principles of Remote Sensing https://webapps.itc.utwente.nl/librarywww/papers_2009/general/principlesremotesensing.
4	Pdf http://earthobsevatory.nasa.gov/Library/RemoteSensing
5	https://earthexplorer.usgs.gov/
6	https://bhuvan.nrsc.gov.in/home/index.php

6th SEMESTER
BA / BSc
Geography

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**6**
Course Title	**Environmental Geography**		
Course Code:	**GEO C14-T**	No. of Credits	**4**
Contact hours	**60 Hours**	Duration of Sem End Exam	**2 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Pre-requisite(s): No Pre-requisite course(s)

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1. Understand the interdisciplinary nature and the relationship between man and the environment.
CO2. Know functioning of ecosystems, including the impact of human activity and global ecological changes.
CO3. Evaluate man-made changes like pollution, environmental hazards, and the depletion of natural resources.
CO4. Examine environmental policy, impact assessment, and conservation measures.
CO5. Apply knowledge of environmental geography to real-world situations.

Contents		60 Hrs.
Unit 1	**Introduction to Environment Geography:** Nature and Interdisciplinary Aspect of Environmental Geography. Ecological Approaches. Definition and meaning of environment. Habitat. Ecological Niche. Biosphere and Biodiversity; bio-diversity and sustainable development. Biomes – major Biomes of the world. Man, and Environmental Relationships	10
Unit 2	**Ecosystem:** Structure and Functioning of Ecosystem, Pond as an Ecosystem, ecosystem management, and conservation. Principle of ecology; human ecological adaptation; the influence of man on ecology and environment. Global and regional ecological change & imbalance. Food Chains, Food Webs, Food Pyramid.	20
Unit 3	**Man-Induced Changes in Environment:** Environmental Pollution, i.e., Air, Water, Noise; Solid Waste with special reference to India. Environmental Hazards, i.e., earth as Warehouses, Flood, Famines; Land Slides, Avalanches, Forest Fires; Impact of Green Revolution and Extinction of Species. Man-Made Ecosystem - Urban, Ecotourism, National Parks and Sanctuaries. Depletion of Ozone, Green House Effect, and Acid Rain.	15
Unit 4	**Principles of Environmental Management:** Environmental Policy of India, (post-2000 AD). Environment Impact Assessment (EIA). Global Summits & Agencies of Environment Conservation. Environmental degradation, management and conservation. Problems of Deforestation and conservation measures. Environmental policy; environmental hazards and remedial measures. Environmental Education and Legislation.	15

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-15)

Course Outcomes (COs) / Program Outcomes (POs)	Program Outcomes (POs)											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	-	-	-	-	-	-	2	2	-	-	-
CO2	2	-	-	-	-	-	-	3	-	-	-	1
CO3	-	-	-	-	-	-	3	-	-	-	1	-
CO4	-	-	-	-	-	-	2	-	-	-	-	3
CO5	-	-	3	-	-	-	2	-	-	-	-	-

Pedagogy: Interactive Lectures, Inquiry-based learning, Blended learning, Case Studies.

Formative Assessment for Theory	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	10
Sessional Tests-2	10
Seminars / Presentations / **Assignment**	10
Case study / **Field-Study** / Project work etc.	10
Total	**40 Marks**
Formative Assessment as per guidelines.	

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**6**
Course Title	**Methods in Environmental Geography**	Practical Credits	**02**
Course Code	**GEO C15-P**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**

Practical Content

1. List out Biotic and Abiotic elements in the local region.
2. Identify and map micro-Biomes in the local region and study the biodiversity of the place.
3. List some ecosystem management and conservation methods in the local region for water bodies,
4. Mapping of water bodies,
5. Mapping of bore wells.
6. Map the polluting points in the local area and their influence of man on the local environment.
7. Mapping of Waste disposal sites.
8. Suitability of the site for waste disposal (with reference to height, location, land use, land value, slope)
9. Mapping of parks and open spaces in the neighborhood.
10. Mapping of areas in the neighborhood where crowding is prevalent and type of land use around such places.
11. Materials required for the practical survey: Use a Boundary map of the neighborhood area and GPS (fieldmapping) or Google Earth can also be used for mapping neighborhood area.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-15)

Course Outcomes (COs) / Program Outcomes (POs)	**Program Outcomes (POs)**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1	3	-	-	-	-	-	-	2	2	-	-	-
CO2	2	-	-	-	-	-	-	3	-	-	-	1
CO3	-	-	-	-	-	-	3	-	-	-	1	-
CO4	-	-	-	-	-	-	2	-	-	-	-	3
CO5	-	-	3	-	-	-	2	-	-	-	-	-

Pedagogy: Interactive Lectures, Inquiry-based Learning, Cooperative Learning.

