

UNIVERSITY OF MYSORE
Estd. 1916

Vishwavidyanilaya Karyasoudha
Crawford Hall, Mysuru- 570 005

No.AC2(S)/151/2020-21

Dated: 26-10-2021

Notification

Sub:- Syllabus and Examination Pattern of Geography (UG) with effective from the Academic year 2021-22 as per NEP-2020.

- Ref:-**
1. Decision of Board of Studies in Geography (UG) meeting held on 28-09-2021.
 2. Decision of the Faculty of Science & Technology Meeting held on 16-10-2021.
 3. Decision of the Academic Council meeting held on 22-10-2021.

The Board of studies in Geography (UG) which met on 28-9-21 has recommended & approved the syllabus and pattern of Examination of Geography Programme with effective from the Academic year 2021-22 as per NEP -2020.

The Faculty of Science & Technology and Academic Council at their meetings held on 16-10-2021 and 22-10-2021 respectively have also approved the above said proposal and it is hereby notified.

The syllabus and Examination pattern is annexed herewith and the contents may be downloaded from the University Website i.e., www.uni-mysore.ac.in.


Registrar
Registrar
University of Mysore
Mysore

To:-

1. All the Principal of affiliated Colleges of University of Mysore, Mysore. Those who are running B.Sc Courses.
2. The Registrar (Evaluation), University of Mysore, Mysuru.
3. The Chairman, BOS/DOS, in Geography, Manasagangothri, Mysore.
4. The Dean, Faculty of Science & Technology, DoS in Psychology, MGM.
5. The Director, Distance Education Programme, Moulya Bhavan, Manasagangothri, Mysuru.
6. The Director, PMEB, Manasagangothri, Mysore.
7. Director, College Development Council , Manasagangothri, Mysore.
8. The Deputy Registrar/Assistant Registrar/Superintendent, Administrative Branch and Examination Branch, University of Mysore, Mysuru.
9. The PA to Vice-Chancellor/ Registrar/ Registrar (Evaluation), University of Mysore, Mysuru.
10. Office Copy.

**JSS MAHAVIDYAPEETHA
JSS COLLEGE OF ARTS, COMMERCE AND
SCIENCE
OOTY ROAD, MYSURU - 570025**

**Structure & Detailed
Syllabus**

Four years Multidisciplinary Undergraduate
Programme with Multiple Exit options
in

GEOGRAPHY

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

Effective from 2021 - 2022

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

Eligibility for Admission:

Candidates who have passed PUC in Science, Commerce, Arts in Karnataka State or any other States in India with equal qualifications are eligible for admission to the course, provided they have secured minimum of 50% marks in the qualifying examination (PUC/ +2 Level) (45% for SC / ST / Category-I Candidates).

The Candidates not studied Geography as an optional subject in PU/ 10+2 Level need to undergo one week bridge course programme conducted by the Geography department of the concerned Colleges.

Scheme and Duration of the Course:

B.A./B.Sc. Geography Program consists of 8 semesters in four academic years.

Discipline Specific Core (DSC) Courses: (B-3 Model)

First, second, third and fourth semesters will have one DSC course each. Every DSC course has 6 credits including practical component for 2 credits (4 credits for theory and 2 credits for practical).

Fifth and sixth semesters will have two Discipline Specific Core (DSC) courses in each semester for 5 credits including practical component for 2 credits (3 credits for theory and 2 credits for practical).

Seventh and eighth semesters will have three Discipline Specific Core (DSC) courses in each semester. In seventh semester, two DSC courses for 5 credits each including practical component for 2 credits (3 credits for theory and 2 credits for practical) and one DSC course has 3 credits without practical component. Whereas in eighth semester, one course will have a practical component for 2 credits apart from theory for 3 credits and the remaining two DSC courses for 3 credits each without practical component. Totally, the program has 14 DSC courses.

Open Elective (OE) Courses:

Open Elective Course (OE) refers to Elective courses/papers in a non-core subject across all disciplines. First, second, third and fourth semesters will have one OE course in each semester. Every OE course has 3 credits with no practical component. OE courses are offered by the department for other disciplines and the candidates have to choose one OE from the pool in each semester. The OE courses enhance the geographical knowledge and help students in learning Geographical thinking and make them geographic literates. There are totally 4 OE courses in the program.

Vocational Courses:

Fifth and Sixth semesters will have one vocational course for 3 credit in each semester. The candidates have to choose any one vocational course from the pool in each semester.

Internship:

In sixth semester internship course for 2 credits is prescribed which is mandatory in nature. Each student is expected to prepare a report on Internship and shall make a presentation during the examination. The candidates are expected to complete this course between the Fifth and sixth semester under the supervision of a teaching faculty of the concerned department. These courses can enable students to obtain the required technical knowledge along with practical skills.

Discipline Specific Elective (DSE) Courses:

Fifth, Seventh and eighth semesters will have DSE courses. In Fifth semester one DSE course, in seventh semester two DSE courses and in Eighth semester two DSE course for credit of 3 each need to be studied by a student apart from the Research methodology course in seventh semester for 3 credits and Research project course for six credits in eighth semester. All the DSE courses have 3 credits with no practical component (100 marks).

Research Methodology and Research Project:

The seventh semester will have research methodology course for 3 credits (60+40=100 marks) and in eighth semester students have to take up a research project course for 6 credits (100+100=200 marks). If a candidate is not interested to opt for the Research Project in the eighth semester such candidates can choose two more DSE course of 3 credits each from the given pool or can opt for Internship programme for 6 credits.

It is mandatory to select research project for six credits in Eighth semester and Research Methodology course in Seventh Semester for a candidate willing to pursue PhD program.

