BANKURA UNIVERSITY

(West Bengal Act XIX of 2013- Bankura University Act, 2013)

Main Campus, Bankura Block-II, P.O.: Purandarpur, Dist.: Bankura, Pin- 722155, West Bengal

Office of the Secretary

Faculty Council for Undergraduate Studies

Ref. BKU/FCUG/180/2023 Date: 10/07/2023

NOTIFICATION

As directed, the undersigned is pleased to inform all concerned that Bankura University has initiated the process to implement New Curriculum and Credit Framework for Undergraduate Programme, UGC 2022 (as per NEP 2020) for 4-years Undergraduate programme with Geography as Major, Minor etc. from the academic session 2023-2024. The Syllabus for the purpose will be framed and finalized as per the guidelines of appropriate authority. As an important corollary to the process, the workshop through online mode will be organized on the date mentioned herewith to get the feedback from the stakeholders. Present Students, Alumni, Guardians, Academicians and other stakeholders related to the specific programme/course are requested for their kind participation in the workshop and to present their views/ observations etc. The stakeholders may go through the draft syllabus attached herewith and convey their observations to the office of the undersigned on ugsecretaryoffice@bankurauniv.ac.in within seven days from the date of publication of notice.

Date: 15th July, 2023.

Time: 11AM onwards

Google Meet joining info

Video call link: https://meet.google.com/hpd-fxqm-uik

Sd/-
Dr. Arindam Chakraborty
Secretary
Faculty Council for Undergraduate Studies

Syllabus Geography (Honours)

2023

UGC-CCFUP, 2022 based CBCS Syllabus
for 4-Year Undergraduate
Honours/Honours with Research Course
in GEOGRAPHY

BANKURA UNIVERSITY

Bankura, West Bengal, 722155

Contents

1. Introduction

The syllabus for Geography at undergraduate level using the Choice Based Credit System (CBCS) has been framed in compliance with model syllabus given by the UGC. The structure of the syllabus is based on the NEP-2020 proposed student centric "Curriculum and Credit Framework for Undergraduate Programme" (CCFUP-2022), incorporating a flexible CBCS, multidisciplinary approach with multiple entry-exit options in view of preparing students in the current competitive job scenario.

The main objective of framing this new syllabus is to give the students a holistic understanding of the subject, giving substantial weightage to both the core contents and techniques used in Geography. The syllabus has given equal importance to both the two main branches of geography – Physical and Human.

The aim of the syllabus is to prepare the students of Geography as good, socially conscious, thoughtful, well-rounded and creative individuals so that at the end of the course they are able to secure a job and can contribute beneficially to the process of nation building. Keeping in mind and in tune with the changing nature of the subject, adequate emphasis hasbeen given on new techniques of mapping and understanding of the subject.

The syllabus has also been framed in such a way that the students can easily exit at different levels with basic skillsets and general understanding of the discipline to be able to fit for the current job market.

The syllabus has introduced a number of new DSE (Discipline Specific Electives) keeping in view the changing nature of the discipline. The introduction of *Geography of Tourism, Rural Development, Political Geography, Medical Geography and Climate Change Vulnerability and Adaptation* will definitely boost students' analytical skills and the *Computer Applications in Geography* will enable students to develop their data analysis and interpretation skill which will definitely boost their zeal for higher study and research.

2. Scheme for CBCS Curriculum

2.1 Credit Distribution across Courses

Course Type	Number of Papers	Number of Credits	
		Theory*	Practical
Core Courses (DSC)	14	8 x 3 =24 8 x 1 =8	6 x 4 =24
Discipline Specific Electives (DSE)	10	10 x 3 =30 10 x 1 =10	
Minor Courses (MI)	8	4 x 3 =12 4 x 1 =4	4 x 4 =16
Multidisciplinary Courses (ML)	3		3 x 3 =9
Ability Enhancement Language Courses (AEC)	4	4 x 2 =8	
Skill Enhancement Courses (SEC)	3		3 x 3 =9
Value Added Courses (VAC)	2	2 x 4 =8	
Summer Internship (SI)*	1		1 x 2 =2
Research Project (RP)*	1		1 x 12 =12*
Total Papers/Credits	**46**	**104 (92)**	**60 (72)***

*Tutorials of 1 Credit will be conducted in case there is no practical component

*Students who want to exit after first or second year have to complete one **Summer Internship** of 4 credits in addition to the 40 credits of First Year and 82 credits after Second Year.

