NATIONAL EDUCATION POLICY-2020

Cooch Behar Panchanan Barma University

Department of Geography

Structure & Detailed Syllabus

Four years Undergraduate Programme (Bachelor) with Multiple Exit Options in

IN

GEOGRAPHY

Effective from 2023 – 20248

A) Syllabus & Structure of the Choice-Based Credit System (CBCS) For the Four-Years (Eight Semesters) Bachelor of Arts / Bachelor of Science (B.A./B.Sc.) Geography Programme

CBPBU_ NCCF_Course Structure_2023-24

1st Year				2nd year				3rd Year				4th Year				4th Year with Research			
Certificate				Certificate				UG Degree				UG Degree (Honours)				UG Degree (Honours) with Research			
1ST SEM	C	2ND SEM	C	3RD SEM	C	4TH SEM	C	5TH SEM	C	6TH SEM	C	7TH SEM	C	8TH SEM	C	7TH SEM	C	8TH SEM	C
Major-l	6	Major-2	6	Major-3	6	Major-5	6	Major-7	6	Major-10	6	Major-13	6	Major-17	6	Major -13	6	Major-16	6
Minor-1	6	Minor-2	6	Major-4	6	Major-6	6	Major-8	6	Major-11	6	Major-14	6	Major-18	6	Major-14	6	Major-17	6
MDC-1	3	VAC-1	3	Minor-3	6	Minor-4	6	Major-9	6	Major-12	6	Major-15	6	Major-19	6	Major-15	6		
SEC-I	3	SEC-2	3	SEC-3	3	AEC-2	4	MDC-3	3	VAC-2	3	Minor-5	6	Minor-6	6	Minor-5	6	Minor-6	6
AEC-1	4	INTRN	4	MDC-2	3							Major-16	6			Research-1		Research-2	12
	22		22		24		**22**		21		21		30		**24**		24		30
44				46				42				54				54			
132 (3 Year)																			
186 (4 Year)																			
186 (4 Years with **Research)**																			

1) DISCIPLINARY MAJOR = Discipline-Specific Core (DSC) Courses:

It is the discipline or subject of main focus, and the degree will be awarded in that discipline. Students should secure the prescribed number of ci edits (about 50% of total credits) through core courses in the major discipline.

- 17 Major papers (2 in 1st year, 4 in 2nd year, 6 in 3rd year & 4 in 4th year) & additional 2 Major papers, only for those who will not take Research paper in 4th year.

Thus, 4Year UG Degree with Research will have 17 Major subjects & 4 Year UG Degree without Research will have 19 Major papers.

Note: First, second, one DSC course each. Every DSC course has 6 credits, including a practical component for 2 credits (4 credits for theory and 2 credits for practical).

2) Minor [Open Elective (OE)] Courses:

Open Elective Course (OE) refers to Elective courses/papers in a non-core subject across all disciplines. **The first and second semesters will have one OE course**. Every OE course has 6 credits with or without a practical component. The department offers OE courses for other disciplines, and the candidates have to choose one OE from the pool of each semester. **Taking Two Minors (OE) from the pool, students have to learn a total of 6 OE courses (1st, 2nd, and 7th Semester from pool 1 and 3rd, 4th and 8th Semester from pool 2) in the whole Programme.**

- **Minor (OE) subject combinations for Arts & Humanities Discipline (Minor shall never be same as Major discipline)**

1. Bengali/ English/Sanskrit/Arabic/Philosophy/Sociology (1st, 2nd and 7th semester)

2. History /Economics/Political Sciences/Education/Geography (3rd, 4th and 8th semester)

Note: [A candidate pursuing a Major in a subject will not be allowed to take up the same subject as a Minor.

A candidate pursuing a Major in a Language subject will be allowed to take another Language subject as a Minor Subject.]

3) **MULTIDISCIPLINARY COURSE (MDC) = 3 MDC papers; MDC-1 (1st Semester), MDC-2 (3rd Semester), MDC-3 (5th Semester)**

Students have to choose any three different disciplines as MDC, which should not be similar to their major or minor or even any subject which they had in their Higher Secondary. For each Discipline, there will be one MDC.

4) **ABILITY ENHANCEMENT COURSES= AEC (Two AEC papers; one in 1st Semester & one in 4th Semester)- *language focused on language and communication skills***
5) **SKILL ENHANCEMENT COURSES**= SEC (three SEC courses; each SEC subject will have 3 papers, each in 1st, 2nd and 3rd semester.) These courses are aimed at imparting practical skills, hands-on training, soft skills, etc., to enhance the employability of the students.

Subjects: Spoken English; Soft Skill; Basic computing; Video & Photography Editing; Professional Ethics; Medical Pathology, Aquarium Fish Keeping & Management, Poultry Breeding; Tourism, Wild Life Conservation & Management, Bhawaiya; Folk & Creative Dance; Tailoring & Designing; Beauty and Wellness; Electronic Repairing; Baking; Gardening; Organic Farming; Proof Reading (Bengali), Recitation, Theatre; Stress Counselling & Management; GST Filing, Hospitality Management; Office Administration; Proof Reading (English); Interior Designing; Green Chemistry, **Bhumi Sahayak/ Amin/ Surveying, GIS and Remote Sensing with QGIS**, **Rock Climbing and Mountaineering**

[Any person having the professional skill to train students irrespective of his/her educational qualifications can teach SEC courses] Each student has to choose any one SEC subject comprising three papers in 1st, 2nd and 3rd semester.

