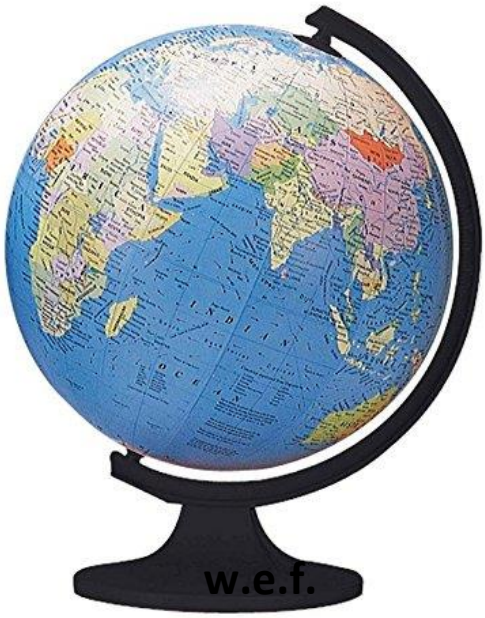
RANI CHANNAMMA UNIVERSITY, BELAGAVI

PROGRAM /COURSE STRUCTURE AND SYLLABUS
as per the Choice Based Credit System (CBCS) designed in accordance with
Learning Outcomes-Based Curriculum Framework (LOCF)
of National Education Policy (NEP) 2020
for

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



Academic Year 2021-22 and onwards

RANI CHANNAMMA UNIVERSITY, BELAGAVI

BOS COMMITTEE (NEP- GEOGRAPHY)

B.A./B.Sc. GEOGRAPHY PROGRAM 2021-22

1	**Dr. Basavaraj R. Bagade** Assistant Professor, Rani Channamma University, Belagavi	Chairman
2	**Dr. M. R. Hugar** Associate Professor, Govt. First Grade College, Vijaypur	Member
3	**Dr. S.S. Hangaragi** Associate Professor, S.R.N. Arts and M.B.S. Commerce College, Bagalkot	Member
4	**Dr. Abhay M. Patil** Assistant Professor and Head of the Geography Department R.P.D. College of Arts and Commerce, Belagavi	Member
5	**Dr. M.S. Kurani** Assistant Professor, R.P.D. College of Arts and Commerce, Belagavi	Member

PREAMBLE

Geography has been broadly accepted as a bridge discipline between human and physical sciences. In the beginning, geography focused on the physical aspects of the earth but the modern geography is an all-encompassing discipline that seeks to understand the earth and all of its human and natural processes as integrating elements. Geography has emerged through time as a transdisciplinary subject integrating the regional diversity with the concepts of the timing of space and the spacing of time. It provides broad, human and place-centred perspectives on the transformation of rural ecology to globalized urban landscape at different levels, from the local/regional/national to global. Geography is transformed through:

- Journey from Village Ecology to Urban Regional Studies
- Qualitative Techniques to Spatial Information Technology
- Global to Micro-level Community Perception Approach

It is essential to focus on the current socio-spatial problems, issues and challenges to make the students aware of the application of geography to sort out the societal upcoming problems. It is also essential to rejuvenate the ancestral geographical knowledge to address the current local and global problems. In the light of exponential changes in the field of arts, science and technology, it is to be studied from multifaceted angles. It is important for the policy makers to consider the geo-spatial aspects with references to the location and in context of the best utilization of public utilities. It is further expected that if the above said spatial aspects are considered, it will certainly develop the lagging regions and people living therein.

Syllabus & Regulations Governing the Choice-Based Credit System (CBCS) for the Four-Years (Eight Semesters) Bachelor of Arts / Bachelor of Science (B.A./B.Sc.)

GEOGRAPHY PROGRAM

Program Structure

Discipline Specific Core (DSC) Courses: First, second, third and fourth semesters will have one DSC course each. Every DSC course has 6 credits and a practical component (4 credits for theory and 2 credits for practical). Fifth and sixth semesters will have two Discipline Specific Core (DSC) courses each. Every DSC course has 5 credits and has practical component (3 credits for theory and 2 credits for practical). Seventh and eighth semesters will have three Discipline Specific Core (DSC) courses each. In seventh semester, two DSC courses have 5 credits each (3 credits for theory and 2 credits for practical) and one course has 3 credits with no practical component. Whereas in eighth semester, one DSC course has 5 credits and a practical component (3 credits for theory and 2 credits for practical). Remaining two DSC courses have 3 credits each with no practical component. Totally, the program has 14 DSC courses.

Open Elective (OE) Courses: First, second, third and fourth semesters will have one OE course each. Every OE course has 3 credits and with no practical component. OE courses are for other disciplines and the candidate has to choose one OE from the pool in each semester. The OE courses enhance the geographical knowledge and help students in preparation for the competitive examinations. There are totally 4 OE courses inthe program. Candidates entering into the fifth semester from the social science background like, political science, economics, history, sociology etc. can opt for 4 credits DSC as major / minor (without practical) in the semester of fifth and sixth. Further, the students coming from arts and science background with practical can opt course with 3+2 credits DSC as major / minor.

Vocational Courses: Fifth and Sixth semester will have two vocational courses each for 3 credits. The candidate has to choose one vocational course from the pool. There is 2 credits internship course which has tobe selected by the candidate. These courses can enable students to obtain the required technical knowledge along with artistic or practical skills.

Discipline Specific Elective (DSE) Courses: Seventh and eighth semesters will have DSE courses. All the DSE courses have 3 credits and with nopractical component. The seventh semester will have research methodology for 3 credits and the eighth semester will either be a research project or Internship for 6 credits. If candidate is not interested to opt for the Research Methodology in the seventh semester the candidate can opt one

more DSE course from the given pool. However, the candidates willing to pursue a PhD program in future can select a Research Project in the eighth semester. The candidate should have opted for the Research Methodology course in the seventh semester itself. If candidate is not interested to opt for the Research project in the eighth semester, the candidate can opt two more DSE coursesfromthe given pool. The DSE courses enhance the geographical knowledge and help students in preparation for the competitive examinations.

Eligibility for Admission

Candidates who have passed any PUC Science, Commerce, Arts examinations in Karnataka State or any other States in India with equal qualifications are eligible for admission to the course.

Duration of the Course

The duration of the B.A./B.Sc. Geography Program shall extend over 8 semesters (four academic years) of 16 weeks or more, each with a maximum of 90 actual working days of instruction in each semester.

Medium of instruction:

The medium of instruction shall be English and Kannada.

MODEL CURRICULUM

Degree Program: B.A. / B.Sc. (Basic / Honours) Degree in Geography

Discipline Core: Geography **Total Credits for the Program:** 186

PROGRAM OUTCOMES

POI: Relating to Knowledge

By the end of the program the students will be able to:

1.1 give explanation of relevant terms and concept of geography including definitions.

1.2 Give better explanation about relevant principles, theories and models in geography.

1.3 Show clear knowledge relating to man and environmental process and factors.

P02: Understanding and application

By the end of the program the students will be able to:

2.1 Identify the importance of spatial scale and time scale.

2.2 Know the complex and interactive nature of physical and human environments.

2.3 Identify the importance of the resemblances and variance between places, environments and people.

2.4 Comprehend how processes bring changes in systems, distributions and environments.

P03: Students Skills

By the end of the program the students will be able to:

3.1 Interpret a variety of types of geographical data and sources and recognise their limitations.

3.2 Communicate geographical evidence, ideas and arguments.

3.3 Use geographical data to identify trends and patterns.

3.4 Use diagrams and sketch maps to demonstrate geographical aspects.

3.5 Demonstrate skill of analysis and synthesis of geographical information

P04: Students Evaluation

By the end of the program the students will be able to:

4.1 Critically evaluate geographical principles, theories and models

4.2 Assess the effects of geographical processes and change on physical and human environments.

4.3 Assess how the viewpoints of different groups of people, potential conflicts of interest and other factors interact in the management of physical and human environments.