There shall be University examination at the end of each semester. The course pattern and the scheme of examinations are as follows:

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.

Course pattern:

The number of credits per semester may vary from 20 to 25, an average of 23 credits per semester and a total of around 186 credits for the program. The credits shall be based on the number of instructional hours per week, generally 1 credit per hour of instruction in theory and 1 credit for 2 hours of practical or project work or internship per week. The courses offered in the programme covers the Discipline Specific Core (DSC), Discipline Specific Elective (DSE), Open Elective (OE) Vocational courses and Internship.

Medium of instruction:

The medium of instruction shall be English / Kannada.

Attendance:

The course shall be treated as an independent unit for the purpose of attendance. A student shall attend a minimum of 75% of the total instruction hours in a course including assignments and seminars in each semester. The student who fails to secure 75% attendance in a course shall be required to repeat that semester.

Internal Assessment:

Marks for internal assessment shall be awarded on the basis of Attendance, conducting internal Tests, assigning Case Studies and Assignments / Seminars and other activities. The internal assessment marks shall be notified on the department / college notice board for the information of the students and it shall be communicated to the Registrar (Evaluation) within a stipulated time prescribed by the university.

All DSC, DSE theory and Vocational courses shall have internal assessment for 40 Marks.

The practical, Internship and Skill Enhancement courses shall have internal assessment for 25 marks each, including the 10 marks for the practical record.

Research Project shall have internal assessment for 100 marks.

The outline for continuous assessment activities for C1 and C2 components of a course shall be as under

Activities	C1 Component	C2 Component	Total Marks
Session test	10 marks	10 marks	20
Seminars/ presentation/activities	10 marks		10
Case study/assignment/field work/project work etc.		10 marks	10
Total	20	20	40 marks

Board of Examiners (BOE):

Board of examiners constituted by the University shall consist of a Chairman, internal and external members out of which at least one shall be from the Department / College offering the course and at least two external members from other universities. The board shall scrutinize the question papers and shall forward for the approval of university.

Results:

A candidate should obtain a minimum of 40% marks in each course in the University examination including internal assessment marks. The candidates who have passed in all the semester examinations are eligible for the award of B.A./B.Sc. Honors Degree in Geography. If the candidates chooses Geography as major along with any social science stream subjects as minor, like Sociology, Political Science, History, Economics, etc, such candidates can be awarded B.A. Degree and for those studied geography as major with any science subjects as minor such candidates shall be awarded B.Sc. Honors in Geography.

Carryover:

A candidate who fails in a lower semester examination may go to the higher semester, however, the result of the candidates who have passed the VIII semester examination but not passed the lower semester examinations shall be declared as NCL (not completed lower semester examinations). Such candidates shall be eligible for the award of degree only after completion of all the lower semester examinations.

Question Paper Pattern:

The Theory exam shall be conducted for 60 Marks and it consists of 3 Sections namely Section A, Section B, Section C with internal choices. (Short, Medium and Long answer questions).

Section A - Each question carries 3 marks and student has to answer 4 out of 6 questions.

Section B - Each question carries 6 marks and student has to answer 3 out of 5 questions, and

Section C - Each question carries 10 marks and student has to answer 3 out of 4 questions.

Model Curriculum

Name of the Degree Program:	B.A. / B.Sc. (Basic / Honours) Degree in Geography
Discipline Core:	Geography
Total Credits for the Program:	186
Starting year of implementation:	2021-2022

Program Outcomes:

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

(Refer to literature on outcome based education (OBE) for details on Program Outcomes)

PO1: Relating to Knowledge

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

- Give explanation of relevant terms and concept of geography including definitions.
- Give better explanation about relevant principles, theories and models in geography.
- Show clear knowledge relating to man and environmental process and factors.

PO2: Understanding and application

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

- Identify the importance of spatial scale and time scale.
- Know the complex and interactive nature of physical and human environments.
- Identify the importance of the resemblances and variance between places, environments and people.
- Comprehend how processes bring changes in systems, distributions and environments.

PO3: Students Skills

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

- Interpret a variety of types of geographical data and sources and recognise their limitations.
- Communicate geographical evidence, ideas and arguments.
- Use geographical data to identify trends and patterns.
- Use diagrams and sketch maps to demonstrate geographical aspects.
- Demonstrate skill of analysis and synthesis of geographical information

PO4: Students Evaluation

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

Critically evaluate geographical principles, theories and models

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

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.

Evaluate the relative success or failure of initiatives.

Syllabus Aims:

The aims of the syllabus describe the B.A. / B.Sc program in geography at 5th, 6th, 7th & 8th Level. These aims outline the educational context in which syllabus content should be viewed. Many of these aims may be delivered by the use of suitable case-studies, through application of geographical skills and practical field visits.

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

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

Curriculum Structure for Undergraduate Program B.A. / B.Sc. Geography

Name of the Degree Program: B.A./B.Sc.	Total Credits for the Program: 186
Discipline/Subject: Geography	Starting year of implementation: 2021-2022

Program Articulation Matrix for Core Courses:

Semester	Title /Name of the course	Program outcomes that the course addresses	Pre-requisite course(s)	Pedagogy	Assessment
I	Principles of Geomorphology	PO-1, PO-2, PO-4	No Pre-requisite course(s)	Interactive Lectures, Case Studies	In-course & End Course Assessment
II	Introduction to Climatology	PO-1, PO-2, PO-4	No Pre-requisite course(s)	Interactive Lectures, Case Studies	In-course & End Course Assessment
III	Fundamentals of Human Geography	PO-1, PO-3, PO-4	No Pre-requisite course(s)	Interactive Lectures, Case Studies, Seminar	In-course & End Course Assessment
IV	India: Resources and Sustainability	PO-2, PO-3	No Pre-requisite course(s)	Interactive Lectures, Case Studies, Quiz	In-course & End Course Assessment
V	Population Resource & Dynamics	PO-1, PO-2, PO-4	No Pre-requisite course(s)	Inquiry-based learning, Interactive Lectures	In-course & End Course Assessment
	Fundamentals of Remote Sensing	PO-1, PO-3	Cartography & Spatial Statistics	Blended learning, Interactive Lectures, MOOCs	In-course & End Course Assessment
VI	Environmental Geography	PO-1, PO-2, PO-4	No Pre-requisite course(s)	Investigative Case-Based Learning, Seminar	In-course & End Course Assessment
	Fundamentals of Geographic Information System	PO-1, PO-3	Basics of Cartography	Blended learning, Interactive Lectures, MOOCs	In-course & End Course Assessment
VII	Advanced Geomorphology	PO-2, PO-4	Principles of Geomorphology	Blended learning, Interactive Lectures, MOOCs	In-course & End Course Assessment
	Advanced Climatology	PO-2, PO-4	Introduction to Climatology	Blended learning, Interactive Lectures, MOOCs	In-course & End Course Assessment
	Conceptual Development in Geography	PO-2, PO-3, PO-4	No Pre-requisite course(s)	Interactive Lectures, Group Activity	In-course & End Course Assessment
VIII	Sustainable Soil Resource Management	PO-1, PO-2, PO-4	Principles of Geomorphology	Cooperative Learning, Interactive Lectures, MOOCs	In-course & End Course Assessment
	Agriculture & Food Security	PO-1, PO-2, PO-4	No Pre-requisite course(s)	Blended learning, Interactive Lectures, MOOCs	In-course & End Course Assessment
	Principles of spatial models in Geography	PO-1, PO-2, PO-4	No Pre-requisite course(s)	Blended learning, Interactive Lectures, MOOCs	In-course & End Course Assessment
	Research Project / Internship (6)	PO-2, PO-3, PO-4	Research Methodology	Process-Oriented Guided Inquiry Learning (POGIL), Problem or Project Based	In-course & End Course Assessment, Final report

Program Articulation Matrix for Open Elective (OE)

Semester	Title of the course	PO that the course addresses	Pre-requisite course(s)	Pedagogy	Assessment
I	Introduction Physical Geography	PO-1, PO-2, PO-3	No Pre-requisite course(s)	Interactive lectures, Blended learning	In-course & End Course Assessment
	Fundamentals of Remote Sensing	PO-1, PO-2, PO-3	No Pre-requisite course(s)	Interactive lectures, Blended learning	In-course & End Course Assessment
II	Human of Geography	PO-1, PO-2	No Pre-requisite course(s)	Inquiry-based learning, Interactive Lectures	In-course & End Course Assessment
	Basics of Geographic Information Systems	PO-1, PO-2, PO-3	Fundamentals of Remote Sensing	Interactive lectures, Blended learning	In-course & End Course Assessment
III	Geography of India	PO-1, PO-2	No Pre-requisite course(s)	Interactive lectures, Blended learning	In-course & End Course Assessment
	Application of GIS & Remote Sensing	PO-1, PO-2, PO-4	Fundamentals of Remote Sensing, Basics of GIS	Interactive lectures, Blended learning	In-course & End Course Assessment
IV	Geography of Karnataka	PO-1, PO-2	No Pre-requisite course(s)	Interactive lectures, Blended learning	In-course & End Course Assessment
	Population & Settlement Geography	PO-1, PO-2	No Pre-requisite course(s)	Interactive lectures, Blended learning	In-course & End Course Assessment

Program Articulation Matrix for Vocational Courses:

Semester	Title of the course	PO that the course addresses	Pre-requisite course(s)	Pedagogy	Assessment
V	Geo-surveying	PO-1, PO-3	No Pre-requisite course(s)	Interactive lectures, Blended learning, Hands on experience	In-course & End Courses assessment
	Statistical Techniques in Geography	PO-1, PO-3	No Pre-requisite course(s)	Interactive lectures, Blended learning, Hands on experience	In-course & End Courses assessment
VI	Open Source GIS: Applications	PO-1, PO-3	No Pre-requisite course(s)	Interactive lectures, Blended learning, Hands on experience	In-course & End Courses assessment
	Digital Cartography and Mobile Mapping	PO-1, PO-3	No Pre-requisite course(s)	Interactive lectures, Blended learning, Hands on experience	In-course & End Courses assessment

Program Articulation Matrix for Discipline Specific Elective (DSE):