6) **VALUE ADDED COURSE (Common for** all UG) = **VAC** (2 VAC Papers common to all)

VAC-1: Environmental Studies (emphasis on management & sustainable development)

VAC-2: Constitution of India and Health & Wellness [Gr-A-Constitution of India (emphasis on values, fundamental rights & duties) and Gr-B-Health & Wellness (emphasis on physical, social, intellectual, spiritual and mental wellbeing)]

7) **INTERNSHIP (INTRN):** (To be carried out in 2nd semester)

A course requiring students to participate in a professional activity, work experience, or cooperative education activity with an entity external to the education institution, normally under the supervision of an expert of the given external entity. A key aspect of the internship is induction into actual work situations. All the students will also undergo internships in a firm, industry, or organization or training in labs with faculty and researchers in their own or other HEIs/research institutions during the summer term. NSS **activities (apart from Regular/ Special**

NSS activities) may also be considered in the **Internship during the summer term. Educational Tour and Surveys for minor Project or Laboratory based training may also be included in the Internship Programme.**

8) **RESEARCH PROJECT/DISSERTATION= RESEARCH** (2 Research papers, one at each 7th and 8th semester}

Students who secure 75% marks and above in the First 6 semesters and wish to undertake research at the UG level can choose a Research stream in the 4th year. Students need to carry out their dissertation under the guidance of a faculty member of the University/College.

Selection **of Major or Minor** courses **depends on the availability of the particular course that** has been taught in the respective colleges.

B) Duration of the Course:

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

C) Course pattern:

The number of credits per semester may vary from 22 to 24, and a total of around 186 for 4 Year degree in Geography as a Major in Geography or 186 for 4 Year Degree in Geography as a Major with Research for the Programme. **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 cover the **Major [Discipline Specific Core (DSC)], Minor [Open Elective (OE)], Major [Discipline Specific Elective (DSE) in 4th Year, Multidisciplinary Course (MDC), Ability Enhancement Courses (AEC), Skill Enhancement Courses (SEC), Value Added Course (VAC), Internship (INTERN) and Research Project/Dissertation (RESEARCH).**

D) Medium of instruction:

The medium of instruction shall be English / Vernacular (Bengali/Hindi/Nepali) Language

E) Attendance:

The course shall be treated as an independent unit for the purpose of attendance. A student shall attend at least 75% of the total instruction hours in a course, including assignments and seminars each semester. The student who fails to secure 75% attendance in a course shall be required to repeat that semester. 5 marks have been allotted for each course,

and marks will be awarded as per the following: 100-95= 5; 95-90=4; 90-85= 3; 85-80=2; 80-75=1 and <75 =1. Proper records of attendance should be kept for verification if demanded so in future.

F) Internal Assessment:

Marks for internal assessment shall be awarded on the basis of 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 Controller of Examinations (CE) within a stipulated time prescribed by the university.

i. All DSC (Major), OE (Minor), MDC, AEC, VAC, and DSE (Major) theory courses shall have an internal assessment for 10 Marks, including Session Tests/Case Studies /Assignments / Seminars, and other activities.

ii. The practical paper shall have 10 External marks (5 for the Laboratory notebook and 5 for Viva-Voce/ presentation).

iii. The marks of the Internship will be 50 (20 for overall activities, 25 for final evaluation of the practical record (if any), and 5 for attendance) with credit 4 given by the expert of the host institution/ coordinator of NSS.

iv. Skill Enhancement courses shall have 50 marks each, including 10 marks for the practical record and 10 marks for internal assessment by the host College/institution, 25 marks will be evaluated by the external experts arranged by the host institutions and 5 marks for attendance.

v. Research Project shall have 100 marks with 50:50 by Internal Supervisor/ guide and by university assigned External Experts, followed by a Seminar presentation and Viva-Voce with a printed record of the dissertation.

9) Board of Examiners (BOE):

The board of examiners will be constituted by the Undergraduate Board of Studies (UGBOS) 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 atleast one external member from other universities. The board shall scrutinize the question papers and shall forward them to the CEs for the necessary approval of the University.

B. Curriculum Structure for Undergraduate (Bachelor) Programme in Geography

Name of the Degree Programme:	**B.A./B.Sc.**	Total Credits for the Programme:	186
Discipline/Subject:	Geography	Starting year of implementation:	2023-2024

a) Programme Articulation Matrix for Core Courses:

List of all Papers in Semester-wise Titles of the Papers in Under Graduate												
Certificate Course with Geography as Major												
Year	**Sem.**	**Course Code**	**Paper Title** .	**Theory/ Practical**	**Credits**	**Level**	**Instruction Hour/ Semester**	**Distribution of Marks in Evaluation**				**Duration of Exam**
								End Semester Examination	***Internal/ External***	***Attendance***	***Total***	***End Semester Examination***
FIRST-YEAR	I	GEOG101T	Physical Geography	Theory	4	100	60	50	10	5	100	2 Hours
		GEOG101 P	Basic Cartographic Techniques and Map Reading	Practical	2		60	25	10			**2 Hours**
	II	GEOG201T	Human Geography	Theory	4	100	60	50	10	5	100	2 Hours
		GEOG201 P	Surveying Techniques	Practical	2		60	25	10			**2 Hours**