*Students have to successfully complete a **Summer Internship** of 2 credits in Semester-V to qualify for the Degree in Geography

*Honours with Research in Geography can be awarded to a student if he/she completes Research Project of 12 credits (in lieu of 3 DSE papers of Semester-VIII) with total 164 credits (Theory-92 + Practical-72) in all Semesters.

2.2 Major Courses

Discipline Specific Core (DSC)				
Year	**Course Title**	**Semester**	**Theory**	**Practical**
First	Fundamentals of Physical Geography	I	T	
	Fundamentals of Human Geography	II	T	
Second	Climatology	III	T	
	Statistical Methods in Geography	III		P
	Regional Planning and Development	IV	T	
	Geography of Economic Activities	IV	T	
	Mapping Techniques in Geography	IV		P
	Cartograms and Spatial Mapping	IV		P
Third	Geography of India and West Bengal	V	T	
	Techniques in Environmental Geography	V	T	
	Evolution of Geographical Thought	VI	T	
	Remote Sensing Techniques	VI		P
Fourth	Research Methodology and Field Work	VII		P
	Disaster Management	VIII	T	
Discipline Specific Electives (DSE)				
Third	Advanced Geomorphology	V	T	
	Soil and Biogeography	V	T	
	Cultural and Settlement Geography	VI	T	
	Geography of Tourism	VI	T	
Fourth	Population Geography	VII	T	
	Urban Geography	VII	T	
	Climate Change Vulnerability and Adaptation	VII	T	
	Rural Development*	VIII	T	
	Medical Geography*	VIII	T	
	Political Geography*	VIII	T	
*Students opt for Project Work of 12 credits in Semester-VIII will not have to study DSE-8, 9 & 10				

2.3: Minor Courses

Sl. No	**Course Title**	**Semester**	**Theory**	**Practical**
1.	Fundamentals of Physical Geography	I	T	
2.	Fundamentals of Human Geography	II	T	
3.	Climatology	III	T	
4.	Cartograms and Spatial Mapping	IV		P
5.	Regional Planning and Development	V	T	
6.	Statistical Methods in Geography	VI		P
7.	Disaster Management	VII	T	
8.	Remote Sensing Techniques	VIII		P

2.4: Multidisciplinary Courses

Sl. No	Course Title	Semester	Theory	Practical
1.	Surveying and Mapping Techniques	I		P
2.	Geographical Information System	II		P
3.	Remote Sensing Techniques	III		P

2.5: Skill Enhancement Courses

Sl. No	Course Title	Semester	Theory	Practical
1.	Elementary Practicals in Geography	I		P
2.	GIS & GNSS Applications	II		P
3.	Computer Applications in Geography	III		P

2.6: Summer Internship

Year	Conditions	Credits	Course Type
First	The students who want to exit after first year for **Certificate Course in Geography** have to secure 4 credits in addition to 40 credits after successfully completing Summer Internship/Apprenticeship (in Semester-I or II) in a firm, industry or organization or Training in Labs or any government office/organization as may be decided by the department or college. Those who completed Summer Internship of 4 credits in First Year will be allowed to re-enter the degree programme within three years and complete it within the stipulated maximum of seven years.	4 (Additional for Certificate Course in Geography)	Practical
Second	The students who want to exit after second year for **Diploma in Geography** have to secure 4 credits in addition to 82 credits after successfully completing Summer Internship/Apprenticeship (in Semester-I, II, III or IV) in a firm, industry or organization or Training in Labs or any government office/organization as may be decided by the department or college. Those who completed Summer Internship of 4 credits in Second Year will be allowed to re-enter within three years and complete the degree programme within the maximum period of seven years.	4 (Additional for Diploma in Geography)	Practical
Third	The students who want **Degree, Honours or Honours with Research in Geography** have to secure mandatory 2 credits after successfully completing Summer Internship/Apprenticeship (in Semester-V) in a firm, industry or organization or Training in Labs or any government office/organization as may be decided by the department or college.	2 (Mandatory for Degree in Geography)	Practical