Semester	Title Of the course	PO that the course addresses	Pre-requisite course(s)	Pedagogy	Assessment
V	Regional Geography of Karnataka	PO-1	No Pre-requisite course	Blended learning, Investigative Case-Based Learning, Seminar	In-course & End Coursesassessment
	Tourism Geography	PO-1	No Pre-requisite course	Inquiry-based learning, Interactive Lectures, case studies	In-course & End Courses Assessment
VII	Regional planning and Development	PO-1	No Pre-requisite course(s)	Interactive Lectures, case studies	In-course & End Courses Assessment
	Settlement Geography	PO-1	No Pre-requisite course(s)	Interactive Lectures, case studies	In-course & End Courses Assessment
	Bio geography	PO-1	No Pre-requisite course(s)	Interactive Lectures, case studies	In-course & End Courses Assessment
	Climate Change: Vulnerability & Adaptation	PO-1	No Pre-requisite course(s)	Interactive Lectures, case studies	In-course & End Courses Assessment
VIII	Sustainable Rural development	PO-1	Regional Planning Development	Blended learning, Interactive Lectures, MOOCs	In-course & End Coursesassessment
	Urban geography	PO-1, PO-2, PO-4	Settlement Geography	Blended learning, Interactive Lectures, MOOCs	In-course & End Coursesassessment
	Geography of Health & Wellbeing /	PO-2, PO-4	Principles of Geomorphology and Bio-geography Introduction to Climatology Fundamentals of Human Geography	Blended learning, Investigative Case-Based Learning, Seminar	In-course & End Coursesassessment
	Natural Resource Management	PO-1, PO-2, PO-4	Regional Planning and Development Fundamentals of Human Geography	Cooperative Learning, Group Activity, Interactive Lectures, MOOCs	In-course & End Coursesassessment
	Geopolitics	PO-1, PO-2, PO-4	Fundamentals of Human Geography	Inquiry-based learning, Interactive Lectures, case studies	In-course & End Coursesassessment
	Transport Geography	PO-1, PO-2, PO-4	No Pre-requisite course(s)	Cooperative Learning, Group Activity, Interactive Lectures, MOOCs	In-course & End Coursesassessment

B.A. / B.Sc. (Basic / Honours) Degree in Geography Contents of Courses in the Program

Course Type					
Semester	Discipline Specific Core (DSC)	Open Elective (OE)/(3)	Vocational Courses (3)	Discipline Specific Elective (DSE)(4)	Research/Other Courses
I	Principles of Geomorphology	1. Introduction Physical Geography 2. Fundamentals of Remote Sensing	Nil	Nil	
II	Introduction to Climatology	1. Human of Geography 2. Basics of Geographic Information Systems	Nil	Nil	
III	Fundamentals of Human Geography	1. Geography of India 2. Application of GIS & Remote Sensing	Nil	Nil	
IV	India: Resources and Sustainability	1. Geography of Karnataka 2. Population & Settlement Geography	Nil	Nil	
V	Population Resource & Dynamics* Fundamentals of Remote Sensing *course for those opting Geography as Minor	Nil	1. Geo-Surveying / 2. Statistical Techniques in Geography	1.Regional Geography of Karnataka/ 2. Tourism Geography	
VI	Environmental Geography* Fundamentals of Geographic Information System *course for those opting Geography as Minor	Nil	1. Open Source GIS: Applications 2. Digital Cartography and Mobile Mapping	Nil	Internship

VII	Advanced Geomorphology Advanced Climatology Conceptual Development in Geography	Nil	Nil	1.Regional planning and Development 2.Settlement Geography 3.Bio geography 4.Climate Change: Vulnerability & Adaptation	Research Methodology
VIII	Sustainable Soil Resource Management Agriculture & Food Security Principles of Spatial Models in Geography	Nil	Nil	1.Sustainable Rural development 2.Urban geography 3.Geography of Health & Wellbeing / 4.Natural Resource Management 5.Geopolitics 6.Transport Geography	Research Project

Course Pattern and scheme of Examination for BA/BSc Geography Programme as per NEP2020

Semester	Course Type	Course Name	Credits T = Theory P = Practical			Instruction Hour Per Week		Total No. of Hours/ Semester		Marks for Exam		Marks for IA			Duration of Exam (in Hours)	
			T	P	Total	Theory	Practical	T	P	Theory	Practical	T	P	Total	Theory	Practical
I	GEOG DSC T1.1	Principles of Geomorphology	4	2	6	4	4	52	52	60	25	40	25	150	2	2
	GEOG OE T1.1	1. Introduction Physical Geography 2. Fundamentals of Remote sensing	3	-	3	3	-	42	-	60	-	40	-	100	2	-
II	GEOG DSC T2.1	Introduction to Climatology	4	2	6	4	4	52	52	60	25	40	25	150	2	2
	GEOG OE T2.1	1. Human of Geography 2. Basics of Geographic Information Systems	3	-	3	3	-	42	-	60	-	40	-	100	2	-
III	GEOG DSC T3.1	Fundamentals of Human Geography	4	2	6	4	4	52	52	60	25	40	25	150	2	2
	GEOG OE T3.1	1. Geography of India 2. Applications of GIS & Remote Sensing	3	-	3	3	-	42	-	60	-	40	-	100	2	-
IV	GEOG DSC T4.1	India: Resources and Sustainability	4	2	6	4	4	52	52	60	25	40	25	150	2	2
	GEOG OE T4.1	1. Geography of Karnataka 2. Population & Settlement Geography	3	-	3	3	-	42	-	60	-	40	-	100	2	-

Semester	Course Type	Course Name	Credits			Instruction Hour Per Week		Total No. of Hours/ Semester		Marks for Exam		Marks for IA			Duration of Exam (in Hours)	
			T	P	Total	Theory	Practical	T	P	Theory	Practical	T	P	Total	Theory	Practical
VII	GEOG DSC T7.1	Advanced Geomorphology	3	2	5	3	4	42	52	60	25	40	25	150	2	2
	GEOG DSC T7.2	Advanced Climatology	3	2	5	3	4	42	52	60	25	40	25	150	2	2
	GEOG DSC T7.3	Conceptual Development in Geography	3		3	3		42		60		40		100	2	
	GEOG DSE T7.1 GEOG DSE T7.2 (ANY TWO)	1.Regional planning and Development	3		3	3		42		60		40		100	2	
		2.Settlement Geography	3		3	3		42		60		40		100	2	
		3.Bio geography	3		3	3		42		60		40		100	2	
		4.Climate Change: Vulnerability & Adaptation	3		3	3		42		60		40		100	2	
GEOG RM T7.3 (Compulsory)	RESEARCH METHODS IN GEOGRAPHY	3		3	3		42		60		40		100	2		
VIII	GEOG DSC T8.1	Sustainable Soil Resource Management	3	2	5	3	4	42	52	60	25	40	25	100	2	2
	GEOG DSC T8.2	Agriculture and food security	3		3	3		42		60		40		100	2	
	GEOG DSC T8.3	Principles of Spatial Models in Geography	3		3	3		42		60		40		100	2	
	GEOG RSP8.1	RESEARCH PROJECT			6					100		100		200	2	
	GEOG DSET8.1 GEOG DSET8.2 (ANY TWO) (any2 additional course For Non Research Project candidates)	1.Sustainable Rural development	3		3	3		42		60		40		100	2	
		2.Urban geography	3		3	3		42		60		40		100	2	
		3.Geography of Health & Wellbeing/	3		3	3		42		60		40		100	2	
		4.Natural Resource Management	3		3	3		42		60		40		100	2	
5.Geopolitics		3		3	3		42		60		40		100	2		
6.Transport Geography		3		3	3		42		60		40		100	2		