4.4 Evaluate the relative success of failure of initiatives.

Question Paper Pattern for Theory

RANI CHANNAMMA UNIVERSITY, BELAGAVI

Department of Geography

Sub: **Code:**

Maximum Marks: 60 **Duration : 3 hours**

Instructions:

Answer the questions from every Section i.e. A, B, C, D, and E

Section A	Answer any **Five** Questions out of six questions	2 X 5 = 10 Marks
Section B	Answer any **Four** Questions out of **Six** questions	5 X 4 = 20 Marks
Section C	Answer any **Three** Questions out of **Five** questions 10 marks Each	10 X 3 = 30 Marks
	Total	**60 Marks**

Question Paper Pattern for Practical

RANI CHANNAMMA UNIVERSITY, BELAGAVI

Department of Geography

Sub: **Code:**

Maximum Marks: 25 **Duration : 3 hours**

Instructions:

Answer all the sections

Section A	Answer any **Two** Questions out of **Four** questions	4 X 2 = 8 Marks
Section B	Answer any **Two** Questions out of **Four** questions	5 X 2 = 10 Marks
Section C	Answer any **One** Question out of **Three** questions	7 X 1 = 7 Marks
	Total	**25 Marks**

RANI CHANNAMMA UNIVERSITY
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Proposed Curricular and Credits Structure under Choice Based Credit System [CBCS] of Geography Discipline Scheme for the Four Years Geography B.A. / B.Sc. Undergraduate Honors Programme with effect from 2021-22

B.A./B.Sc. SEMESTER-I

Category	Course code	Title of the Paper	Marks			Teaching hours/week			Credit	Duration of exams (Hrs)
			IA	SEE	Total	L	T	P		
L1	21BAL1LK1	Kannada	40	60	100	4	-	-	3	2
	21BAL1LFK1	Functional Kannada								
L2	21BA1L2LEN2	English	40	60	100	4	-	-	3	2
	21BAL2LHI2	Hindi								
	21BA1L2LSN2	Sanskrit								
	21BA1L2LTE2	Telugu								
	21BA1L2LUR2	Urdu								
DSC1	21BA1GEGDSCT1	Principles of Geomorphology	40	60	100	4	-	-	4	2
	21BA1GEGDSCP1	Topographical Analysis	25	25	50	-	-	4	2	3
DSC1	Another Department Code	Another Department Course Title	40	60	100	4	-	-	4	2
			25	25	50	-	-	4	2	3
SEC1	21BA1SE1CS1	Digital Fluency	25	25	50	1	-	2	2	2
VBC1	21BA1V1PE1	Physical Education- Yoga	25	-	25	-	-	2	1	----
VBC2	21BA1V2HW1	Health & Wellness	25		25	-	-	2	1	-----
OE (Any one)	21BAGEGOE1A	Earth System Dynamics	40	60	100	3	-	-	3	2
	21BAGEGOE1B	Introduction to Natural Resources								
	21BAGEGOE1C	Introduction to Physical Geography								
	21BAGEGOE1D	Fundamentals of Remote Sensing								
			Total Marks		**700**	**Semester Credits**			**25**	

B.A./B.Sc. SEMESTER-II

Category	Course code	Title of the Paper	Marks			Teaching hours/week			Credit	Duration of exams (Hrs)
			IA	SEE	Total	L	T	P		
L3	21BA2L3LK2	Kannada	40	60	100	4	-	-	3	2
	21BA2L3FKL2	Functional Kannada								
L4	21BA2L4EN2	English	40	60	100	4	-	-	3	2
	21BA2L4HI2	Hindi								
	21BA2L4SN2	Sanskrit								
	21BA2L4TE2	Telugu								
	21BA2L4UR2	Urdu								
DSC2	21BA2GEGDSCT2	Introduction to Climatology	40	60	100	4	-	-	4	2
	21BA2GEGDSCP2	Weather Analysis	25	25	50	-	-	4	2	3
DSC2	Another Department Code	Another Department Course Title	40	60	100	4	-	-	4	2
			25	25	50	-	-	4	2	3
AECC1	21BA2AE1ES2	Environmental Studies	20	30	50	1	-	2	2	2
VBC3	21BA2V3PE2	Physical Education- Sports	25	--	25	-	-	2	1	2
VBC4	21BA2V4NC1	NCC/NSS/R&R(S&G) / Cultural	25	-	25	-	-	2	1	2
OE2 (Any one)	21BA2GEGOE2A	Introduction to Human Geography	40	60	100	3	-	-	3	3
	21BA2GEGOE2B	Fundamentals of Natural Disasters								
	21BA2GEGOE2C	Climate change : Vulnerability and Adaptation								
	21BA2GEGOE2D	Basics of GIS								
			Total Marks		**700**	**Semester Credits**			**25**	

B.A./B.Sc. SEMESTER-III										
Category	**Course code**	**Title of the Paper**	**Marks**			**Teaching hours/week**			**Credit**	**Duration of exams (Hrs)**
			IA	**SEE**	**Total**	**L**	**T**	**P**		
L5	21BA3L5LK3	Kannada	40	60	100	4	-	-	3	2
	21BA3L5LFK3	Functional Kannada								
L6	21BA3L6EN3	English	40	60	100	4	-	-	3	2
	21BA3L6HI3	Hindi								
	21BA3L6SN3	Sanskrit								
	21BA3L6TE3	Telugu								
	21BA3L6UR3	Urdu								
DSC3	21BA3GEGDSCT3	Fundamentals of Human Geography	40	60	100	4	-	-	4	2
	21BA3GEGDSCP3	Practical - 3	25	25	50	-	-	4	2	3
DSC3	Another Department Code	Another Department Course Title	40	60	100	4	-	-	4	3
			25	25	50	-	-	4	2	3
SEC2	21BA3SE2ES2	Artificial Intelligence	25	25	50	1	-	2	2	2
VBC5	21BA3V5PE3	Physical Education- Sports	25	-	25	-	-	2	1	2
VBC6	21BA3V6NC2	NCC/NSS/R&R(S&G) / Cultural	25	-	25	-	-	2	1	2
OE (Any One)	21BA3GEGOE3A	Geography of India	40	60	100	3	-	-	3	2
	21BA3GEGOE3B	Geography of Tourism								
	21BA3GEGOE3C	Disaster Risk Reduction								
	21BA3GEGOE3D	Application of GIS and RS								
Total Marks					**700**	**Semester Credits**			**25**	

B.A./B.Sc. SEMESTER-IV										
Category	**Course code**	**Title of the Paper**	**Marks**			**Teaching hours/week**			**Credit**	**Duration of exams (Hrs)**
			IA	**SEE**	**Total**	**L**	**T**	**P**		
L7	21BA4L7LK4	Kannada	40	60	100	4	-	-	3	2
	21BA4L7LFK4	Functional Kannada								
L8	21BA4L8EN4	English	40	60	100	4	-	-	3	2
	21BA4L8HI4	Hindi								
	21BA4L8SN4	Sanskrit								
	21BA4L8TE4	Telugu								
	21BA4L8UR4	Urdu								
DSC4	21BA4GEGDSCT4	Cartography and Spatial Statistics	40	60	100	4	-	-	4	2
	21BA4GEGDSCP4	Practical - 4	25	25	50	-	-	4	2	3
DSC4	Another Department Code	Another Department Course Title	40	60	100	4	-	-	4	2
			25	25	50	-	-	4	2	2
AECC2	21BA4AE1ES2	Constitution of India	20	30	50	1	-	2	2	2
VBC7	21BA4V5PE4	Physical Education- Sports	25		25	-	-	2	1	-
VBC8	21BA4V6NC3	NCC/NSS/R&R(S&G) / Cultural	25		25	-	-	2	1	-
OEC4 (Any one)	21BA4GEGOE4A	Geography of Karnataka	40	60	100	3	-	-	3	3
	21BA4GEGOE4B	Biogeography								
	21BA4GEGOE4C	Population and Settlement Geography								
	21BA4GEGOE4D	Regional Planning and Development								
			Total Marks		**700**	**Semester Credits**			**25**	

B.A./B.Sc. SEMESTER-V											
Category	**Course code**	**Title of the Paper**	**Marks**			**Teaching hours/week**			**Credit**	**Duration of exams (Hrs)**
			IA	**SEE**	**Total**	**L**	**T**	**P**		
GEOGRAPHY DISCIPLINE										
DSC5	21BA5GEGDSCT5.1	Population Resource and Dynamics	40	60	100	4	-	2	5	2
	21BA5GEGDSCT5.2	Fundamentals of Remote Sensing	40	60	100	3	-	4	5	2
DSC5	Another Department Code as a Minor Subject	Another Department Course Title	40	60	100	3	-	-	3	2
			25	25	50	-	-	4	2	2
VC1 (Any one)	21BA5VCGEG5.1A	Basics of Map Making	40	60	100	3	-	-	3	2
	21BA5VCGEG5.1B	Mobile Asset Mapping								
VBC9	21BA5V5PE5	Physical Education- Sports	25	--	25	-	-	2	1	2
VBC10	21BA5V6NC4	NCC/NSS/R&R(S&G) / Cultural	25	--	25	-	-	2	1	2
SEC3	21BA5SE3CS3	Cyber Security	25	25	50	1	-	2	2	2
			Total Marks		**650**	**Semester Credits**			**22**	

