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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3. Hussain M (2003) Human Geography, Rawat Publications, Jaipur
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5. Ranganath (2002) Principles of Human Geography (Kannada Version) Vidyanidhi, Gadag
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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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2. Gupta K.K and Tyagi V.C., 1992. Working with Maps, Survey of India, DST, New Delhi.
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15. Steers, J.A., 1970. An Introduction to Study of Map Projections. University of London Press Ltd., London.

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**

References

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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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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

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websites:
http://www.mapsofindia.com/geography/

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**

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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**

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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
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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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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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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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**

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2. https://mausam.imd.gov.in/
3. https://www.weatheronline.in/
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5. https://www.nhc.noaa.gov/satellite.php

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**

References

1. Dickens and Pitts (1963) Introduction to Human Geography,
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6. Knox, P., Agnew, J., & McCarthy, L. (2008), The Geography of the World Economy, London: Hodder Arnold.
7. Lloyd, P.,& Dicken, B. (1972), Location in Space: A Theoretical Approach to Economic Geography, New York: Harper and Row.
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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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3. U.R Rao 1998, Space Technology for Sustainable Development, Mc Graw Hill, India
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