Program Structure for the B.A./B.Sc. Geography (Basic / Honours) Degree

Semester	Discipline Specific Core (DSC) (Credits) (L+T+P)	Discipline Specific Elective (DSE) / Open Elective (OE) (Credits) (L+T+P)	Ability Enhancement Compulsory Courses (AECC), Languages (L+T+P)		Skill Enhancement Course (SEC)			Total Credits
					Skill-based (Credits) (L+T+P)	Value-based (Credits) (L+T+P)		
I	DSC-A1 Principles of Geomorphology (4+2) DSC-B1 (4+2)	OE-1.1 Introduction Physical OE-1.4 Fundamentals of Remote Sensing (3)	L1-1 (3), L2-1 (3) (3+1+0 each)	Nil	SEC-1: Digital Fluency (2) (1+0+2)	Physical Education for Fitness (1) (0+0+2)	Health & Wellness (1) (0+0+2)	25
II	DSC-A2 Introduction to Climatology (4+2) DSC-B2 (4+2)	OE-2.1 Human Geography / OE-2.2 Basics of Geographic Information Systems (3)	L2-1 (3), L2-1 (3) (3+1+0 each)	Environmental Studies (2)	Nil	Physical Education - Yoga (1) (0+0+2)	NCC/ NSS/R&R (S&G)/ Cultural (1) (0+0+2)	25
Exit option with Certificate (50 Credits)								
III	DSC-A 3 fundamentals of Human Geography (4+2) DSC-B3 (4+2)	OE-3.1 Geography of India / OE-3.2 Application of GIS & Remote Sensing (3)	L1-3 (3), L2-3 (3) (3+1+0 each)	Nil	SEC-2: Artificial Intelligence (2) (1+0+2)	Physical Education - Sports Skills (1) (0+0+2)	NCC/ NSS/R&R (S&G)/ Cultural (1) (0+0+2)	25
IV	DSC-A4 India: Resources and Sustainability DSC-B4 (4+2)	OE-4.1 Geography of Karnataka / OE-4.2 Population & Settlement Geography	L1-4 (3), L2-4 (3) (3+1+0 each)	Constitution of India (2)	Nil	Physical Education - Games (1) (0+0+2)	NCC/ NSS/R&R (S&G)/ Cultural (1) (0+0+2)	25
Exit option with Diploma (100 Credits)								
Choose any one Discipline as Major, the other as the Minor								
V	DSC-A5 Population Resource & Dynamics * (3 + 2) DSC-A6 Fundamentals of Remote Sensing (3+2) DSC-B5 (3+2) *for minor candidates	DSE1 1. Geography of Karnataka/ 2. Tourism Geography Vocational – 1 (3) Voc 1.1 Geo-Surveying Voc 1.2 Statistical Techniques in Geography	Nil	Nil	SEC-3: Such as Cyber Security (2) (1+0+2)	Physical Education – Games (1) (0+0+2)	NCC/ NSS/R&R (S&G)/ Cultural (1) (0+0+2)	24

VI	DSC-A7 Environmental Geography* (3 + 2) DSC-A8 Fundamentals of Geographic Information Systems (3+2) DSC-B6 (4) *for minor candidates	Vocational – 2 (3) Voc 2.1 Open Source GIS: Applications Voc 2.2 Digital Cartography and Mobile mapping Internship (2)	Nil	Nil	SEC-4: Professional Communication (2)	Physical Education – Games (1) (0+0+2)	NCC/ NSS/R&R (S&G)/ Cultural (1) (0+0+2)	23
Exit option with Bachelor of Arts, B.A. / Bachelor of Science, B.Sc Basic Degree (144 Credits)								
VII	DSC-A9 Advanced Geomorphology (3+2) DSC-A10 Advanced Climatology (3+2) DSC-A11 Conceptual Development in Geography(3)	DSE-2 and DSE-3 (Any two) 1.Regional planning and Development 2.Settlement Geography 3.Bio geography 4.Climate Change: Vulnerability & Adaptation Research Methods in Geography (3)	Nil	Nil	Nil	Nil	Nil	22
VIII	DSC-A12 Sustainable Soil Resource Management (3+2) DSC-A13 Agriculture & FoodSecurity (3) DSC-A14 Principles of Spatial Models in Geography(3)	DSE-4 (AnyTwo) DSE -5 1. Sustainable Rural development 2. Urban geography 3. Geography of Health & Wellbeing / 4. Natural Resource Management 5. Geopolitics 6. Transport Geography Research Project (6)/Internship (any two additional DSE courses or Internship programme can be opted by students if Research Project is not selected)	Nil	Nil	Nil	Nil	Nil	21
Award of Bachelor of Arts Honours, / Bachelor of Science Honours Degree (186 Credits)								