3. SEMESTER-WISE STRUCTURE AND CREDIT FRAMEWORK

First Year: Certificate Course in Geography

SEM	Course ID	Course Code	Course Title	Credit	Marks				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER-I	11901 11911	S/GEO/101/MJC-1T	Fundamentals of Physical Geography	4	10	40		50	3	1	
	11902 11912	S/GEO/102/MN-1T*	Other than Geography Major students: Fundamentals of Physical Geography	4	10	40		50	3	1	
	11903 11913	S/GEO/103/MD-1P*	Other than Geography Major students: Surveying and Mapping Techniques	3	10		40	50	3		3
	11800 11810	ACS/104/AEC-1	Communicative English	2	10	40		50	2		
	11904 11914	S/GEO/105/SEC-1P	Elementary Practicals in Geography	3	10		40	50	3		3
	11801 11811	ACS/106/VAC-1	Environmental Studies	4	10	40		50	4		
	TOTAL IN SEMESTER-I			**20**	**60**	**160**	**80**	**300**	**18**	**2**	**6**

SEM	Course ID	Course Code	Course Title	Credit	Marks				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER-II	21901 21911	S/GEO/201/MJC-2P	Fundamentals of Human Geography	4	10	40		50	3	1	
	21902 21912	S/GEO/202/MN-2P	Other than Geography Major students: Fundamentals of Human Geography	4	10	40		50	3	1	
	21903 21913	S/GEO/203/MD-2P	Other than Geography Major students: Geographical Information System	3	10		40	50	3		3
	21800 21810	ACS/204/AEC-2	MIL	2	10	40		50	2		
	21904 21914	S/GEO/205/SEC-2P	GIS & GNSS Applications	3	10		40	50	3		3
	21801 21811	ACS/206/VAC-2	2A: Health & Wellness 2B:Understanding India	4	10	40		50	4		
	21802 21812	ACS/207/INT-1	Summer Internship (Additional)	4	10		40	50			
	TOTAL IN SEMESTER-II			**20+4**	**60**	**160**	**80**	**300**	**18**	**2**	**6**
TOTAL IN FIRST YEAR				**40+4**	**120**	**320**	**160**	**600**	**36**	**4**	**12**

MJC- Major Core; MN- Minor Paper; MD- Multidisciplinary Paper; AEC- Ability Enhancement Course; SEC- Skill Enhancement Course; VAC- Value Added Course; INT- Internship

***Certificate Course in Geography can be awarded to a student if he/she completes Summer Internship of 4 credits in addition to total 40 credits in Semesters-I & II**

Second Year: Diploma in Geography

SEM	Course ID	Course Code	Course Title	Credit	Marks				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER - III	31901 31911	S/GEO/301/MJC-3T	Climatology	4	10	40		50	3	1	
	31902 31912	S/GEO/302/MJC-4P	Statistical Methods in Geography	4	10		40	50	4		4
	31903 31913	S/GEO/303/MN-3T	Other than Geography Major students: Climatology	4	10	40		50	3	1	
	31904 31914	S/GEO/304/MD-3P	Other than Geography Major students: Remote Sensing Techniques	3	10	40		50	3		3
	31800 31810	ACS/305/AEC-3	MIL	2	10	40		50	2		
	31805 31815	S/GEO/306/SEC-3P	Computer Applications in Geography	3	10		40	50	3		3
	TOTAL IN SEMESTER-III			**20**	**60**	**160**	**80**	**300**	**18**	**2**	**10**