Undergraduate (Bachelor) Programme in Geography Course Type (All) (Value in parenthesis indicates Credits))							
Semester	Discipline Specific Core (DSC) Major (6)	Open Elective (OE) Minor (6)	Multi-disciplinary Courses (MDC-I) (3)	Skill Enhancement Course (SEC-I) (3)	Ability Enhancement Course (AEC-I) (3)	Value Added Course (VAC-I) (3)	Internship (04)
I	Physical Geography (Theory), Basic Cartographic Techniques and Map Reading (Practical)	Physical Geography (Theory), Scale and Map Projection (Practical)	Yes	Yes	Yes	Nil	Nil
II	Fundamentals of Human Geography (Theory), Elementary Instrumental Observation and Map Reading (Practical)	Fundamentals Human Geography (Theory), Basic Statistics and Basic Cartogram (Practical)	Nil	Yes	Nil	Yes	Yes

CERTIFICATE COURSE WITH GEOGRAPHY MAJOR-I				
Programme: CERTIFICATE COURSE WITH GEOGRAPHY MAJOR-I			**Year: I**	Semester: I Paper-IA
Course Code: GEOG101T	**Course Title: Physical Geography (Theory)**			
Credits: 04	**No of Lectures= 60 Hours**		**Duration of Exam: 2 Hours**	
Full Marks: 50+10+5= 65 (End Semester Exam+ Internal Assessment + Attendance)				
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0				

Course Objectives:

1. To define the concepts of Physical Geography and geo-tectonics
2. To introduce the fundamental concept of geomorphology and the evolution of landforms
3. To understand the dynamic nature of the weather and climate.

Unit	**Topic** (Value in parenthesis indicates Marks)	**No. of Lectures**
Unit I **Concept of Physical Geography**	1.1. Definition, Nature, and Scope of Physical Geography and its relationship with otherdsciplines. 1.2. Origin of continents and ocean basins: Convectional Current theory, Plate Tectonics, Isostasy, Sea Floor Spreading 1.3. Geological Time Scale and Evolution of Landforms and Lives in Different Geological Periods	20
Unit II **Geomorphology**	2.1. Fundamental Concepts in Geomorphology 2.2. Drainage development and evolution of landforms in Horizontal, Uniclinal, Folded, Faulted and Domal Structure. 2.3. Morphogenetic Region under different climatic regimes.	20
Unit III **Climatology**	3.1. Insolation, Vertical, and Horizontal Distribution of temperature, Pressure and pressure belts, 3.2. Winds and Wind Circulation: Tri-cellular Model, Jet Stream, ENSO: El Nino, La Nina and Walker Circulation 3.3. Precipitation: Formation and types, Theories of the Origin of Monsoon and Features, Climate Change: Concept, Evidences, Causes and Consequences.	20

Suggested Reading:

1. Barry, R.G. and Chorley, R.J. (1998). Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001). Physical Geography Made Simple. Rupa and Co., New Delhi.
3. Bunnett, R.B. (2003). Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Pvt Ltd.
4. Garrison T (1998). Oceanography. Wordsworth Cp, Bedmont.
5. Lake, P. (1979). Physical Geography (English & Hindi Edition) Cambridge Univ. Press, Cambridge.
6. Monkhouse, F I (1979). Physical Geography, Methuen, London.
7. Singh, S. (2003). Physical Geography (English and Hindi Editions) Prayag Pustak Bhawan, Allahabad.
8. Strahler, A.N. and Strahler A.M. (1992). Modern Physical Geography, John Wiley and Sons, New York
9. Thornbury, W. D. (1954). Principles of Geomorphology. New York: John Wiley.
10. Wooldridge, S.W. and Morgan, R.S. (1959). The Physical Basis of Geography: An Outline of Geomorphology, Longman, London.

CERTIFICATE COURSE WITH GEOGRAPHY MAJOR-I			
Programme: CERTIFICATE COURSE WITH GEOGRAPHY MAJOR-I		**Year: I**	**Semester: I** **Paper-IB**
Subject: Geography			
Course Code: GEOG101P	**Course Title: Basic Cartographic Techniques and Map Readings (Practical)**		
Credits: 2	**No of Lectures= 60 Hours**	**Duration of Exam: 2 hours**	
Full Marks: 25+10 [(End Semester Exam + Lab Note book (5) + Viva-Voce (5)]			
Total No. of Lectures-Tutorials-Practical (in hours per week): **L-T-P: 0-0-4**			

Course Objectives:

1. To learn the basics of Cartography and Mapmaking.
2. To understand and interpret SOI topo sheets.
3. To draw maps with the help of SOI topo sheets.

Unit	Topic (Value in parenthesis indicates Marks)	No. of Lectures
Unit I **Scale**	**Scale:** Meaning, importance, and types, Conversion of Scale, Graphical Construction: Comparative, Diagonal Scale and Vernier Scale **(10 Marks)**	20
Unit II **Analysis and interpretation of S.O.I. Maps**	**Analysis and interpretation of S.O.I. Maps of the Plateau area under the following heads: (15 Marks)** i. Indian topographical map system: Their classification and types ii. Broad Physiographic Divisions based on break-of-slopes along with Representative Profile iii. Serial Profiles; Superimposed, Projected, and Composite Profiles iv. Identification of Drainage Patterns and Drainage Characteristics. v. Morphometric Techniques: Relative Relief (after Smith), Average Slope (after Wentworth), Drainage Density (Horton), Dissection Index (Dov Nir), Ruggedness Index vi. Identification of Settlement Patterns and Settlement Frequency vii. Transect Chart showing the relationship between the Physical and Cultural Features **Note:** An area of (10 cm.x10 cm) will be selected from the topographical sheet for the Morphometric analysis.	40

Suggested Reading:

1. Monkhouse, F.J. & Wilkinson, F.J. (1985). Maps and Diagrams. Methuen, London.
2. Raisz, E (1962). General Cartography. John Wiley &Sons, New York.
3. Robinson, Arthur H. et al. (2010): *Elements of Cartography*, 6th edition, Wiley India, New Delhi.
4. Saha, Pijush Kanti and Basu, Partha (2014): *Advanced Practical Geography*, Books and Allied (P) Ltd., Kolkata.
5. Sarkar, Ashis (2015): Practical Geography – A Systematic Approach, Orient Black Swan, New Delhi.
6. Singh, L. R. (2006). Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.
7. Singh, R. L. & Singh, Rana PB (1993). Elements of Practical Geography, Kalyani Publishers, New Delhi

CERTIFICATE COURSE WITH GEOGRAPHY MAJOR-II			
Programme: Certificate Course With Geography Major-II		**Year: I**	**Semester: II** **Paper-2A**
Subject: Geography			
Course Code: GEOG102T	**Course Title: Fundamentals of Human Geography (Theory)**		
Credits: 04	**No of Lectures= 60 Hours**		**Duration of Exam: 2 Hours**
Full Marks: 50+10+5 = 65 (End Semester Exam+ Internal Assessment + Attendance)			
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			

Course Objectives:

1. To learn Meaning, Concept, Nature, Scope and development of Human Geography.
2. To understand Cultural Changes in and around the world.
3. To learn about the different races, religions, tribes, their culture and cultural development.

Unit	**Topic** (Value in parenthesis indicates Marks)	No. of Lectures
Unit I: **Introduction to Human Geography**	1.1. Definition, Nature, and Scope of Human Geography and its relationship with other disciplines, Approaches to Human Geography with special reference to Man-Environment relationship, and Humanistic Approach 1.2. Human Adaptations in different climatic regions: Pygmy, Masai, Bedouin, Kirghiz, Eskimo.	20
Unit II: **Social Geography**	2.1. Social Processes, Social Space, Social Groups, Social Distance, Social Well-being, Social Area Analysis (Shevky and Bell) 2.2. Concept of Race; Classification of major races of the World with special reference to India (Risley and B.S. Guha), Major Linguistic groups of the World.	20
Unit-III: **Cultural Geography**	3.1. Concept of Culture, Cultural Traits, Cultural Hearths, Cultural Realm and Cultural Diffusion 3.2. Concept of Ethnicity and Tribe, Distribution and Characteristics of Major Tribes of Oraon, Gond, Santhal, Jarawa, Khasi.	20

Suggested Reading:

1. De Blij, H.J. Human Geography: Culture, Society and Space. John Wiley, New York.
2. Haggett, P. (2004). Geography: A Modern Synthesis. Harper & Row, New York
3. Husain, Majid (2021): *Human Geography*, Rawat Publications, New Delhi.
4. Hussain, M. (1994): Human Geography. Rawat Publication, Jaipur.
5. Kaushik, S.D.& Sharma, A.K. (1996): Principles of Human Geography, Rastogi Pub. Meerut.
6. Maurya, S.D. (2016): *Cultural Geography*, Sardha Pustak Bhawan, Allahabad.
7. Maurya, S.D. (2018): *Human Geography*, Pravalika Publications, Allahabad.
8. Norton W. (1995). Human Geography. Oxford University Press, New York.
9. Patra, Punyatoya, et al. (2020): *Perspectives in Human Geography*, Concept Publishing Company, Ltd., New Delhi.
10. Rubenstein, James M. (2012): *Contemporary Human Geography*, Prentice Hall of India, New Delhi.
11. Saxena, H.M. (2018): *Economic Geography*, 2nd Edition, Rawat Publications, New Delhi.
12. Singh, L.R (2018): *Fundamentals of Human Geography*, Sharda Pustak Bhawan, Allahabad.

CERTIFICATE COURSE WITH GEOGRAPHY MAJOR-II			
Programme: CERTIFICATE COURSE WITH GEOGRAPHY MAJOR-II		**Year: I**	**Semester: II Paper-2B**
Subject: Geography (Practical)			
Course Code: GEOG202P	**Course Title: Elementary Instrumental Observation and Map Reading**		
Credits: 2	**No of Classes= 60 Hours**	**Core Compulsory**	
Max. Marks: 25+10 [(End Semester Exam + Lab Notebook (5) + Viva-Voce (5)]			
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-4			

Course Objectives:

1. To learn function and use of meteorological instruments
2. To learn function and use of Geomorphological instruments
3. To know the representation of climatic data

Unit	**Topic** (Value in parenthesis indicates Marks)	No. of Lectures
Unit I: Meteorological instruments	Reading of the Meteorological instruments: Barometer, Thermometer (Minimum and Maximum; Dry and Wet bulb), Rain gauge, and Anemometer (05)	20
Unit II: Geomorphological instruments	Measurement of height and depth by Clinometer, Measurement of the Dip and Strike of the bedding plane by Brunton Compass, Measurement of slope by Abney's Level, Measurement of river flow by Water Current Meter, Unit Hydrograph, Rotameter (10)	20
Unit III: Representation of climatic data	Representation of climatic data: Composite Climograph, Climograph (G. Taylor), and Hythergraph (G. Taylor) (10)	20

Suggested Reading:

1. Monkhouse, F.J. & Wilkinson, F.J. (1985). Maps and Diagrams. Methuen, London.
2. Raisz, E (1962). General Cartography. John Wiley &Sons, New York.
3. Saha, Pijushkanti and Basu, Partha (2014): Advanced Practical Geography, Books and Allied (P) Ltd., Kolkata.
4. Sarkar, Ashis (2015): Practical Geography – A Systematic Approach, Orient Black Swan, New Delhi.
5. Sharma, J.P. (2001). Prayogik Bhoogol. Rastogi Pub, Meerut.
6. Singh R.L. and Singh Rana P.B. (2012): Elements of Practical Geography, Kalyani Publishers, Ludhiana.
7. Singh, L. R. (2006). Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.
8. Singh, R. L. & Singh, Rana PB (1993). Elements of Practical Geography (Hindi & English Editions), Kalyani Publishers, New Delhi.