B.A./B.Sc. SEMESTER-VI										
Category	**Course code**	**Title of the Paper**	**Marks**			**Teaching hours/week**			**Credit**	**Duration of exams (Hrs)**
			IA	**SEE**	**Total**	**L**	**T**	**P**		
GEOGRAPHY DISCIPLINE										
DSC6	21BA6GEGDSCT6.1	Environmental Geography	40	60	100	4	-	2	5	2
	21BA6GEGDSCT6.2	Fundamentals of GIS	40	60	100	3	-	4	5	2
DSC6	Another Department Code as a Minor Subject	Another Department Course Title	40	60	100	3	-	-	3	2
			25	25	50	-	-	4	2	2
VC2 (Any one)	21BA6VCGEG6.1A	Open Source GIS	40	60	100	3	-	-	3	2
	21BA6VCGEG6.1B	Landscape and Layout Mapping								
INT1	21BA6 INT1L	Internship	25	25	50	-	-	2	2	2
VBC1	21BA6V5PE5	Physical Education- Sports	25		50	-	-	2	1	2
VBC2	21BA6V6NC4	NCC/NSS/R&R(S&G) / Cultural	25		50	-	-	2	1	2
SEC4	21BA6SE4CS4	Professional Communication	25	25	50	1	-	2	2	2
Total Marks					**750**	**Semester Credits**			**24**	
Total Marks for BSC Program					**4175**	**Total Credits for BSC Program**			**146**	

B.A./ B.Sc. Semester 1
THEORY

Title of the Course: Principles of Geomorphology **Code :** 21BA1GEGDSCT1

Number of Theory Credits	Number of lecture hours/ semester	Number of Theory Classes per week
4	**56 hrs**	**4 hrs**

Course Outcomes:

1. After the completion of this course, students should be able to:
2. Define the field of Geomorphology and to explain the essential principles of it.
3. to outline the mechanism of dynamic nature of the Earth's surface and interior of the Earth.
4. to illustrate and explain the forces affecting the crust of the earth and its effect on it.
5. 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 s stem.

Content of Theory Course 1	56 Hrs.
Unit — 1 Geomorphology	10
Introduction to Geography: Physical and Human Geography Introduction to Geomorphology: Meaning, Nature, Development, and Scope Principles of Geomorphology, Geological Time Scale Distribution of continents and oceans basins	
Unit — 2 Systems and Cycles of the Solid Earth	15
Internal structure of the earth, Alfred Wegener's continental drift, Concept of Isostasy Homles Convectional current theory , Theory of Plate Tectonics: plate boundaries, subduction, concept of sea floor spreading, Vulcanicity and earthquake Case Studies: Volcano, Earthquake: reporting of latest incidents	
Unit — 3 The Dynamics of Earth	15
Earth's Movements: Endogenetic and Exogenetic forces, Sudden and Diastrophic movements- Epeirogenetic and Orogenetic Movements. Process of folding and faulting Rocks: Characteristics, types, importance, and rock cycle, Weathering: meaning, types and controlling factors Mass Movement: meaning, controlling factors, types-landslides, rock-falls	
Unit — 4 Evolution of Landforms	16

Evolution of Landforms Landforms: meaning, types and factors controlling landforms development Slope development: Concept and types Concept of Cycle of Erosion—W. M. Davis Agents of Denudation: River; Groundwater, Sea waves, Wind and Glaciers and resultant landforms. Application of geomorphology: in India and Karnataka (Regional planning, Urban planning and transportation, Mining, Hazard management, Agriculture and Environmental management).	

Textbooks

1 . Ahmed E. (1985) Geomorphology, Kalyani Publishers, New Delhi.
2. P Mallappa, Physical Geography (Kannada Version)
3. Ranganath Principles of Physical Geography (Kannada Version)
4. Nanjannavar S S: Physical Geography (Kannada Version)
5. Hugar M R Physical Geography part 1 (Kannada Version)
6. Goudar M B, Physical Geography (Kannada Version)
7. Kolhapure and S S Nanjan, Physical Geography (Kannada Version)

References

1 . Bloom A.L. (1978) Geomorphology: A Systematic Analysis of Late Cenozoic Landforms Prentice — Hall of India, New Delhi.
2. Brunsden D. (1985) Geomorphology in the Service of Man: The Future of Geography, Methnen, U.K.
3. Chorley, R.J., Schumm, S. A. and Sugden, D.E. 1984: Geomorphology, Methuen, London
4. Cooke, R.U. and Warren, 1973: Geomorphology in Deserts, Batsford, London
5. Dayal, P. 1996: Textbook of Geomorphology, Shukla Book Depot, Patna.
6. Goudie Anrew et.al. (1981) Geomorphological Techniques, George Allen &Unwin, London.
7. Homes A. (1965) Principles of Physical Geology, 3rd Edition, ELBSS Edn.
8. Strahler A.N. (1968) The Earth Sciences, Harper & Row Intl. Edn, New York
9. Thornberry W.D. (1969) Principles of Geomorphology 2nd Edition, Wiley Intl. Edn. & Wiley, 1984.
10. Verstappen H. (1983) Applied Geomorphology, Geomorphological Surveys for Environmental Develop- ment, Elsevier, Amsterdam.

Reference Websites

1. http://www.solarviews.com/eng/earth.htm
2. http://www.moorlandschool.co.uk/earth/tectonic.htm
3. https://www.usgs.gov/ 4. https://www.ksndmc.org

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Case study	30%
Assignment	20%
CIA	50%
Total	100%

B.A./ B.Sc. Semester 1

PRACTICAL

Title of the Course : Topographical Analysis **Code:**21BA1GEGDSCP1

Number of practical Credits	Number of practical hours/ semesters	Number of practical classes per week
2	**52 hrs**	**4 hrs**

Content of Practical Course 1	52 Hrs.
Exercise-I: Identification of Rocks and Minerals: Mineral samples: Iron ore, Bauxite ore and Manganese, Rock Samples: Granite, Basalt, Lime Stones, Sandstone, quartzite, and marble.	6
Exercise-2: Extraction and interpretation of Geomorphic information from Topographical maps	6
Exercise-3: Preparation of contour map from toposheet	6
Exercise-4: Interpretation of Physical features of SOI Maps (2 Exercise)	7
Exercise-5: Interpretation of Cultural features of SOI Maps (2 Exercise)	7
Exercise 6: Interpretation of relationship between physical and cultural features (1 Exercise)	8
Field Work: Identification of physical and cultural features of local area.	6
Case Study: students must be taken to observe local land formation and degradation and write a report on their effectiveness.	6

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Case study	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 1
THEORY

Title of the Course: Earth System Dynamics **Code :**21BAGEGOE1A

Number of Theory Credits	**Number of lecture hours/ semester**	**Number of Theory classes per week Number of practical hours/ semesters**
3	**56 hrs**	**3 hrs**

Course Outcomes:

1. This course is to make understand the basic concepts of earth and to impart necessary skills of earth system, and dynamics to the students. So that, students acquire basic understanding of the mother earth
2. To articulate the synergies and trade-offs of earth system and interconnected subs stems to the students of interdisciplinary students.

Course Objectives

This course aims to

1. Understand the concepts in Earth Sciences
2. To study the global issues in the Earth system
3. To stud application of geoinformatics to solve the disaster and hazards

Content of Theory Course	56Hrs
Unit — 1 Earth System Dynamics	10
Origin of Earth and its forms, plate tectonics, layers of earth and composition, geological epochs, evolution of species, extinctions, ice ages, continental drift theory, Process of atmosphere, hydrosphere, biosphere, lithosphere, and their interaction. Trajectories of the Earth System in the Anthropocene.	
Unit — 2 Issues in Earth System	14
Global warming, greenhouse effect, carbon cycle, nitrogen cycle, water cycle, ozone depletion, floods, droughts, weather variations, sea level rise, changing ecosystems, snow / glaciers melting and impact of pollution.	
Unit — 3 Climate Change	14
The physical science of climate system and change, concepts, causes, effects, measures, climate change; Land — Climate interactions and climatic zones of world and India; Climate change and linkages with energy, emerging diseases, community response.	
Unit — 4 Geoinformatics Applications: Concepts of hazards, risks and vulnerability; their analysis relating climate projections and their uncertainties; global warming, floods and droughts, and weather variations, ecosystems changes, and snow/glaciers melting, energy studies, health and diseases studies and other case studies.	14

References

1. The Dynamic Earth System (2012), Prentice Hall India Learning Private Limited; Third edition (2012) A.M. Patwardhan
2. Earth's Dynamic Systems (2003), Pearson; 10th edition (2003), W. Kenneth Hamblin & Eric H. Christiansen
3. Planet Earth: Cosmology, Geology, and the Evolution of Life and Environment (1992) Cesare Emiliani
4. Earth: Evolution of a Habitable World, 2nd edn., Cambridge, UK: Cambridge University Press (2013) Jonathan l. Lunine.
5. Evolution of the Earth, McGraw-Hill Education; 8th edition (2009) Donald Prothero, Robert Dott, Jr.
6. A Tex tbook of Climatology, Wisdom Press (2015) Tapas Bhattacharya

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Case studies	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 2
THEORY

Title of the Course: Introduction to Natural Resources **Code :**21BAGEGOE1B

Number of Theory Credits	Number of lecture hours/ semester	Number of lecture hours/ week
3	**42 hrs**	**3 hrs**

Course Outcomes: At the end of the course the students will:

1. Understand concepts of different natural resources, its use, overuse, with its solution by natural resource management methods.
2. Appreciate the need for managing land and water resources for sustainable growth and development, managerial skills such as land evaluation and land classification.
3. Also, able to understand the causes and consequences of water stress and draw water conservation and management plans.