SEM	Course ID	Course Code	Course Title	Credit	Marks				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER - IV	41901 41911	S/GEO/401/MJC-5T	Regional Planning and Development	4	10	40		50	3	1	
	41902 41912	S/GEO/402/MJC-6T	Geography of Economic Activities	4	10	40		50	3	1	
	41903 41913	S/GEO/403/MJC-7P	Mapping Techniques in Geography	4	10	40		50	4		4
	41904 41914	S/GEO/404/MJC-8P	Cartograms and Spatial Mapping	4	10		40	50	4		4
	41905 41915	S/GEO/405/MN-4P	Other than Geography Major students: Cartograms and Spatial Mapping	4	10		40	50	4		4
	41800 41810	ACSHP/305/AEC-4	MIL	2	10	40		50	2		
	41801 41811	ACS/207/INT-2	Summer Internship (Additional)*	**4**							
	TOTAL IN SEMESTER-IV			**22+4**	**60**	**160**	**80**	**300**	**20**	**2**	**12**
TOTAL IN SECOND YEAR				**42+4**	**120**	**320**	**160**	**600**	**38**	**8**	**22**

MJC- Major Core; MN- Minor Paper; MD- Multidisciplinary Paper; AEC- Ability Enhancement Course; SEC- Skill Enhancement Course; VAC- Value Added Course; INT- Internship

***Diploma in Geography can be awarded to a student if he/she completes Summer Internship (at least 1 in 2 years) of 4 credits in addition to total 82 credits in Semesters-I, II, III & IV**

Third Year: Degree in Geography

SEM	Course ID	Course Code	Course Title	Credit	Marks				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER-V	51901 51911	S/GEO/501/MJ C-9T	Geography of India and West Bengal	4	10	40		50	3	1	
	51902 51912	S/GEO/502/MJ C-10P	Techniques in Environmental Geography	4	10		40	50	4		4
	51903 51913	S/GEO/503/MJ E-1T	Advanced Geomorphology	4	10	40		50	3	1	
	51904 51914	S/GEO/504/MJ E-2T	Soil and Biogeography	4	10	40		50	3	1	
	51905 51915	S/GEO/505/MN-5T	Other than Geography Major students: Regional Planning and Development	4	10	40		50	3	1	
	51906 51916	ACS/207/INT-3*	Summer Internship	2	10		40	50			
	TOTAL IN SEMESTER-V			**22**	**60**	**160**	**80**	**300**	**16**	**4**	**4**
	***INT- Summer Internship**										

SEM	Course ID	Course Code	Course Title	Credit	Marks				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER-VI	61901 61911	S/GEO/601/MJ C-11T	Evolution of Geographical Thought	4	10	40		50	3	1	
	61902 61912	S/GEO/602/MJ C-12P	Remote Sensing Techniques	4	10		40	50	4		4
	61903 61913	S/GEO/603/MJ E-3T	Cultural and Settlement Geography	4	10	40		50	3	1	
	61904 61914	S/GEO/604/MJ E-4T	Geography of Tourism	4	10	40		50	3	1	
	61905 61915	S/GEO/605/MN-6P	Other than Geography Major students: Statistical Methods in Geography	4	10		40	50	4		4
	TOTAL IN SEMESTER-VI			**20**	**50**	**120**	**80**	**250**	**17**	**3**	**8**
TOTAL IN THIRD YEAR				**42**	**110**	**280**	**160**	**550**	**33**	**7**	**12**

MJC- Major Core; MJE- Major Discipline Specific Elective; MN- Minor Paper; INT- Internship

***Degree in Geography can be awarded to a student if he/she completes Summer Internship of 2 credits in addition to total 124 credits in Semesters-I, II, III, IV, V & VI**

Fourth Year: Honours/Honours with Research in Geography

SEM	Course ID	Course Code	Course Title	Credit	Marks				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER - VII	71901 71911	S/GEO/701/MJC-13P	Research Methodology and Field Work	4	10		40	50	4		4
	71902 71912	S/GEO/702/MJE-5T	Population Geography	4	10		40	50	3	1	
	71903 71913	S/GEO/703/MJE-6T	Urban Geography	4	10	40		50	3	1	
	71904 71914	S/GEO/704/MJE-7T	Climate Change Vulnerability and Adaptation	4	10	40		50	3	1	
	71905 71915	S/GEO/705/MN-7T*	Other than Geography Major students: Disaster Management	4	10	40		50	3	1	
	TOTAL IN SEMESTER-VII			**20**	**50**	**120**	**80**	**250**	**16**	**4**	**4**