CERTIFICATE COURSE WITH GEOGRAPHY Minor-1 (For Non-Geography Students)			
Programme: CERTIFICATE COURSE WITH GEOGRAPHY Minor-1 (For Non-Geography Students)		**Year: I**	Semester: I Paper-IA
Course Code: GEOG 101MT	**Course Title: Physical Geography (Theory)**		
Credits: 04	**No of Lectures= 60 Hours**		**Duration of Exam: 3 Hours**
Full Marks: 50+10+5 = 65 (End Semester Exam+ Internal Assessment (theory) + Lab Note Book & Viva Voce+ Attendance)			
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			

Course Objectives:

1. To define the concepts of Physical Geography and geo-tectonics
2. To introduce the fundamental concept of geomorphology and the evolution of landforms
3. To understand the dynamic nature of the hydrosphere.
4. To understand the dynamic nature of the weather and climate.

Unit	**Topic** (Value in parenthesis indicates Marks)	**No. of Lectures**
Unit I **Geomorphology**	1.1. Internal structure of the earth; Rocks: Characteristics, types, and rock cycle, 1.2. Weathering: meaning, types and controlling factors. 1.3. Agents of Denudation: Processes of Fluvial, Groundwater, Sea Wave, Wind and Glaciers and resultant landforms. ()	20
Unit II **Hydrosphere**	2.1. Ocean bottom Relief features of the Indian, Atlantic and Pacific Ocean 2.2. Ocean Deposits: Types and Characteristics 2.3. Ocean Currents and Tide (25)	20
Unit III **Climatology**	3.1. Elements of Weather and Climate; 3.2. Composition and structure of the atmosphere, Insolation, Pressure and pressure belts, 3.3. Winds: Planetary, Periodic, and Local (25)	20

Suggested Reading:

1. Bryant, H. Richard (2001). Physical Geography Made Simple. Rupa and Co., New Delhi.
2. Bunnett, R.B. (2003). Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Pvt Ltd.
3. Lake, P. (1979). Physical Geography (English & Hindi Edition) Cambridge Univ. Press, Cambridge.
4. Monkhouse, F I (1979). Physical Geography, Methuen, London.
5. Singh, S. (2003). Physical Geography (English and Hindi Editions) Prayag Pustak Bhawan, Allahabad.
6. Strahler, A.N. and Strahler A.M. (1992). Modern Physical Geography, John Wiley and Sons, New York
7. Thornbury, W. D. (1954). Principles of Geomorphology. John Wiley, New York
8. Wooldridge, S.W. and Morgan, R.S. (1959). The Physical Basis of Geography: An Outline of Geomorphology, Longman, London.

CERTIFICATE COURSE WITH GEOGRAPHY Minor-I (For Non-Geography Students)			
Programme: CERTIFICATE COURSE WITH GEOGRAPHY Minor-1 (For Non-Geography Students)		**Year: I**	**Semester: I** **Paper-IA**
Course Code: GEOG 101MP	**Course Title: Scale and Map Projection (Practical)**		
Credits: 02	**No of Lectures= 60 Hours**		**Duration of Exam: 3 Hours**
Full Marks: 25+ 10= 35 (End Semester Exam + Lab Note Book & Viva Voce)			
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-4			

Course Objectives:

1. To learn function and use of Map scale
2. To learn function and use of Map projection

Unit	**Topic** (Value in parenthesis indicates Marks)	No. of Lectures
Unit I: **Scale**	1.1. Concept of Scale and Scale Conversion, Graphical Construction of Linear Scale (10)	30
Unit II **Map Projection**	2.1. Concept of Map Projection: Polar Zenithal Gnomonic Projection, Simple Conical projection with One Standard Parallel, and Cylindrical Equal Area Projection (Graphical Construction) (15)	30

Suggested Reading:

1. Monkhouse, F.J. & Wilkinson, F.J. (1985). Maps and Diagrams. Methuen, London.
2. Raisz, E (1962). General Cartography. John Wiley &Sons, New York.
3. Sarkar, Ashis (2015): Practical Geography – A Systematic Approach, Orient Black Swan, New Delhi.
4. Sharma, J.P. (2001). Prayogik Bhoogol. Rastogi Pub, Meerut.
5. Singh, R. L. & Singh, Rana PB (1993). Elements of Practical Geography (Hindi & English Editions), Kalyani Publishers, New Delhi.
6. Singh, L. R. (2006). Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.

CERTIFICATE COURSE WITH GEOGRAPHY Minor-II (For-Non- Geography)			
Programme: CERTIFICATE COURSE WITH GEOGRAPHY Minor-II (For-Non- Geography)		**Year: I**	**Semester: II** **Paper-2A**
Subject: Geography			
Course Code: GEOG102MT	**Course Title: Fundamentals Human Geography (Theory)**		
Credits: 04	**No of Lectures= 60 Hours**		**Duration of Exam: 3 Hours**
Full Marks: 50+10+5 = 65 (End Semester Exam+ Internal Assessment + Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 4-0-0			

Course Objectives:

1. To learn Meaning, Concept, Nature, Scope and development of Human Geography.
2. To understand Culture and society of the World and India
3. To learn about the Nature of Population and Human Settlements.