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. Stud the threat to the natural resources and the polycies to solve it.

Content of Theory Course	42Hrs
Unit — 1 Concept of Resources	12
Meaning, Definition, importance and classification of Resources, Appraisal of Natural Resources, Natural Resources Economics, History of Conservation, need for conservation and Management of Natural Resources —Role of Government and NGO Agencies, Resource Creating Factors. Environmental Risk- types, wildlife, forest risk and its impact on environment and its management.	
Unit — 2 Land Resources	10
Land Evaluation Methods, Land classification Methods, Land use and Land cover Mapping changes. Issue related to land use change —Land use and population, Land use pattern in the world. Land source at stress, land use planning and development. Soil erosion, soil degradation, methods of conservation.	
Unit — 3 Water Resources	10
Importance of water, Recent trends in water use in the world and in India, water crises, (stress) causes and consequences of water stress or crises, methods of water conservation, watershed management, coastal and ocean Resources management, Fisheries Management	
Unit — 4 Minerals Resources	10
Types of minerals, classifications of Major Minerals, their distribution and production. Such as Petroleum, Coal, Iron ore, Bauxite and Copper etc, and its uses. Mineral exploration methods, Mining, and its effects on environment. Mineral's conservation and mining policy	

References

1 . Dr.Alka Gautham: Geography of Resources: Exploitation, Conservation and Mangement, Sharada Pustak Bhavan, Allahabad.
2. Dr.P.S.Negi: Geography of Resources: Kedarnath Ramnath Publishers, New Delhi
3. Dr.Rajashekara Shetty(2009): An Analysis of World Resources with reference to India, Sarala Raj, Ria Publishers, Mysore
4. Khanna K.K and Gupta V.K.(1993): Economic and Commercial Geography, Sultan Chand, New Delhi
5. Prof. Zimmerwan — World Resources and Industries
6. Roy, P.R(2001) Economic Geography — A Study of Resources, New Central Book Agency, Calcutta.

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Case studies	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 3
THEORY

Title of the Course: Introduction to Physical Geography **Code :**21BAGEGOE1C

Number of Theory Credits	**Number of lecture hours/ semester**	**Number of lecture hours/ week**
3	**42 hrs**	**3 hrs**

Course Outcomes:

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

Course Objectives:

This course aims to

1. Study basic principles of the Earth Sciences
2. Understand the landforms, atmospheric elements and structure and basics of oceanography

Content of Theory Course	42Hrs
Unit - 1	12
Origin, Shape and Size of the Earth, Movement of the Earth- Rotation and Revolution, Effects of the movement of Earth, Coordinates -Latitude, Longitude and Time. Structure of the Earth,	
Unit— 2	10
Rocks - types, significance, Weathering —types. Agents of Denudation - River, Glacier, Wind and Under Ground water. Volcanicity, Earthquakes and Tsunamis	
Unit -3	10
Structure and Composition of Atmosphere, Weather and Climate. Atmospheric Temperature, Heat Budget of the atmosphere Atmospheric Pressure, Winds and Precipitation	
Unit — 4	10
Distribution of Land and Sea, Submarine Relief of the Ocean, Temperature and Salinity of Sea Water. Ocean Tides, Waves and Deposits, Ocean currents - Atlantic, Pacific and IndianOceans. Marine Resources: Biotic, mineral and energy resources	

References

1 . B.S. Negi (1993) Physical Geography. S.J. Publication, Meerut
2. D.S. Lal (1998) Climatology. Chaitnya publishing house, Allahabad
3. K. Siddhartha (2001) Atmosphere, Weather and Climate. Kisalaya publication, New Delhi
4. R.N. Tikka (2002) Physical Geography. Kedarnath Ramnath & co, Meerut
5. Willian D. Thornbury (1997) Principle of Geomorphology. New Age International (Pvt Ltd.) New Delhi.

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Case studies	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 4
THEORY

Title of the Course: Fundamentals of Remote Sensing **Code :**21BAGEGOE1D

Number of Theory Credits	Number of lecture hours/ semester	Number of lecture hours/ week
3	**42 hrs**	**3 hrs**

Course Outcomes:

1. This course is to make understand the basic concepts of Remote Sensing and to impart necessary skills of remote sensing analysis, and image interpretation to the students. So that, students acquire employable skills in remote sensing.
2. Students will learn how to handle and process the satellite images for understanding of bio physical phenomena of the earth s stem.

Course Objectives:

1. To congregate the basic concepts and fundamentals of physical principles of remote sensing
2. To create a firm basis for successful integration of remote sensing in any field of application.
3. To study basics of digital image processing and image interpretation techniques.
4. To stud the applications of the remote sensing to solve the real-world problems.

Content of Theory Course	42Hrs
Unit— I Introduction	10
Definition of Remote Sensing, developmental stages, Laws of Physics, electromagnetic waves, spectrum, regions, wavelength, frequencies, and applications. Types-Satellites, Sensors, Payloads, Orbits, telemetry of satellites.	
Unit – 2 Process and types of Remote Sensing	12
Process of remote sensing, interaction of radiation with atmosphere and targets, atmospheric noises, attenuation in radiance, resolutions of remote sensing, optical remote sensing, visible region of the spectrum, thermal remote sensing, microwave remote sensing, Hyperspectral remote sensing, LiDAR, and other remote sensing platforms.	
Unit — 3 Image Classification and Interpretation	10
Satellite products and its spectral characteristics, composite images, band ratios; Land use land cover classification schemes-Anderson and NRSC; Visual image interpretation, elements, stages of interpretation and interpretation keys. Image classification- supervised, unsupervised, and principal component analysis (PCA) and accuracy assessment.	

Unit — 4 Applications of Remote Sensing	10
Disaster Management, Meteorological Studies, Agricultural and Irrigation Studies, Forestry Studies, Hydrological Studies, Natural Resource, Oceanic and Coastal mapping, Soil resource mapping, Urban and Rural Mapping and Management.	

References:

1. Remote Sensing of the Environment: An Earth Resource Perspective (Prentice Hall Series in Geographic Information Science) – Second Edition (2006), John Jensen
2. Remote Sensing and GIS, Second Edition (201 1), Bhatta, B.
3. Introduction to Remote Sensing and Image Interpretation (2003); Lillesand T.M.
4. Remote sensing and image interpretation (2015); Chipman, Jonathan W., Kiefer, Ralph W., Lillesand
5. Introduction to Remote Sensing, Fifth Edition (2011); James B. Campbell, Randolph H. Wynne
6. Practical handbook of remote sensing, First Edition (2016) – Lavender, Andrew, Lavender, Samantha
7. Introductory Digital Image Processing: A Remote Sensing Perspective, Fourth Edition (2015) – John R. Jensen
8. Image processing and GIS for remote sensing: techniques and applications; Second Edition (2016) – Liu, Jian-Guo, Mason, Philippa J

1 . https://onlinecourses.nptel.ac.in/noc19 e41/preview

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Case studies	30%
Assignment	20%
CIA	50%
Total	100%

B.A./ B.Sc. Semester II

THEORY

Title of the Course: Introduction to Climatology **Code :** 21BA2GEGDSCT2

Number of Theory Credits	Number of lecture hours/ semester	Number of Theory classes / week
4	**56 hrs**	**4 hrs**