Formative Assessment for Practical	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	05
Sessional Tests-2	05
Case study /Assignment / Field-activity / Project work etc.	05
Practical Record Maintenance	10
Total	**25 Marks**
Formative Assessment as per guidelines.	

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1	Strahler A.N. (1968) The Earth Sciences, Harper International Education, New York.
2	Richard H.B. (2004) Physical Geography, Heinmann Simple Services, Rupa & Company, New Delhi
3	Robinson H. (1982) Bio Geography, ELBS, New York.
4	Healey I.N. and Moore P.D. (1973) Biogeography, Backwell Oxford, U.K.
5	Strahler A.N. and Strahler A.H. (1973) Environmental Geo Science, Hamilton, California, USA.
6	Savindra Singh (2004) Environmental Geography, Prayog Pustak Bhawan, Allahabad, India.
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10	Goldsmith Edward et al. (1988) The Earth Report – The Essential Guide to Global Issues, Price Stern Solan Inc. California, USA
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12	H.M. Saxena (2021), Environmental Geography, Rawat Publications
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17	Strahler A.N. and Strahler A.H. (1973) Environmental Geo Science, Hamilton, California, USA.
18	Savindra Singh (2004) Environmental Geography, Prayog Pustak Bhawan, Allahabad, India.
19	Paul Selman (2000) Environmental Planning, Sage Publications, New Delhi
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22	Goldsmith Edward et al. (1988) The Earth Report – The Essential Guide to Global Issues, Price Stern Solan Inc. California, USA
23	ಪರಿಸರ ಭೂಗೋಳಶಾಸ್ತ್ರ - ಎಂ.ಬಿ.ಗೌಡರ,
22	ಪರಿಸರ ಭೂಗೋಳಶಾಸ್ತ್ರ - ಎಸ್.ಎಸ್.ನಂಜಣ್ಣನವರ್
23	ಪರಿಸರ ಭೂಗೋಳಶಾಸ್ತ್ರ - ಡಾ. ಎಲ್. ಟಿ. ನಾಯಕ,
24	ಪರಿಸರ ಅಧ್ಯಯನ ಮತ್ತು ಮಾನವ ಹಕ್ಕುಗಳು - ಡಾ. ಎಲ್. ಟಿ. ನಾಯಕ,
25	ಪರಿಸರ ಅಧ್ಯಯನ - ಡಾ. ರಂಗನಾಥ್ ಮತ್ತು ಎ.ಎನ್. ಸೋಮಶೇಖರ್
26	ನಮ್ಮ ಪರಿಸರ - ಕೆ. ಭೈರಪ್ಪ,
27	ಪರಿಸರ ಶಿಕ್ಷಣ - ಡಾ. ಕೃಷ್ಣಮೂರ್ತಿ ಮತ್ತು ಡಾ. ಲಕ್ಷ್ಮಿ,
28	ಪರಿಸರ ವಿಜ್ಞಾನ - ಕೃಷ್ಣಮೂರ್ತಿ ಎಚ್. ಆರ್.
	Websites:
1	https://moef.gov.in/en/
2	http://environmentclearance.nic.in/
3	https://ndma.gov.in/
4	https://bhuvan.nrsc.gov.in/home/index.php
5	http://www.indiaenvironmentportal.org.in/

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**6**
Course Title	**Fundamentals of Geographic Information Systems**		
Course Code:	**GEO C16-T**	No. of Credits	**4**
Contact hours	**60 Hours**	Duration of Sem End Exam	**2 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Pre-requisite(s): No Pre-requisite course(s)

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1. Understand the definition, components, and interdisciplinary domains of GIS.
CO2. Apply geodesy and spatial mathematics for measuring distances and coordinates.
CO3. Analyze and evaluate spatial data structures, sources, errors, and scales for precision and accuracy.
CO4. Perform geo-processing and visualization techniques including spatial and non-spatial queries.
CO5. Collect and integrate spatial and non-spatial data for a case study using online resources.