Unit	**Topic** (Value in parenthesis indicates Marks)	No. of Lectures
Unit I: **Introduction to Human Geography**	1.1. Definition and Major Elements in Human Geography, 1.2. Economic Activities**:** Concept and classification, different sectors of the economy, 1.3. Human Development Index (10)	20
Unit II: **Cultural and Social Geography**	2.1. Concept of Culture, Cultural Hearths 2.2. Race: Definition, Classification of major races of the World and India, 2.3. Concept of Society and Community, Social Group (20)	20
Unit III: **Human Population and Settlements**	3.1. Distribution and Growth of Population, Density of Population: meaning and Types, Regional distribution of Density of Population in India, 3.2. Population Movement: Definition of Migration and related terminologies, Types, Causes and consequences of migration. 3.3. Human Settlements: Origin, types and patterns of Human Settlements, Characteristics of Rural and Urban Settlements, Functional Classification of Urban Settlements after Ashok Mitra (20)	20

Suggested Reading:

1. De Blij, H.J. Human Geography: Culture, Society and Space. John Wiley, New York.
2. Haggett, P. (2004). Geography: A Modern Synthesis. Harper & Row, New York
3. Husain, Majid (2021): *HumanGeography*, Rawat Publications, New Delhi.
4. Hussain, M. (1994): Human Geography. Rawat Publication, Jaipur.
5. Kaushik, S.D.& Sharma, A.K. (1996): Principles of Human Geography, Rastogi Pub. Meerut.
6. Maurya, S.D. (2016): *Cultural Geography*, Sardha Pustak Bhawan, Allahabad.
7. Maurya, S.D. (2018): *Human Geography*, Pravalika Publications, Allahabad.
8. Patra, Punyatoya, et al. (2020): *Perspectives in Human Geography*, Concept Publishing Company, Ltd., New Delhi.
9. Singh, L.R. (2005). Fundamentals of Human Geography, Sharda Pustak Bhawan, Allahabad.

CERTIFICATE COURSE WITH GEOGRAPHY Minor-II (For-Non- Geography)				
Programme: CERTIFICATE COURSE WITH GEOGRAPHY Minor-II (For-Non- Geography)			**Year: I**	**Semester: II Paper-2A**
Subject: Geography				
Course Code: GEOG102MP	**Course Title: Basic Statistics and Basic Cartogram (Practical)**			
Credits: 02	**No of Lectures= 60 Hours**		**Duration of Exam: 3 Hours**	
Full Marks: 25+10 = 35 (End Semester Exam+ Project Internal Assessment + Attendance)				
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-4				

Course Objectives:

1. To learn Basic Statistics and its application in Geographical data
2. To learn Basic cartogram and its application in Geographical data

Unit	**Topic** (Value in parenthesis indicates Marks)	No. of Lectures
Unit I: Basic Statistics	1. Basic Statistics: Data, Tabulation, Frequency distribution and graphical representation, Measures of Central Tendency (10	30
Unit II: Basic Cartogram	2. Basic Cartogram: Simple Bar diagram, Pie-diagram, Proportional circle, Age Sex-Pyramid (15)	30

Suggested Reading:

1. Das, N.G. (2017): Statistical Methods (Combined edition volume 1 & 2), McGraw Hill Education, Noida, Uttar Pradesh
2. Monkhouse, F.J. & Wilkinson, F.J. (1985). Maps and Diagrams. Methuen, London.
3. Raisz, E (1962). General Cartography. John Wiley &Sons, New York.
4. Sarkar, Ashis (2015): Practical Geography – A Systematic Approach, Orient Black Swan, New Delhi.
5. Sharma, J.P. (2001). Prayogik Bhoogol. Rastogi Pub, Meerut.
6. Singh, R. L. & Singh, Rana PB (1993). Elements of Practical Geography (Hindi & English Editions), Kalyani Publishers, New Delhi.
7. Singh, L. R. (2006). Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.

CERTIFICATE COURSE WITH ----------MDC-I for who not taught Geography at HS Level			
Programme: CERTIFICATE COURSE WITH ……MDC-I for who not taught geography at HS Level		**Year: I**	Semester: I Paper-IA
Subject: Geography			
Course Code: GEOG 101MDT	**Course Title: Fundamentals of Physical Geography (Theory)**		
Credits: 02+01=3	**No of Lectures= 30 Hours+10 Hours**		**Duration of Exam: 2:00 Hours**
Full Marks:35+10+5 = 50 (End Semester Exam+ Internal Assessment + Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1			

Course Objectives:

1. To introduce the fundamental concept of geomorphology and the evolution of landforms
2. To know the concept of hydrology and hydrological cycle and ground water dynamics
3. To understand the biogeography and ecosystem.
4. To make an understanding about local landforms.