Technical Skills and possible jobs after each exit during and after the program

Semester	Exit Level	Credits	Technical Skills	Possible Jobs
Ii	Certificate	50	<ul style="list-style-type: none"> • Map Interpretation • Geomorphic Analysis • Climate Data Analysis & Interpretation 	<ul style="list-style-type: none"> • Field Surveyor • Weather Data Analyst
IV	Diploma	100	<ul style="list-style-type: none"> • Cartography • Statistics Analysis 	<ul style="list-style-type: none"> • Field Surveyor • Cartographer
VI	Degree	142	<ul style="list-style-type: none"> • Cartography • GIS and Image Analysis • Tourism Management 	<ul style="list-style-type: none"> • GIS Field Surveyor • GIS Trainee • Nature Conservation Officer • School Teacher
VIII	Degree with Honors	186	<ul style="list-style-type: none"> • GIS & Image Analysis • Resource Management • Town Planning • Tourism Management 	<ul style="list-style-type: none"> • Sustainability Consultant • Tourism officer • Transport planner • Cartographer • GIS Engineer • Environmental consultant • Geography Teacher • Geography Researcher

**BA/ B.Sc. With Geography as a minor
In the 3rd year
V Semester**

Course Type					
Semester	Discipline Specific Core (DSC)	Open Elective (OE)/(3)	Vocational Courses (3)	Discipline Specific Elective (DSE)(4)	Research/ Other Courses
I	Principles of Geomorphology	1. Introduction to Physical Geography/ 2. Fundamentals of Remote Sensing	Nil	Nil	
II	Introduction to Climatology	1. Human of Geography/ 2. Basics of Geographic Information Systems	Nil	Nil	
III	Fundamentals of Human Geography	1. Geography of India 2. Application of GIS & Remote Sensing	Nil	Nil	
IV	India: Resources and Sustainability	1. Geography of Karnataka 2. Population & Settlement Geography	Nil	Nil	
V	1.Population Resource & Dynamics	Nil	Nil	Nil	
VI	1.Environmental Geography	Nil	Nil	Nil	

B.A/B.Sc Semester 1

Title of the Course: Principles of Geomorphology

Code: GEOGDSC T1.1

Number of Theory Credits	Number of lecture hours/ semester	Number of practical Credits	Number of practical hours/ semesters
4	52 or 56	2	52 or 56
Course Outcomes: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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 1	52/56Hrs
Unit – 1 Geomorphology	13/14
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	
Unit – 2 Systems and Cycles of the Solid Earth	13/14
Internal structure of the earth Alfred Wegener's continental drift Theory of Isostasy: Views of Pratt and Airy Convectional current theory and concept of sea floor spreading Theory of Plate Tectonics: plate boundaries, subduction, Case Studies: Volcano, Earthquake: reporting of latest incidents Case Studies: Volcano, Earthquake: reporting of latest incidents	
Unit – 3 The Dynamics of Earth	13/14
Earth's Movements: Endogenetic and Exogenetic forces, Sudden and Diastrophic movements- Epeirogenetic and Orogenetic Movements-Process of folding and faulting Vulcanicity and earthquake 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	13/14
<p>Evolution of Landforms</p> <p>Landforms: meaning, types and factors controlling landforms development</p> <p>Slope development: concept and types</p> <p>Concept of Cycle of Erosion–W.M. Davis and W. Penck</p> <p>Agents of Denudation: river; drainage patterns, groundwater, Sea waves, Wind and Glaciers and resultant landforms.</p> <p>Application of geomorphology: in India and Karnataka (Regional planning, Urban planning and transportation, Mining, Hazard management, Agriculture and Environmental management).</p>	

References

1. Ahmed E. (1985) Geomorphology, Kalyani Publishers, New Delhi.
2. Bloom A.L. (1978) Geomorphology: A Systematic Analysis of Late Cenozoic Landforms Prentice – Hall of India, New Delhi.
3. Brunson D. (1985) Geomorphology in the Service of Man: The Future of Geography, Methuen, U.K.
4. Chorley, R.J., Schumm, S. A. and Sugden, D.E. 1984: Geomorphology, Methuen, London
5. Cooke, R.U. and Warren, 1973: Geomorphology in Deserts, Batsford, London
6. Dayal, P. 1996: Textbook of Geomorphology, Shukla Book Depot, Patna.
7. Goudar M B, Physical Geography (Kannada Version)
8. Goudie Anrew et.al. (1981) Geomorphological Techniques, George Allen & Unwin, London.
9. Homes A. (1965) Principles of Physical Geology, 3rd Edition, ELBSS Edn.
10. Hugar M R Physical Geography part 1 (Kannada Version)
11. Kolhapure and S S Nanjan, Physical Geography (Kannada Version)
12. Nanjannavar S S: Physical Geography (Kannada Version)
13. P Mallappa, Physical Geography (Kannada Version)
14. Ranganath Principles of Physical Geography (Kannada Version)
15. Strahler A.N. (1968) The Earth Sciences, Harper & Row Intl. Edn, New York
16. Thornberry W.D. (1969) Principles of Geomorphology 2nd Edition, Wiley Intl. Edn. & Wiley, 1984.
17. Verstappen H. (1983) Applied Geomorphology, Geomorphological Surveys for Environmental Development, 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 Studies	30%
Assignment	20%
CIA	50%
Total	100%

GEOGDSC P1.1 **Geomorphology Practical**

CREDIT:02

Content of Practical Course 1: List of Experiments to be conducted

Exercise-1: Identification of Rocks and Minerals. Mineral samples: Iron ore, Bauxite ore and Manganese. Rock Samples: Granite, Basalt, Lime Stones, Sandstone, quartzite, and marble.