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 tyes

Content of Theory Course 1	56Hrs
Unit— 1 Composition and Structure of the Atmosphere Nature and Scope of Climatology,Atmospheric Sciences; Climatology and Meteorology Origin and structure of the Atmosphere: Troposphere, Stratosphere, Mesosphere, Ionosphere, Exosphere and their characteristics. Composition of the atmosphere, Weather and Climate	10
Unit — 2 Atmospheric Temperature Insolation: Definition, Mechanism, Solar Constant.Factors affecting the Insolation. Heating and cooling process of the atmosphere-Radiation, Conduction, convection, and advection. Temperature: meaning and Influencing Factors on the Distribution of Temperature Distribution of the temperature: Vertical, Horizontal, and Inversion of temperature. Global Energy Budget: Incoming shortwave solar radiation, Outgoing Longwave Terrestrial radiation, Albedo. Net Radiation and Latitudinal Heat Balances.	16
Unit — 3 Atmospheric Pressure and Winds Atmospheric Pressure: Influencing factors on atmospheric pressure. Vertical and Horizontal Distribution of the atmospheric pressure andPressure Belts, Pressure Gradient.Ferrel's Law Winds: influencing factors, Types - planetary, seasonal, local wind Variable winds-Cyclones and anti-cyclones.	15

Air-Masses and Fronts: Definition, Nature, Source Regions, Classification.	
Unit — 4 Atmospheric Moisture Humidity: Sources, influencing factors and types-Absolute, Relative and Specific. Hydrological cycle: process of evaporation, condensation. Clouds and its types Precipitation and its forms. Climate Change: Causes and consequences, recent issues-floods, drought,	15

Textbooks

1 Lal, D. S. (1998). Climatology. Allahabad: Chaitanya Publishing House.
2 P Mallappa, Physical Geography (Kannada Version)
3 Ranganath Principles of Physical Geography (Kannada Version)
4 Nanjannavar S S: Physical Geography (Kannada Version)
5 Hugar M R Physical Geography part 2 (Kannada Version)
6 Goudar M B, Physical Geography (Kannada Version)
7 Kolhapure and S S Nanjan, Physical Geography (Kannada Version)
8 Hangaragi S.S., Climatology and Biogeography (Kannada Version)

References

1. Lutgens, Frederic K. & Tarbuck, Edward J. (2010). The Atmosphere: An Introduction to Meteorology. New Jersey: Pearson Prentice Hall.
2. Oliver, John E. & Hidore, John J. (2003). Climatology: An Atmospheric Science. Delhi: Pearson Education.
3. Singh, S. (2005). Climatology. Allahabad: Prayag Pustak Bhawan.
4. Barry, R.G. and Chorley, R.J. (2003): Atmosphere, Weather and Climate; Psychology Press, Hove; East Sussex.
5. Critchfield, H.J., (1975): general Climatology, Prentice Hall, New Jersey.
6. Mather,J.R.(1974): Climatology: Fundamentals and Applications; Mc Craw Hill Book co., U.S.A.
7. Rumney, G.R. (1968): Climatology and the World Climates, Macmillan, London.

Reference Websites

1. https://earthobservatory.nasa.gov/
2. https://mausam.imd.gov.in/
3. https://www.weatheronline.in/
4. https://earthexplorer.usgs.gov/
5. https://www.nhc.noaa.gov/satellite.php

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Case studies	30%
Assignment	20%
CIA	50%
Total	100%

B.A./ B.Sc. Semester II

PRACTICAL

Title of the Course : Weather Analysis **Code:**21BA2GEGDSCP2

Number of practical Credits	Number of practical hours/ semesters	Number of practical hours/ week
2	52 hrs	4 hrs

Content of Practical Course 2	52 Hrs.
Content of Practical Course 1: List of Experiments to be conducted Conduct all exercises with Goal, Procedure, devices, and findings.	5
Exercise 1: Structure and functions of the Indian Meteorological Department (IMD).	3
Exercise 2: Collection of temperature data from IMD website.	4
Exercise 3: Plotting of downloaded temperature data using graphical methods-line graph.	4
Exercise 4: Centigrade and Fahrenheit thermometer for measuring temperature.	4
Exercise 5: Mercurial Barometer and Aneroid Barometer for measuring atmospheric pressure	4
Exercise 6: Wind Vane and cup-anemometer.	4
Exercise 7: Wet and Dry bulb thermometer for measuring humidity	4
Exercise 8: Rainguage- Dial type for measuring rainfall	4
Exercise 9: Rainfall Trend Analysis(monthly and annual)	4
Exercise 10: Interpretation of Indian Daily Weather charts.(Each one of Four seasons) Note: Students are expected to download weather charts of the four seasons.	12

Pedagogy

Formative Assessment	
Assessment Occasion/ type	Weightage in Marks
Quiz	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 1
THEORY

Title of the Course: Introduction to Human Geography **Code :**21BA2GEGOE2A

Number of Theory Credits	Number of lecture hours/ semester	Number of lecture hours/week
3	**42 hrs**	**3 hrs**

Course Outcomes:

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 of the region

Content of Theory Course	56Hrs
Unit — 1 Introduction to Human Geography	10
Nature and scope, Development Environmental Determinism and Possiblism, Neo determinism (stop and go determinism) Approaches to human geography: Exploration and Descriptive approach, regional analysis Approach, Areal Differentiation Approach, Spatial organization Approach. Modern approaches: Welfare or Humanistic Approach, Radical Approach, Behavioral Approach, Post Modernism in geography Fields and sub fields in Human geography	
Unit — 2 Geographical Analysis of Population	16
Distribution and Growth of Population Density of population: meaning and Types: Arithmetic Density and Physiological Density. Regional distribution of Density of Population. Carrying capacity and sustainability, population Pyramid. Population Theories: Malthus Theory of Population, Demographic Transition Theory Population Movement: Migration, Raventein's Law of Migration, Factors of population Migration, Economic Push and Pull factors, Cultural Push and Pull Factors, Environmental Push and Pull Factors. Migration Types: Immigration and Emigration, Internal and International Migration	
Unit — 3 Cultural Patterns and Processes	15

Concept of Culture, Material and Non material culture Cultural Regions, cultural Traits and Complexes, cultural Hearths, cultural Diffusion. Languages of the World: Types, Classification and Distribution. Language Extinction Religions: Types and Classification. Distribution. Universalizing Religions: Christianity, Islam, Buddhism. Ethnic Religions: Hinduism, the Chinese religion, Shintoism, Judaism. The Major tribal population of the world.	
Unit — 4 Human Economic Activities, Development and Settlements	15
Primary Economic Activities — Agriculture, Types: Primitive Subsistence, Intensive subsistence, Plantation Agriculture, Extensive Commercial grain cultivation, Mixed Farming, Dairy Farming Secondary and Tertiary Activities: Manufacturing, classification — based on size — Small Scale and Large scale. Based on Raw material — Argo-based, Mineral based, Chemical Based and Forest based. Industrial Regions of the world. Tertiary Activities: Types: Trade and commerce, Retail Trading services, Wholesale trading. Transport and communications: Factors, communication services — Telecommunication. Services: Informal and Non formal sector. Information technology and service. Human Settlements: Factors, Classification, Types and Patterns: Rural, Urban. Compact or Nucleated and Dispersed settlements. Rural settlement Patterns: linear, rectangular, circular, star shaped, T shaped. Urban settlements: urbanism, classification — population size, occupation structure, Administration. functional classification of urban centres, types of urban settlements: towns, city, conurbation, Megalopolis, Million cities.	

References

1 . Hartshorne, T. A., & Alexander, J. W. (2010). Economic Geography. New Delhi: PHI Learning.
2. Knox, P., Agnew, J., & McCarthy, L. (2008). The Geography of the World Economy. London: Hodder Arnold.
3. Lloyd, P., & Dicken, B. (1972). Location in Space: A Theoretical Approach to Economic Geography. New York: Harper and Row.
4. Siddhartha, K. (2000). Economic Geography: Theories, Process and Patterns, New Delhi: Kisalaya Publications.
5. Smith, D. M. (1971). Industrial Location: An Economic Geographical Analysis, New York: John Wiley and Sons.