Unit	**Topic** (Value in parenthesis indicates Marks)	**No. of Lectures**
Unit I **Geomorphology**	1.1. Internal structure of the earth; Rocks: Characteristics and types 1.2. Earthquake: Types, Causes and Effects, Major Seismic Zones and Tsunamis. 1.3. Types of various landforms: Plain, Plateau, and Mountain 1.5. Exogenetic agents and resultant landforms: Fluvial, Arid, Glacier, Wave (10)	10
Unit II **Hydrology**	2.1. Concept of hydrology: Surface Runoff, Porosity and permeability, Infiltration, Evaporation, Evapotranspiration, 2.2. Global hydrological cycle, 2.3. Ground Water Movement and Storage	10
Unit III **Biogeography**	3.1. Biosphere: Concept and Components 3.2. Ecosystem: Concept, Types and Components 3.3. Concept of Trophic Level, Food Chain and Food Web, Energy flow in Ecosystem, Biodiversity (15)	10
Unit IV **Project**	**Case Study**: Visit to local area and study landforms and preparation of a project report based on the observation. Not more than 10 pages (Introduction, objectives, Brief description and findings) (This is an Internal Part) (10)	10

Suggested Reading:

1. Bryant, H. Richard (2001). Physical Geography Made Simple. Rupa and Co., New Delhi.
2. Lake, P. (1979). Physical Geography (English & Hindi Edition) Cambridge Univ. Press, Cambridge.
3. Monkhouse, F I (1979). Physical Geography, Methuen, London.
4. Singh, S. (2003). Physical Geography (English and Hindi Editions) Prayag Pustak Bhawan, Allahabad.
5. Strahler, A.N. and Strahler A.M. (1992). Modern Physical Geography, John Wiley and Sons, New York
6. Thornbury, W. D. (1954). Principles of Geomorphology. John Wiley, New York
7. Wooldridge, S.W. and Morgan, R.S. (1959). The Physical Basis of Geography: An Outline of Geomorphology, Longman, London.

CERTIFICATE COURSE WITH Geography Major (SEC-1.1), Hand-on-Training			
Programme: CERTIFICATE COURSE WITH Geography Major (SEC-1.1) Hands-on Training		**Year: I**	Semester: I Paper-IA
Subject: Geography			
Course Code: GEOG 101 SP1.1	**Course Title:** Bhumi Sahayak / Amin / Surveying (Practical)		
Credits: 02+01	**No of Lectures= 30 Hours+10 Hours**		**Duration of Exam: 2:00 Hours**
Full Marks:30+5+10+5 = 50 (Evaluated by External Expert+ Lab Note book + Project+ Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1			

Course Objectives:

1. To introduce the fundamental concept of Aminship and Job opportunities
2. To know the basic concept of surveying
3. To learn about the land Classification and Area Measurement
4. To make an understanding about land survey (Hands-on-training) .

Unit	**Topic** (Value in parenthesis indicates Marks)	**No. of Lectures**
Unit I Introduction of Aminship / Surveying	1.1. Introductory Note for Aminship, Responsibility of Amin, Job Opportunity of Amin, 1.2. Introduction to Mouza Map, Concept of Scale-R. F, Statement, plane and diagonal scale; Symbols used in Amin survey. 1.3. Familiarization of Unit of measurement; Measurement of distance: Pacing, odometer, chaining (Metric Chain, Gun Chain, Revenue Chain, Engineer's Chain), Tape, Electronic Distance Measurement (EDM) (10)	10
Unit II Basic Surveying	2.1. Definition and Types of Surveying, Definition and Objectives of Cadastral Survey, Terms related to Cadastral Survey-Quadrilateral, Shikmi line, Partial Line, Goda, Chanda, Dhai, Khaka, Thoka line, Trijunction Pillar, Alamat Khatian, Khanapuri, Bhujarat, J.L Number, RS Map, C.S Map, L.R Map, Parcha; 2.2. Definition of Traverse, classification, and methods of measuring traverse. 2.3. Principles of Chain and Compass surveying, Concept of Bearing, WCB, RB and conversion, Plotting of Traverse by Prismatic Compass and Chain, Error correction of Prismatic compass and Determination of Chaining, and their corrections (10)	10
Unit III Land Classification and Area Measurement	3.1. Basic concept of Land classification of Land and Land Revenue System and instrument used as Amin Survey. 3.2. Draft a plan about Batwara /Zamin/ House; Drawing of conventional signs & symbols used in maps of ground or surface 3.3. Calculating area of a plot (By Chain and Prismatic Compass, Drawing of Sketch Map. (10)	10
Unit IV Project	Visit to local area and study conduct survey any plot, draw sketch map and preparation of a project report. Not more than 10 pages (This is an Internal Part) (10)	10

Suggested Reading:

1. Pal Subir, Kumar, (2018): Guide to Land Survey Procedure (In Bengali), Kamal Law House, India
2. Gangopadhyay, Arun (2018): Amin Survey || NSQF Level - 3, Sector - Construction (Paperback, Bengali)
3. Basak, N N (2017). Surveying & Levelling 2/E, McGraw Hill Education, Noida, Uttar Pradesh

Certificate COURSE WITH Geography Major (SEC-2.1), Hands-on-Training			
Programme: Certificate COURSE WITH Geography Major (SEC-2.1) Hands-on-Training		**Year: I**	Semester: I Paper-IA
Subject: Geography			
Course Code: GEOG 201 SP2.1	**Course Title: Basic GIS Mapping with QGIS (Practical)**		
Credits: 02+01	**No of Lectures= 30 Hours+10 Hours**		**Duration of Exam: 2.0f v0 Hours**
Full Marks: 30+5+10+5 = 50 (Evaluated by External Expert+ Lab Note book + Project+ Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1			

Course Objectives:

1. To learn how to navigate the QGIS interface, load various types of geospatial data, and create basic maps and visualizations.
2. To conduct essential spatial analysis tasks such as buffering, overlaying, querying, and geo-processing using QGIS tools and plugins.
3. To learn how to build and manage geospatial databases, import/export data, and utilize QGIS as a powerful tool for data management and spatial data integration.