SEM	Course ID	Course Code	Course Title	Credit	MARKS				Teaching Hours/Week		
					IA	ESE		Total	L	T	P
						T	P				
SEMESTER - VIII	81901 81911	S/GEO/801/MJC-14T	Disaster Management	4	10	40		50	3	1	
	81902 81912	S/GEO/802/MJE-8T	Rural Development	4	10	40		50	3	1	
	81903 81913	S/GEO/803/MJE-9T	Medical Geography	4	10	40		50	3	1	
	81904 81914	S/GEO/804/MJE-10T	Political Geography	4	10	40		50	3	1	
	81905 81915	S/GEO/805/MJE-11P	Research Project*	12	30		120	150			12
	81905 81915	S/GEO/805/MN-8P	Other than Geography Major students: Remote Sensing Techniques	4	10	40		50	4		4
	Students secured more than 75% marks in last six semesters who opt for Honours with Research has to complete one Research Project (MJE-11P) of 12 credits under any of the faculty in lieu of 3 DSE papers (DSE-8,9 & 10)										
	TOTAL IN SEMESTER-VIII			**20**	**50**	**200**	**0**	**250**	**16**	**4**	**16**
TOTAL IN FOURTH YEAR				**40**	**100**	**320**	**80**	**500**	**32**	**8**	**20**

MJC- Major Core; MJE- Major Discipline Specific Elective; MN- Minor Paper

Honours in Geography can be awarded to a student if he/she completes Summer Internship (in Semester-V) of 2 credits in addition to total 164 credits in all Semesters.

Honours with Research in Geography can be awarded to a student if he/she completes Summer Internship (in Semester-V) of 2 credits in addition to total 164 credits in all Semesters provided he/she successfully completed Research Project in lieu of 3 DSE papers.

4. Major Courses Syllabus (Core)

4.1 S/GEO /101/MJC-1T: Fundamentals of Physical Geography

Fundamentals of Physical Geography		**4 Credits (60 Hours)**
Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Section-A Definition Oriented**	**(5x2=10)**
	Section-B Short Answer Type	**(5x4=20)**
	Section-C Long Answer Type	**(1x10=10)**

Unit 1: Earth: Origin and Tectonic Processes (20 Hours)

1.1 Origin of Universe (Big Bang Model), Origin of Earth (Nebular Hypothesis of Laplace and Interstellar Dust Cloud Hypothesis of Schimdt)

1.2 Internal Structure of the Earth: Seismological Evidences, physical, chemical and seismic properties of Earth layers

1.3 Isostasy: Models of Airy and Pratt; Continental Drift Theory of Alfred Wegener

1.4 Sea Floor Spreading; Plate Tectonic Theory- Processes at plate margins and Triple Junctions

Unit 2: Geomorphology (20 Hours)

2.1 Degradational Processes: Weathering, Mass Wasting and resultant landforms

2.2 Evolution of landforms on Uniclinal, Folded and Faulted Strata

2.3 Landscape Evolution Models: Davis, Penck and Hack

2.4 Processes of landform development in Karst, Fluvial, Glacial and Aeolian environment

Unit 3: Soil and Biogeography (20 Hours)

3.1 Factors of Soil formation

3.2 Soil profile: origin and profile characteristics of Lateritic, Podzol and Chernozem soils

3.3 Concepts of Biosphere, Ecosystem, Biome and Ecotone

3.4 Concepts of Trophic structure, Food Chain and Food Web. Energy Flow in ecosystem

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- Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
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4.2 S/GEO /201/MJC-2T: Fundamentals of Human Geography

Fundamentals of Human Geography		4 Credits (60 Hours)
Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Section-A Definition Oriented**	**(5x2=10)**
	Section-B Short Answer Type	**(5x4=20)**
	Section-C Long Answer Type	**(1x10=10)**

Unit-1: Nature and Principles (20 Hours)