Exercise-2: Extraction and interpretation of Geomorphic information from Topographical maps

Exercise-3: Preparation of contour map from toposheet, Construction of Relief Profiles-serial, Super imposed, Projected & Composite.

Exercise-4: Slope Analysis - Slope Maps (Wentworth method) Slope calculation and conversion (isotan and isosin) and aspect maps & Hypsometric curve and integral

Exercise-5: Drainage Morphometry: delineation of watershed, stream ordering and Morphometric analysis: mean stream length, drainage density and drainage frequency. **Field Work:** Measurement of channel cross-sections in the field, Geomorphic map of channel bed, Study of erosional and depositional features in the field.

Case Study: students must be taken to observe local land formation and degradation and write areport on their effectiveness.

B.A. / BSc Semester 1

Title of the Course: GEOG0E T1.1 - 1. Introduction to Physical Geography

Number of Theory Credits	Number of lecture hours/ semester
3	42 - 45
Course Outcomes: <ol style="list-style-type: none">1. Students will be able to understand the fundamental concepts in Earth Sciences2. Understands basic terminology used to describe physical processes and landscapeforms.3. Describe elements of the atmosphere and the oceans	
Course Objectives: <p>This course aims to</p> <ol style="list-style-type: none">1. Study basic principles of the Earth Sciences2. Understand the landforms, atmospheric elements and structure and basics of oceanography	
Content of Theory Course 1	
Unit – 1	11
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	11
Rocks - types,significance, Weathering – types. Agents of Denudation - River, Glacier, Wind and Under Ground water. Volcanicity, Earthquakes and Tsunamis	
Unit – 3	11
Structure and Composition of Atmosphere,Weather and Climate. Atmospheric Temperature, Heat Budget of the atmosphere Atmospheric Pressure, Winds and Precipitation	
Unit – 4	12
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, NewDelhi
4. R.N. Tikka (2002) Physical Geography. Kedarnath Ramnath & co, Meerut.
5. Willian D. Thornbury (1997) Principle of Geomorphology. New Age International (PvtLtd.) New Delhi.

Pedagogy

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

B.A. / BSc Semester 1

Title of the Course: OE 1.1.2 Fundamentals of Remote Sensing

Code: GEOGOE T1.1.2

Number of Theory Credits	Number of lecture hours/ semester
3	42 - 45
<p>Course Outcomes:</p> <ol style="list-style-type: none"> 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 biophysical phenomena of the earth system. 	
<p>Course Objectives:</p> <ol style="list-style-type: none"> 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 study the applications of the remote sensing to solve the real-world problems. 	
Content of Theory Course 1	
Unit – 1 Introduction	52/56Hrs
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.	11
Process and types of Remote Sensing	11
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	11
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	12
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. Image processing and GIS for remote sensing: techniques and applications; Second Edition (2016) - Liu, Jian-Guo, Mason, Philippa J
 2. Introduction to Remote Sensing and Image Interpretation (2003); Lillesand T.M.
 3. Introduction to Remote Sensing, Fifth Edition (2011); James B. Campbell, Randolph H.Wynne
 4. Introductory Digital Image Processing: A Remote Sensing Perspective, Fourth Edition(2015) - John R. Jensen
 5. Practical handbook of remote sensing, First Edition (2016) - Lavender, Andrew, Lavender, Samantha
 6. Remote Sensing and GIS, Second Edition (2011), Bhatta, B.
 7. Remote sensing and image interpretation (2015); Chipman, Jonathan W., Kiefer, Ralph W., Lillesand
 8. Remote Sensing of the Environment: An Earth Resource Perspective (Prentice HallSeries in Geographic Information Science) - Second Edition (2006), John Jensen
1. https://onlinecourses.nptel.ac.in/noc19_ce41/preview

Pedagogy

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

B.A. / BSc Semester 2

Title of the Course: Introduction to Climatology

CODE: GEOGDSC T2.1

Number of Theory Credits	Number of lecture hours/ semester	Number of practical Credits	Number of practical hours/ semesters
4	52 or 56	2	52 or 56
<p>Course Outcomes:</p> <p>After the completion of this course, students should be able to</p> <ol style="list-style-type: none"> define the field of climatology and to understand the atmospheric composition and structure. to outline the mechanism and process of solar radiation transfer to earth surface and to explain the temperature distribution and variation according to time and space. to illustrate and explain the air pressure system, wind regulating forces and the formation of the Atmospheric Disturbance. to understand and compute the air humidity as well as to explain the process of Condensation and formation of precipitation and its types. 			
<p>Course Objectives:</p> <p>This course aims to:</p> <ol style="list-style-type: none"> to define the field of climatology and components of the climate system to introduce various dimensions of climatology like structure and composition. to understand the global atmospheric pressure, temperature, and wind system. to study the concept of atmospheric moisture and its types 			
Content of Theory Course 1			52/56Hrs
Unit – 1 Composition and Structure of the Atmosphere			14
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			
Unit – 2 Atmospheric Temperature			14
Insolation: Definition, Mechanism, Solar Constant. Factors affecting the Insolation: Angle of incidence, length of the day, Sunspots, Distance between the earth and the sun, effect of the atmosphere. 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.			
Unit – 3 Atmospheric Pressure and Winds			14