	Contents	**60 hrs.**
Unit 1	**Introduction:** Definition, scope, of GIS in digital world; Components, functionalities, merits anddemerits, global market. Interdisciplinary domains, and its integration with GIS.	10
Unit 2	**Geodesy and Spatial Mathematics:** Meaning scope of geodesy, geographical coordinates, latitude, longitudes; Datum: WGS-84, vs NAD-32. UTM; Aerial Distance measurement using Geographic and projected coordinates, Area, Perimeter, length by coordinates and various international measures. **Assignment:** students need to prepare hand drawn maps with the help of graticules.	20
Unit 3	**Data and Scale:** Spatial Data and its structures; Sources and Types of data collection. Data errors, and relationships. Large Scale vs Small Scale; Generalization; precision and accuracy of data.	15
Unit 4	**Geo-processing and Visualization:** Spatial and Non-Spatial Queries; Proximity analysis, Preparation of Terrain and Surface models. Hotspot and density mapping. Types of maps, thematic maps and its types, relief maps, f low maps and cartograms. Tabulations: Graphs and Pivot tables. **Case Study**: Students need to collect available spatial and non-spatial data of all the talukas of their districts from online resources.	15

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-15)

Course Outcomes (COs) / Program Outcomes (POs)	Program Outcomes (POs)											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	-	-	-	-	-	-	-	2	-	-	-
CO2	2	-	-	-	-	-	-	-	3	-	-	-
Course Outcomes (COs) / Program Outcomes (POs)	**Program Outcomes (POs)**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO3	1	-	2	3	-	-	-	-	-	-	-	-
CO4	-	-	-	-	3	-	-	-	2	-	-	-
CO5	-	1	-	2	-	-	-	-	3	-	-	-

Pedagogy: Interactive Lectures, Inquiry-based learning, Blended learning, Case Studies.

Formative Assessment for Theory	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	10
Sessional Tests-2	10
Seminars / Presentations / **Assignment**	10
Case study / **Field-Study** / Project work etc.	10
Total	**40 Marks**
Formative Assessment as per guidelines.	

MANGALORE UNIVERSITY

BA / BSc in Geography Curriculum

Program Name	**BA / BSc in Geography**	Semester	**6**
Course Title	**GIS for map-making**	Practical Credits	**02**
Course Code	**GEO C17-P**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**

Practical Content

1. Introduction to GIS software.
2. Draw vector structures from the toposheet with reference to settlements, roads, water bodies, etc.
3. Create raster structures of a portion of the toposheet using a graph sheet.
4. Downloading images from the internet portal (Bhuvan).
5. Image formats.
6. Coordinate system.
7. Geo-referencing toposheet.
8. Digitize the Point line polygon, creating layers.
9. Buffer analysis: Point, Line, Polygon.
10. Multiring buffer: Point, Line, Polygon.
11. Map layout, map composition, and map designing.

Pedagogy: Interactive Lectures, Inquiry-based Learning, Cooperative Learning.

Formative Assessment for Practical	
Assessment Occasion/ type	**Marks**
Sessional Tests-1	05
Sessional Tests-2	05
Case study /Assignment / Field-activity / Project work etc	05
Practical Record Maintenance	10
Total	**25 Marks**
Formative Assessment as per guidelines.	

References

1	Ian Heywood (2011), An Introduction to Geographical Information Systems, Pearson
2	Aronoff, S. (1989), Geographic Information Systems: A Management Perspective, Geocarto International: Vol. 4, No. 4, pp. 58-58.
3	Elangovan, K. (2006), GIS - Fundamentals, Applications, and Implementations, Nipa
4	Chang, Kang – Tsung (2015), Introduction to Geographical Information Systems, McGraw-Hill Education
5	Bhatta, B. (2011), Remote Sensing and GIS, Oxford
6	Sharma, H.S. (2006), Mathematical Modelling in Geographical Information System, Global Positioning System and DigitalCartography – New Delhi, India
7	Spatial Analysis and Location-Allocation Models - Ghosh, A. and G. Rushton (1987)
8	Geographic Information Systems and Cartographic Modelling - Tomlin, C.D. (1990)
9	Geographic Information Systems and Science – Paul A. Longley, et.al. (2015)

References	
10	Geographic Information Systems and Environmental Modelling - Clarke, C.,K. (2002)
11	An Introduction to Geographical Information Systems, 3rd Edition- Ian Heywood, Sarah Cornelius, Steve Carver (2009)
12	Concepts and Techniques of Geographic Information Systems- Chor Pang Lo, Albert K.W. Yeung (2016)
	Web resources:
1	IIRS MOOC programme: https://isat.iirs.gov.in/mooc.php
2	ITC Netherlands, Principles of GIS https://webapps.itc.utwente.nl/librarywww/papers_2009/general/principlesgis.pdf
3	Geographical Information Systems: Principles, Techniques, Management and Applications https://www.geos.ed.ac.uk/~gisteac/gis_book_abridged/
4	https://www.esri.com/en-us/home