Pedagogy

FormativeAssessment	
Assessment Occasion/ type	Weightage in Marks
Quiz	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 2
THEORY

Title of the Course: Fundamentals of Natural disasters
Code :21BA2GEGOE2B

Number of Theory Credits	Number of lecture hours/ semester	Number of lecture hours/ week
3	42 hrs	3 hrs

Course Outcomes:
Students will be able to
1. Understand the basics concepts in natural disasters
2. Stud t es of natural disasters and their effects

Course Objectives:
1 . The paper is intended 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 1	42 Hrs
Unit — 1 Introduction to Natural Disaster	10
Meaning, definition, and scope. Lithosphere and Natural Disasters Earthquakes and volcanoes, Landslides and Avalanches	
Unit — 2 Atmosphere and Natural Disasters	10
Heat wave and wildfire, Cloud burst, hailstorm, Drought and famines	
Unit – 3 Hydrosphere and Natural Disaster	10
Tsunami, Hurricanes and cyclones, Floods and flash floods	
Unit – 4 Biosphere and Natural Disasters	12
Epidemics and pandemics, Covid -19 and its effects Techniques and technology to mitigate natural disasters	

References

1 . Dr. Mrinalini Pandey Disaster Management Wiley India Pvt. Ltd.
2. Tushar Bhattacharya Disaster Science and Management McGraw Hill Education (India) Pvt. Ltd.
3. Jagbir Singh Disaster Management: Future Challenges and Opportunities K W Publishers Pvt. Ltd.
4. J. P. Singhal Disaster Management Laxmi Publications.
5. Shailesh Shukla, Shamna Hussain Biodiversity, Environment and Disaster Management Unique Publications

6. C. K. Rajan, Navale Pandharinath Earth and Atmospheric Disaster Management: Nature and Manmade B S Publication

Pedagogy

FormativeAssessment	
Assessment Occasion/ type	Weightage in Marks
Quiz	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 3
THEORY

Title of the Course: Climate Change: Vulnerability and Adaptation

Code :21BA2GEGOE2C

Number of Theory Credits	**Number of lecture hours/ semester**	**Number of lecture hours/ week**
3	**42 hrs**	**3 hrs**

Course Outcomes:

1. This course is to make understand the basic concepts of Climate-Weather systems and to impart necessary skills of Climate change, and its impact on earth systems to the students. So that, students acquire basic understanding of the climate systems of the earth and to study the applications of the Geoinformatics to study the climate change.

Course Objectives:

1 . to provide a sound understanding of the economics of climate change from multiple viewpoints
2. Demonstrate knowledge of the projected impacts of climate change and potential strategies
3. for alleviating their negative impacts.
4. Define key terms (e.g., adaptation, resilience, vulnerability, mainstreaming)
5. Study application of the Geoinformatics in the Climate Chan e and Adaptation

Content of Theory Course	42 Hrs
Unit — 1 Introduction to Climate Change Meaning and concept of climate change. Origin of atmosphere. Concepts of weather and climate. Evidence of Climate Change: Historical and current weather and climate events: Meteorological, Lithogenic and biological, Greenhouse effect, Greenhouse Gases, Global Warming. Extreme weather and climate event: Drought, Extreme Heat, Extreme precipitation, Hurricanes, Tornadoes and Wildfire.	10
Unit — 2 Causes and Effect of climate change Natural cause: Solar variation, Volcanic eruption, ocean currents, Earth orbital change and internal variability Human causes: Burning fossil fuel, Deforestation, Intensive Agriculture, and industries. Impacts of climate change: Water resources, agriculture, human health, vegetation, economy and El nino, La Nina and Arctic Oscillation International efforts to control the climate change: UNFCC its policy framework and provisions, Earth Summit Rio-de-Janeiro, World summit, Kyoto Protocol, Copenhagen summit and Doha Conference	10

Unit — 3 Climate change Vulnerability and Adaptation Meaning and type of vulnerability Meaning, Definition, and types of adaptation Approaches of adaptation and Adaptation Strategies. Adaptation in different sectors: Agriculture, Forest, Water resources, Biodiversity, Disaster Risk Management	10
Unit — 4 Vulnerability Assessment and climate change mitigation Climate change vulnerability assessment Global Initiatives to climate change mitigation: Kyoto Protocol, carbon trading, clean development mechanism, COP. Indian initiative to support climate change mitigation: Improving energy efficiency, Diversification of energy sources, Modifying industrial processes, a multipronged strategy for sustainable development and Clean Development Mechanism (CDM) in India. Case studies: MGNREGA (Mahatma Gandhi National Rural Employment 16 Guarantee Act) potential of generating co-benefits, Vertical Shaft Brick Kiln (VSBK) or Ecokiln	12

References

1 . Earth: Evolution of a Habitable World, 2nd edn., Cambridge, UK: Cambridge University Press (2013) Jonathan l. Lunine.

2. Evolution of the Earth, McGraw-Hill Education; 8th edition (2009) DonaldProthero, Robert Dott, Jr.
3. A Textbook of Climatology, Wisdom Press (2015) Tapas BhattacharyaGlobal Warming: The Complete Briefing, Cambridge University Press; 4th edition (2009), John Houghton
4. K.Siddahartha (2020): Climatology, Atmosphere, Weather and Climate. Kitaba Mahal Publication, New Delhi.
5. K.Siddahartha and others (2014): Basic Physical Geography Kishalaya Publications Pvt, Publication , New Delhi.
6. Satapathy. S: Adaptation to Climate Change with a Focus on Rural Areas and India. Indian Ministry of Environment and Forests, Director of the Climate Change Division.
7. Patricia Butler, Chris Swanston, Maria Janowiak, Linda Parker, Matt St. Pierre, and Leslie Brandt:Adaptation strategies and Approaches.
8. Ministry of Environment and Forest Government of India: Adaptation to Climate Change with a Focus on Rural Areas and India.

9. Neelam Rana, Anand Kumar, Kavita Syal and Mustafa Ali Khan: Climate Change Mitigation in India

Web Resources

1 . IEA Training Material: Vulnerability and Climate Change Impact Assessment for Adaptation.

2. http://www.iisd.org/pdf/2010/iea_training_vol_2_via.pdf
3. Guidance on Integrating Climate Change Adaptation into Development Co-operation.
4. http://www.oecd.org/dac/43652123.pdf
5. Mainstreaming Climate Change Adaptation into Development Planning: A Guide for

Practitioners.
6. http://www.unep.org/pdf/mainstreaming-cc-adaptation-web.pdf
7. CGE Climate Change Training Materials.
8. http://unfccc.int/national_reports/nonannex_i_natcom/training_material/methodological_documents/items/349.php
9. Compendium on Methods and Tools to Evaluate Impacts of, and Vulnerability and Adaptation to, Climate Change.
10. http://unfccc.int/adaptation/nairobi_work_programme/knowledge_resources_and_publications/items/5457.php
1 1 . Centre for climate and Energy solutions. https://www.c2es.org/content/extremeweather-and-climate-change/
12. https://www.history.com/topics/natural-disasters-and-environment/history-of-climatechange
13. ghttp://www.ozcoasts.org.au/glossary/images/VulnerabilityDiag_AllenConsulting
14. ghttp://ccafs.cgiar.org/news/media-centre/climatehotspots
15. ghttp://pmindia.nic.in/Pg01-52.pdf

Pedagogy

FormativeAssessment	
Assessment Occasion/ type	Weightage in Marks
Quiz	30%
Assignment	20%
CIA	50%
Total	100%

OPEN ELECTIVE (OE) - 4
THEORY

Title of the Course: Basics of Geographic Information Systems (GIS)
Code :21BA2GEGOE2D

Number of Theory Credits	**Number of lecture hours/ semester**	**Number of lecture hours/ week**
3	**42 hrs**	**3 hrs**

Course Outcomes:

1. Students are trained to adapt the theoretical concepts in a practical way through the mathematical models of geography.
2. Students will have the hands-on training on various modes of spatial and non-spatial data collection, data storage, data analytics, data interpretation and data display through the thematic maps.
3. Students are exposed on spatial thinking to solve the geographical problems with range of proven mathematical and statistical models.
4. Students can employ in various corporate and government organisation where they deal to solve Geographical problems.

Course Objectives: This course aims to:

1. Understand the concept and techniques of the Geographic Information Systems.
2. Define the GIS data types and structures.
3. Study geo processing and visualization concepts and techniques in GIS.

Content of Theory Course	42Hrs
Unit— I Introduction	10
Emergence of Gl Science, Milestone and Developmental stages in GIS, Definition, scope, role of GIS in digital world; Components, functionalities, merits and demerits, global market, interdisciplinary domains, and its integration with GIS.	
Unit — 2 Geodesy and Spatial Mathematics	10
Cartesian coordinates, latitude, longitudes, formats of angular units, geographical coordinates, Datum: WGS84, vs NAD32. U TM, Aerial Distance measurement using Geographic and projected coordinates, Area, Perimeter, length by coordinates and various international measures.	
Unit - 3 GIS Data and Scale	10
Spatial Data and its structures; sources and types of data collection; data errors, topology of data and relationship. Large Scale vs Small Scale, generalization; precision and accuracy of data-logical consistency and non-spatial data integration	
Unit — 4 Geoprocessing and Visualization	12
Spatial and Non-Spatial Queries, proximity analysis, Preparation of Terrain and Surface models. Hotspot and density mapping. Types of maps, thematic maps andits types, relief maps, flow maps and cartograms. Tabulations: Graphs and Pivot tables.	