1.1 Nature and Scope of Human Geography

1.2 Approaches of Study: Resource, Landscape, Environmental and Contemporary

1.3 Recent Trends of Human Geography

1.4 Human Population and Environment with special reference to Development-Environment Conflict

Unit-2: Concept of Human Society (20 Hours)

2.1 Evolution of Human Societies: Hunting, Food Gathering and Pastoral Nomadism

2.2 Concept and Types of Space

2.3 Social Structure and Social Process

2.4 Social Well Being

Unit-3: Concept of Culture (20 Hours)

3.1 Elements of Culture; Culture and Civilization

3.2 Concept of Race and Ethnicity

3.3 Language and Religion

3.4 Human Adaptation to Environment: Eskimo and Santal

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- Raw, M. (1986): Understanding Human Geography: A Practical Approach, Bell and Hyman. London
- Rubenstein, J.M. (2002), The Cultural Landscape, 7th edition, Prentice Hall, Englewood Cliffs
- Smith D M (1982): Human Geography: A Welfare Approach, Edward Arnold, London
- Roy, T.; Mandal, B.; Maity, M.C. (2020), Manabiya Bhugol Anneshwan in Bengali, Kalyani Publishers, Kolkata
- Dhara, S. (2013), Janasonkhya o Basoti Bhugol in Bengali, Naboday Publications, Kolkata
- Mandal, M. (2016), Samajik Bhugol in Bengali, Naboday Publications, Kolkata

5. Minor Courses Syllabus

5.1 S/GEO /102/MN-1T: Fundamentals of Physical Geography

Fundamentals of Physical Geography		**4 Credits (60 Hours)**
Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Section-A Definition Oriented**	**(5x2=10)**
	Section-B Short Answer Type	**(5x4=20)**
	Section-C Long Answer Type	**(1x10=10)**

Unit 1: Earth: Origin and Tectonic Processes (20 Hours)

1.1 Origin of Universe (Big Bang Model), Origin of Earth (Nebular Hypothesis of Laplaceand Interstellar Dust Cloud Hypothesis of Schimdt)

1.2 Internal Structure of the Earth: Seismological Evidences, physical, chemical and seismic properties of Earth layers

1.3 Isostasy: Models of Airy and Pratt; Continental Drift Theory of Alfred Wegener

1.4 Sea Floor Spreading; Plate Tectonic Theory- Processes at plate margins and Tripple Junctions

Unit 2: Geomorphology (20 Hours)

2.1 Degradational Processes: Weathering, Mass Wasting and resultant landforms

2.2 Evolution of landforms on Uniclinal, Folded and Faulted Strata

2.3 Landscape Evolution Models: Davis, Penck and Hack

2.4 Processes of landform development in Karst, Fluvial, Glacial and Aeolian environment

Unit 3: Soil and Biogeography (20 Hours)