Atmospheric Pressure: Influencing factors on atmospheric pressure. Vertical and Horizontal Distribution of the atmospheric pressure and Pressure Belts, Pressure Gradient. Tri-cellular-Hadley, Ferrel's and Polar Cells. Winds: influencing factors, Types - planetary, seasonal, local wind Variable winds-Cyclones and anti-cyclones. Air-Masses and Fronts: Definition, Nature, Source Regions, Classification.	
Unit – 4 Atmospheric Moisture	14
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,	

References

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 1(Kannada Version)
6. Goudar M B, Physical Geography (Kannada Version)
7. Kolhapure and S S Nanjan, Physical Geography (Kannada Version)
8. Lutgens, Frederic K. & Tarbuck, Edward J. (2010). The Atmosphere: An Introduction to Meteorology. New Jersey: Pearson Prentice Hall.
9. Oliver, John E. & Hidore, John J. (2003). Climatology: An Atmospheric Science. Delhi: Pearson Education.
10. Singh, S. (2005). Climatology. Allahabad: Prayag Pustak Bhawan.
11. Barry, R.G. and Chorley, R.J. (2003): Atmosphere, Weather and Climate; Psychology Press, Hove; East Sussex.
12. Critchfield, H.J., (1975): general Climatology, Prentice Hall, New Jersey.
13. Mather, J.R. (1974): Climatology: Fundamentals and Applications; Mc Craw Hill Book Co., U.S.A.
14. Rumney, G.R. (1968): Climatology and the World Climates, Macmillan, London.
15. Trewartha, G.T. (1980): An Introduction to Climate; McGraw Hill, New York, 5th edition, (International Student Edition)

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
Quiz	30%
Assignment	20%
CIA	50%
Total	100%

GEOGDSC P2.1- Climatology Practical CREDITS: 2

Content of Practical Course 1: List of Experiments to be conducted

Conduct all exercises with Goal, Procedure, devices, and findings.

Exercise 1: Understanding Structure and functions of the Indian Meteorological Department (IMD).

Exercise 2: Collection of climatic data from IMD website.

<https://mausam.imd.gov.in/bengaluru/>

Exercise 3: Plotting of downloaded climatic data using graphical methods-

Elementary Instrumental Observation:

Exercise 4: Centigrade and Fahrenheit thermometer for measuring temperature.

Exercise 5: Mercurial Barometer and Aneroid Barometer for measuring atmospheric pressure

Exercise 6: Wind Vane and cup-anemometer.

Exercise 7: Wet and Dry bulb thermometer for measuring humidity

Exercise 8: Rain gauge- Dial type for measuring rainfall Exercise 3: Rainfall Trend Analysis.

Exercise 9: Interpretation of Indian Daily Weather charts.

Exercise 10: Deriving water balance chart, Actual and potential evapotranspiration

Note: Students are expected to download weather charts of the four seasons.

B.A. / BSc Semester 2

Title of the Course: 1 Introduction to Human Geography

CODE: GEOGOE T2.1.1

Number of Theory Credits	Number of lecture hours/ semester
3	42 - 45
<p>Course Outcomes:</p> <ol style="list-style-type: none"> 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. 	
<p>Course Objectives: This course aims to</p> <ol style="list-style-type: none"> 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 development of the region 	
Content of Theory Course 1	
45Hrs	
Unit – 1 Introduction to Human Geography	
11	
<p>Nature and scope, Development Environmental Determinism and Possibilism, 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</p>	
Unit – 2 Geographical Analysis of Population	
11	
<p>Distribution and Growth of Population Density of population: meaning and Types: Arithmetic Density and Physiological Density. Regional distribution of Density of Population. Population Movement: Migration, Ravenstein'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</p>	
Unit – 3 Cultural Patterns and Processes	
11	
<p>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. 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.</p>	

Unit – 4 Human Economic Activities, Development and Settlements	12
<p>Primary Economic Activities – Agriculture, Types: Primitive Subsistence, Intensive subsistence, Plantation Agriculture, Extensive Commercial grain cultivation, Mixed Farming, Dairy Farming</p> <p>Secondary 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.</p> <p>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.</p> <p>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.</p>	

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

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

B.A. / BSc Semester 2

Title of the Course: 2. Basics of Geographic Information Systems (GIS)

CODE: GEOGOE T2.1.2

Number of Theory Credits	Number of lecture hours/ semester
3	39 or 42
<p>Course Outcomes:</p> <ol style="list-style-type: none"> 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. 	
<p>Course Objectives: This course aims to:</p> <ol style="list-style-type: none"> 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 1	52/56Hrs
Unit – 1 Introduction	10
Emergence of GI 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. UTM, 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 and Its 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 and Cartographic Modelling - Tomlin, C.D. (1990)
3. Geographic Information Systems and Environmental Modelling - Clarke, C., K. (2002)
4. Geographic [Information Systems](#) and Science - Paul A. Longley, et. al. (2015)
5. Geographic Information Systems: A Management Perspective - Aronoff, S. (1989)
6. GIS - Fundamentals, Applications, and Implementations - Elangovan, K. (2006)
7. Introduction to Geographical Information Systems - Chang, Kang-Tsung (2015)
8. Mathematical Modeling in Geographical Information System, Global Positioning System and Digital Cartography - Sharma, H.S. (2006)
9. Remote Sensing and GIS - Bhatta, B. (2011)
10. Spatial analysis and Location-Allocation Models - Ghosh, A. and G. Rushton (1987)

Reference Websites

1. IIRS MOOC programme: <https://isat.iirs.gov.in/mooc.php>
2. ITC Netherlands, Principles of GIS
https://webapps.itc.utwente.nl/librarywww/papers_2009/general/principlesgis.pdf
3. Geographical Information Systems: Principles, Techniques, Management and Applications https://www.geos.ed.ac.uk/~gisteac/gis_book_abridged/

Pedagogy

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