References

1. An Introduction to Geographical Information Systems - Ian Heywood (2011)
2. Geographic Information Systems: A Management Perspective - Aronoff, S. (1989).
3. GIS - Fundamentals, Applications, and Implementations - Elangovan, K. (2006)
4. Introduction to Geographical Information Systems - Chang, Kang-Tsung (2015)
5. Remote Sensing and GIS - Bhatta, B. (2011)
6. Mathematical Modelling in Geographical Information System, Global Positioning System and Digital Cartography - Sharma, H.S. (2006)
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)
10. Geographic Information Systems and Environmental Modelling - Clarke, C., K. (2002)

Reference Websites

1. I IRS MOOC programme: https://isat.iirs.gov.in/mooc.php

Pedagogy

FormativeAssessment	
Assessment Occasion/ type	Weightage in Marks
Quiz	30%
Assignment	20%
CIA	50%
Total	100%

INTERNAL ASSESSMENT FOR THEORY

Maximum Marks : 40

S.No.	Particulars	Details	Marks
1	Two Case studies	a. Introduction	
		b. Identification of problem	
		c. Collection of data/Field visit/ Photos	
		d. Analysis and Findings	
		e. Suggestions/Recommendation/Conclusion	
		Total	20
2.	Two Internal Test	(2 x 10) Total	20
		Grand Total	**40**

Area of Case Study

The student should carry out their case study by selecting one of the below mentioned field within the vicinity of 20 kms from their institute.

1. Agricultural region (rainfed / irrigated)
2. Urban area
3. Rural area
4. Watershed area
5. Industrial region
6. Forest region
7. Population
8. Landscape
9. Tourism
10. Natural elements
11. Global warming
12. Market study

Question Paper Pattern for Theory

RANI CHANNAMMA UNIVERSITY, BELAGAVI

Department of Geography

Sub: **Code:**

Maximum Marks: 60 **Duration : 2 hours**

Instructions:

Answer the questions from every Section i.e. A, B and C

Section A	Answer any **Ten** Questions out of **Twelve** questions (Minimum two questions from each unit)	2 X 10 = 20 Marks
Section B	Answer any **Four** Questions out of **Six** questions (Minimum one question from each unit)	5 X 4 = 20 Marks
Section C	Answer any **Two** Questions out of **Four** questions (One Question from Each Unit)	10 X 2 = 20 Marks
	Total	**60 Marks**

Question Paper Pattern for Practical

RANI CHANNAMMA UNIVERSITY, BELAGAVI

Department of Geography

Sub: **Code:**

Maximum Marks: 25 **Duration : 2 hours**

Instructions:

Answer all the sections

Section A	Answer any **Two** Questions out of **Four** questions	4 X 2 = 8 Marks
Section B	Answer any **Two** Questions out of **Four** questions	5 X 2 = 10 Marks
Section C	Answer any **One** Question out of **Three** questions	7 X 1 = 7 Marks
	Total	**25 Marks**

RANI CHANNAMMA UNIVERSITY, BELAGAVI

VIDYASANGAM

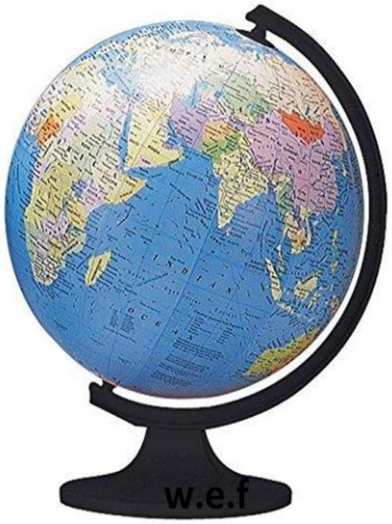
2022-23

PROGRAM /COURSE STRUCTURE AND SYLLABUS

B.A. / B.SC. GEOGRAPHY DEGREE (BASIC/HONOURS)

Choice Based Credit System(CBCS)

NEP 2020



With effect from Academic Year 2022-23 and onwards

RANI CHANNAMMA UNIVERSITY, BELAGAVI

B.A. / B.SC. (GEOGRAPHY) DEGREE

(Basic / Honours with Research)

SCHEME & SYLLABUS - NEP-2020 & CBCS

UG GEOGRAPHY III AND IV SEMESTER – 2022-23

UG III Semester

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

UG IV Semester

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

RANI CHANNAMMA UNIVERSITY, BELAGAVI

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

(Basic / Honours with Research)

Scheme & Syllabus - NEP-2020 & CBCS

UG Geography III Semester 2022-23

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

Note: DSC : Discipline Specific Core (DSC) Courses. OE : Open Elective (OE Courses). SEC : Specific Elective (SEC) Courses.

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 hrs**
Unit – 1	**Introduction to Human Geography:** **1.1** Nature, scope and development of human geography, Branches in human geography. **1.2** Themes in Geography. **1.3** Man-environment relationship **:** Environmental Determinism ,Possibilism, Neo-determinism (stop and go determinism). **1.4** Approaches to study human geography – Descriptive approach, Regional approach, Areal Differentiation approach, spatial organization approach and Behavioral approaches. **1.5** Quantitative revolution and locational analysis.	02 04 04 02 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 its 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. Significance of Primary, Secondary, Tertiary and Quaternary activities. 3.2. Mode of life of Bushman, Pygmies, Eskimos, Sekais & Semangs and Kiragies. 3.3. Major Indian tribal groups **,** their economic activities and problems. 3.4. Mode of life of Todas, Gonds, Bhils, Nagas and santals.	04 04 02 04

Unit – 4	**Population, Transport & Communication & Settlements:** 4.1 Population: Growth, Trend and Distribution of Population. 4.2 Migration**:** Push and Full factors, Types of migration and its consequences. 4.3 Transport and communications**:** Factors, Types and Distribution of Roads, Railway airway and waterways. Services and its importance in regional Development 4.4 Urban Settlements: Origin and evolution, hierarchy, patterns of urban Settlements. Urban morphology. Concept of Primate City and rank size rule. Functional classification of towns, Rural-urban fringe, meaning of Urbanization problems and remedies of urbanization. 4.5 Rural Settlements – types, patterns and factors influencing on distribution of rural settlements **Field Study:** Students have to study human resource development in local area and prepare a report. OR Study the Morphology of the town / city /M.city and prepare a report.	02 02 03 03 02 02

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3. Hussain M (2003) Human Geography, Rawat Publications, Jaipur
4. Nellson, Gabler Vining (1995) Human Geography, People, Cultures and Landscapes
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1. https://www.indiaculture.nic.in/
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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 hrs**
Exercise 1	**Maps:** Definition, Elements of maps (scale, direction, conventional signs and symbols, legend), Types of maps, Uses of maps.	7
Exercise 2	**Map Scales:** Definition and Types Scales – Idea of giving Verbal Scales (VS), Representative fraction (RF) and Graphical Scale (GC) on the different Maps.	**7**
Exercise 3	**Conversion of scale** – **A)** VS into RF and RF into VS (Minimum 2 examples each), Exercise on measuring distance on map and converting map distance into ground distance. **B)** Contraction of Graphical Scale and Comparative Scale (Minimum 2 examples each)	**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, and UTM Projection,and their properties	**7**
Exercise 7	**Construction of the Conical Projections** - Conical Projection with one and two standard parallel, and their properties	**7**
Exercise 8	**Construction of the Zenithal projections** - Zenithal Polar Gnomonic Projection, Stereographic Projection and Orthographic Projection, and their properties	**7**

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1. Dent B.D., 1999. Cartography: Thematic Map Design, (Vol. 1), McGraw Hill
2. Gupta K.K and Tyagi V.C., 1992. Working with Maps, Survey of India, DST, New Delhi.
3. Mishra R.P. and Ramesh A., 1989. Fundamentals of Cartography, Concept Publishing.
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5. Singh, R.L., 2005. Elements of Practical Geography. Kalyani Publishers, New Delhi. India.
6. Ramamurthy, K., 1982. Map Interpretation, Rex Printers, Madras.
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12. Singh, L.R. and Singh, R., 1973. Map work and practical geography, Central Book Allahabad
13. Siddhartha, K., 2006. Geography through maps, Kisalaya Publications Pvt. Ltd, Delhi
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15. Steers, J.A., 1970. An Introduction to Study of Map Projections. University of London Press Ltd., London.
16. S S Nanjannavar : Practical Geography Prabu Publication, Dharwad.