Unit	**Topic** (Value in parenthesis indicates Marks)	**No. of Lectures**
Unit I **Introduction to GIS and QGIS**	1.1. Definition and applications of GIS; Overview of QGIS software; Understanding spatial data and coordinate systems; QGIS Interface, Plugins and Basic Functions; Layer management and styling, 1.2. Sources of GIS Data; Downloading of LANDSAT, Bhuvan image, Sentinel 2 image and DEM 1.3. Basic Concept of Map Projection (10)	10
Unit II **Basic Operations of QGIS**	2.1. Georeferencing of Topographical Map 2.2. Digitizing features and creating new layers, editing spatial and attribute data, attribute table manipulation and queries, Spatial query and selection tools, exporting of data from excel. 2.3. Overlay operations (intersections, unions, etc.), Buffering and proximity analysis(10)	10
Unit III **Application of GIS**	3.1. Creating thematic maps using graduated and colour symbols 3.2. Creating thematic maps using proportional diagrams (Pie and Bar) 3.2. Data Input and Visualization, Importing and exporting data in various formats, Symbolizing and labelling spatial data, creating map layouts and adding map elements (10)	10
Unit IV	**Case Study**: Project Report and Viva Voce (This is an Internal Part) (10)	10

Suggested Reading:

1. Kurt Menke, GISP, Richard Smith Jr., GISP, Luigi Pirelli (2016). Mastering QGIS - Second Edition, Publisher: Packt
2. Tarafder Sujoy Kumar (2021). Learning GIS with QGIS Software (Paperback), A.S. Publication, Ranaghat, Nadia
3. Graser, Anita (2016). Learning QGIS - Third Edition: Create great maps and perform Geoprocessing tasks with ease, Packt Publishing
4. Andrew Cutts (2019). QGIS Quick Start Guide, Packt Publishing.

Certificate COURSE WITH Geography Major (SEC-1.2), Hand-on-Training			
Programme: Certificate COURSE WITH Geography Major (SEC-1.2) Hands-on Training		**Year: I**	**Semester: I** **Paper-IIA**
Subject: Geography			
Course Code: GEOG 102 SP1.2	**Course Title:** Bhumi Sahayak / Amin / Surveying (Practical)		
Credits: 02+01	**No of Lectures= 30 Hours+10 Hours**		**Duration of Exam: 2:00 Hours**
Full Marks:30+5+10+5 = 50 (Evaluated by External Expert+ Lab Note book + Project+ Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1			

Unit	**Topic** (Value in parenthesis indicates Marks)	No. of Lectures
Unit I **Measurement of Area**	1.1. General principles of measurement of an area of regular and irregular boundary, Using instruments (Acre Comb, Planimeter, Digital Planimeter etc.) 1.2. Mathematical calculation (division into squares, the mid-ordinate rule, the average ordinate rule, the trapezoidal rule and Simpson's rule.) (10)	10
Unit II **Dumpy Level Survey**	**Levelling by Dumpy Level/ Auto Level** 2.1. Terms related to levelling. Types of benchmark, The basic components of dumpy level, Types and description of levelling staff, Temporary adjustment of dumpy level. 2.2. Methods of levelling: simple levelling; differential levelling or fly levelling; profile levelling, cross section levelling; reciprocal levelling. 2.3. Methods of calculation of reduced level. 2.4. Conduct a Longitudinal and cross-section levelling with the necessary entry in the level book, calculate and plotting with R.L. (10)	10
Unit III **Plane Table Survey**	**Plane table Survey** 3.1. Objective 3.2. Accessories used for plate table survey and their uses. 3.3. Temporary adjustment (setting) of the plane table over a station. 3.4. Methods of plane table survey-radiation, intersection, traversing, resection method. 3.5. Conduct plane table survey of any plot of land with few details such as pond, tree etc. by radiation, intersection, traversing method (10)	10
Unit IV **Project**	Case Study: Students must conduct a survey of any plot, draw a sketch map and write a report. (This is an Internal Part) (10)	10

Certificate COURSE WITH Geography Major (SEC-2.1), Hands-on-Training			
Programme: Certificate COURSE WITH Geography Major (SEC-2.1) Hands-on-Training		**Year: I**	**Semester: I** **Paper-IIA**
Subject: Geography			
Course Code: GEOG 201 SP2.2	**Course Title: GIS Mapping with QGIS (Practical)**		
Credits: 02+01	**No of Lectures= 30 Hours+10 Hours**		**Duration of Exam: 2:00 Hours**
Full Marks: 30+5+10+5 = 50 (Evaluated by External Expert+ Internal Evaluation + Project+ Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1			

Unit	**Topic** (Value in parenthesis indicates Marks)	**No. of Lectures**
Unit I **Basic concept of Remote Sensing**	1.1. Definition and scope of Remote Sensing, Principles EMR, Energy interactions with matter 1.2. Spectral Signature and its Response of Soil, Vegetation, Built-up and Water 1.3. Basic Concept of Visual, Thermal, Infra-Red, Microwave Remote Sensing (10)	10
Unit II **GIS Models and Map Layout**	2.1. Image Classification: Supervised and Unsupervised; 2.2. Accuracy Assessment, Class Editing; Change Detection Study and Layout of Maps (10)	10
Unit III **Image Classification**	3.1. Georeferencing of satellite image 3.2. Preparation of LULC Map. 3.3. Preparation of Different Indices map such as NDVI, NDBI, NDWI, MNDWI, EVI (10)	10
Unit IV **Project**	**Case Study**: Project Report and Viva Voce (This is an Internal Part) (10)	10