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, and Drainage system, 1.4 Soil Types and its distribution, 1.5 Natural Vegetation. 1.6 Water Disputes in India: Rivers of Krishna and Kavery. 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 of irrigation 2.2 Multipurpose river valley projects – KRS and Tungabhadra. 2.3 Significance of Agriculture and Types of farming. 2.4 Agro Climatic Regions of India. 2.5 Agricultural Crops**:** Rice, Wheat, Sugarcane, cotton, Tea and Coffee. 2.6 Meaning and Significance of Green Revolution, White Revolution and Blue Revolution and its problems. 2.7 **Assignment:** By Selecting agriculture / irrigation / river projects / industrial regions students have to study the locational factors and its importance for the preparation of the report for submission.	**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, Sugar cane, Jute, Iron and Steel and Paper industries. 3.4 Special Industrial / Economic Zones of India. 3.5 By locating and labeling the given places on given Map of India : Capitals Towns, Cities, Rivers, Mountains, Minerals, Industries, Tourism spots, Wide life Sanctuaries, Airports and Ports.	**02** **01** **04** **01** **04**

Unit – 4	**Transportation and Communication in Regional Development:** 4.1 Roadways, Railway, airways waterways and its signification. 4.2 Ports and National Water Ways. 4.3 Indian Space Programme. 4.4 Population: Growth and distribution of Density of Population. **Field Study:** Selecting a region / taluka students have to carry out transportation system and prepare a report.	**02** **02** **02** **02**

References

1. Khullar DR. (2009): India: A Comprehensive Geography, kalyani Publishes, New Delhi, Hyderabad, Kolkata.
2. AlkaGautam (2009) Geography of India, Sharada pustak bhawan, University Road, Allahabad – UP.
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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 on Cultural, Socio- Economic, Physical & Environment. 1.5 Effects of Tourism on employment and 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, Hills, Coastal, and Ecological Tourism 2.2 Robinsons classifications of Tourism. 2.3 Forms and Types of Tourism: Domestic, Business National and International tourism. 2.4 New Forms of Tourism: Adventure Tourism, Green Tourism, Eco tourism, 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 Programmes and Process. 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 Public and Private sectors in the development of Tourism.	**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, 4.4 Community Involvement and participation 4.5 **Field Study:** By Selecting a region / district / recreational places / Temples students have to study development of tourism and prepare a report.	**02** **02** **04** **02** **02**

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RANI CHANNAMMA UNIVERSITY, BELAGAVI

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

(Basic / Honours with Research)

Scheme & Syllabus - NEP-2020 & CBCS

UG Geography IV Semester 2022-23

UG IV 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			Theory / Practical		Theory / Practical
					Max.	Min.	IA			
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 – 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 physiographic regions (northern mountains, northern great plains, peninsular plateau and coastal plains and islands) and their characteristics;	**04**
	1.2 Climate: Seasonal weather characteristics, climatic zones. Mechanism and characteristics of Indian monsoons;	**04**
	1.3 Floods and droughts, causes and consequencies.	**02**
	1.4 Drainage system of India.	
	1.5 Soil: types, pollution and conservation.	**01**
	1.6 Vegetation: Types, distribution, afforestation, social forestry programs, national parks, wildlife sanctuaries.	**01** **02**
Unit - 2	**Water and Agricultural Resources:**	
	2.1 Water resources of India, surface and groundwater, water demand and utilization.	**02**
	2.2 Irrigation: Sources, types of irrigation. Issues and challenges: water resources scarcity,	**03**
	2.3 Water conservation and management Concept of Interlinking of rivers.	
	2.4 National water policies, national water mission, Jalashakti Abhiyaan, command area Development (CADA) and water management, Role of Central water Commission.	**02**
	2.5 Agriculture: Landuse and cropping pattern : meaning and concepts, landuse and cropping Patten in India, agro-climatic regions, Concept of Green revolution, White Revolution and Blue revolution - causes and effects.	**04**
	2.7 **Assignment:** By Selecting a region students have to study the locational factors nearby area / region / river projects / prepare a report and submit.	**02**
Unit - 3	**Industries, transportation and communication:**	
	3.1 Locational factors of industries, major industrial regions and their characteristics.	**02**
	3.2 Classification of Industries: Agro-based, mineral-based and forest-based industries.	**02**
	3.3 Special Economic Zones: Industrial and economic corridor.	**02**
	3.4 Transport & Communication: Significance, growth and development – Road ways, railway, waterway, airway and pipeline networks and their complementary and competition.	**04**
	3.5 Locating and libeling the given places on the given Map of India: Capitals, Towns, Rivers, Mountains, Minerals Industries, Tourist spots, Wildlife Sanctuaries., Airports and Ports.	

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. 4.5 **Field Study:** Selecting a region / district students have to examine in Rural area / Town / City by using HDI , prepare a report and submit.	**02** **04** **02** **04** **02**

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5. https://dpiit.gov.in/
6. https://agricoop.nic.in/en
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. (contour diagram / profiles / block diagrams)	7
Exercise 2	Construct soil fertility (NPK), population, area of crops and their distribution of map of India / Karnataka / District 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 changed over the time prepare a report and submit.	7
Exercise 5	Mapping temperature distribution of India / Karnataka / District by using isopleth method and interpret.	7
Exercise 6	construct a map of different industries write a report on impact of industries in India / Karnataka 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 a map of major tourism centers of India / Karnataka/ District and interpret.	7

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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 Physiographic divisions: Western Ghats, Malanadu Regions and Maidana Regions and costal regions of Karnataka. 1.3 **Weather and Climate:** Seasons, Distribution of Rainfall and Temperature, Climatic regions, Drought prone areas in Karnataka. 1.4 **Soils :** Types of soil and characteristics. 1.5 **Drainage Systems:** East flowing rivers and west flowing rivers and their importance.	**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 and types 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 forest / soil conservation plans are prepared and submit report.	**02** **03** **02** **02** **01** **02**
Unit – 3	**Agriculture**: 3.1 Introduction, Land utilization, Agriculture regions of Karnataka. 3.2 Concept and practice of agriculture, Horticulture and Flore culture and fishi culture. 3.3 **Major Food Crops** – Paddy, Maize, Wheat, Pulses. 3.4 **Commercial Corps** – Cotton, Sugarcane, Coffee and Tea 3.5 **Energy Resources**: Types and Importance. 3.6 By locating and labeling the given places on given Map of Karnataka : Towns, Cities, District Head quarters, Rivers, Mountains, Minerals, Industries, Tourism spots, Wide life Sanctuaries, Airports and Ports.	**02** **02** **03** **02** **01**
Unit –4	**Minerals**: 4.1 Importance of minerals-Gold, Iron, Manganese and Bauxite. 4.2 **Industries**: Iron and Steel Industries, Sugar Industries, Cotton Industries, IT and BT Industries. Industrial regions and Policies of mining in Karnataka. 4.3 **Transportation**: Types of Transportation, Distribution of Transportation. 4.4 Population: Distribution of Population, Sex ratio, Literacy. Tourism: Potential zones of tourism and development. 4.5 **Field Study**: Students need to observe and prepare report regarding local industries and their role in the development of the region.	**02** **02** **02** **02** **02**

References

1. Ranganath (2015), Geography of Karnataka, Publisher: Mysore Book House
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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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Websites:

1. https://ksrsac.karnataka.gov.in/
2. https://ksdma.karnataka.gov.in/english
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4. https://www.karnatakatourism.org/tourism-department/

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 hrs**
Unit – 1	**Regional in Geography**: 1.1 Concept of region, types, hierarchy and characteristics of regions. 1.2 Delineation methods of regions. 1.3 Formal, Functional and Nodal regions 1.4 Concept and scope of Regional Planning. 1.5 Regional Approaches, principles, methods, techniques of regional planning, needs for planning.	**02** **02** **02** **02** **02**
Unit – 2	**Conceptual and theoretical frame work of regional planning:** 2.1 Growth pole and growth foci theories. 2.2 Planning Processes: Sectorial, Multilevel, decentralized planning. 2.3 Integrated Area Development Planning (IADP), Integrated Rural area Development Planning (IRDP). 2.4 Planning for tribal and hilly areas, drought prone areas, command areas. 2.5 Planning regions of Karnataka. Planning for Metropolitan, CDP, Satellite Town and 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. Selection of Indicators for the 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 (Micro, macro and meso level only). 3.4 Regional policies in Indian five-year plans, nature and scope of town planning with special reference to Karnataka; 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). 3.2 The role of locational theories in regional planning process. 3.3 An evaluation of regional disparities / imbalances – Identification of backward regions of Karnataka, Planning for backward area development, Causes and consequences of regional disparities. Measures of Regional disparities. 3.4 Role of GIS, Remote Sensing and GPS for regional planning and development. 3.5 **Field Study**: Students need to observe and prepare report regarding regional disparities and imbalance in their own surrounding at Town/ Taluka/ District level.	**02** **02** **02** **02** **02**

References

1. Singh Jagadish (2003) India – A Comprehensive Systematic Geography, Gyanodaya Prakashan, Gorakhpur, U.P.
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