3.1 Factors of Soil formation

3.2 Soil profile: origin and profile characteristics of Lateritic, Podzol and Chernozem soils

3.3 Concepts of Biosphere, Ecosystem, Biome and Ecotone

3.4 Concepts of Trophic structure, Food Chain and Food Web. Energy Flow in ecosystem

Reference Books

- Bloom A. L., 2001: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.
- Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
- Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
- Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
- Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
- Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
- Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
- Thornbury W. D., 1969: Principles of Geomorphology, Wiley.
- Khullar, D.R. (2012), Physical Geography, Kalyani Publishers, New Delhi
- Mukhopadhyay, S.; Mukhopadhyay, M.; Pal, S. (2010), Advanced River Geography, ACB Publications, Kolkata
- Choudhuri, S.K. (2018), Fundamentals of Geotectonics, New Central Book Agency, Kolkata
- Biswas, T.D. and Mukherjee, S.K. 1997: Textbook of Soil Science, Tata McGraw Hill,
- De, N. K. and Jana, N. C. (2016): The Land: Multifaceted Appraisal andManagement, Sribhumi Publishing House, Kolkata, Reprint
- Chapman J.L. and Rens, M.J. 1993. Ecology: Principle and Applications, Cambridge University Press, Cambridge:
- Chairas, D.D. Reganold, J.P. and Owen, O.S. 2002. National Resource Conservation and management for a Sustainable Future, 8th edition, Prentice Hall, Englewood Cliffs
- Dash, M.C., 2001. Fundamental of Ecology, 2nd edition, Tata McGrawHill, New Delhi
- Haggett, R. 1998. Fundamentals of Biogeography, Routledge, London:
- Kormondy, E.J. 1996. Concept of Ecology, 4th edition, Prentice- Hall, India, NewDelhi
- Mukhopadhyay, S.; Das, R. (1994), Bhumirup: Udvab o Prakriti Vol-I & II in Bengali, Paschimbanga Rajya Pustak Parshad, Kolkata
- Basu, P. (2006), Bhugathonik Prakriya o Bhumirup in Bengali, Books and Allied, Kolkata
- Basu, S.; Maiti, R. (2022) Adhunik Bhumirup Bigyan, Naboday Publications, Kolkata
- Sil, A. (2012), Bhugathon o Bhumirupbidya in Bengali, The Himalayan Books, Kolkata
- Sil, A. (2013), Prakriya Bhumirupbidya in Bengali, The Himalayan Books, Kolkata
- Basu, P. (2014), Prakriya Sonkranta Bhumirupbidya o Sanshlishto Jalobigyan in Bengali, Books and Allied, Kolkata
- Das, C; Pramanick, T.K. (2018), Prakritik Bhugol in Bengali, Innova Publications, Kolkata
- Chattopadhyay, G. (2019), Mahajagotik Rahasyo in Bengali, Akshar Prakashan, Kolkata

- Sengupta, P.K. (2019), Bhumikampo in Bengali, Education Forum, Kolkata
- Saha, S; Roy, T. (2019), Bhugathonik Prakriya o Bhumirupbidya in Bengali, Kalyani Publishers, Kolkata
- Maity, A.K.; Manna, S. (2020), Bhugathonik o Bhumirupbidya Prosonge in Bengali, Deb Prakashani, Kolkata
- Tikadar, S. (2022), Prakritik Bhugol in Bengali, Book Syndicate, Kolkata
- Choudhury, S.K. (2017), Bhougolik Bastubidya in Bengali, Central Book Agency, Kolkata
- Das, C.; Pramanik, T.K. (2020), Poribesh Bhugol in Bengali, Innova Publications, Kolkata
- Bera, B.; Bhattacharjee, S.; Sengupta, N. (2016), Jib Bhugol o Poribesh in Bengali, Naboday Publications, Kolkata
- Sil, A. (2015), Jib Bhugol in Bengali, The Himalayan Books, Kolkata
- Sil, A. (2015), Mritwika Bhugol in Bengali, The Himalayan Books, Kolkata
- Das, P.K. (2013), Adhunik Mritwika Bhugol in Bengali, Naboday Publications, Kolkata
- Basu, P. (2012), Mritwika Bigyan: Tathya o Abhigyota, Books and Allied, Kolkata

Reference Websites

- http://www.solarviews.com/eng/earth.htm
- http://www.moorlandschool.co.uk/earth/tectonic.htm
- https://www.usgs.gov

5.2 S/GEO /202/MN-2T: Fundamentals of Human Geography

Fundamentals of Human Geography	4 Credits (60 Hours)

Total Marks: 50 (IA-10 Marks + ESE-40 Marks)

Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Section-A Definition Oriented**	**(5x2=10)**
	Section-B Short Answer Type	**(5x4=20)**
	Section-C Long Answer Type	**(1x10=10)**

Unit-1: Nature and Principles (20 Hours)

1.1 Nature and Scope of Human Geography

1.2 Approaches of Study: Resource, Landscape, Environmental and Contemporary

1.3 Recent Trends of Human Geography

1.4 Human Population and Environment with special reference to Development-Environment Conflict

Unit-2: Concept of Human Society (20 Hours)

2.1 Evolution of Human Societies: Hunting, Food Gathering and Pastoral Nomadism

2.2 Concept and Types of Space

2.3 Social Structure and Social Process

2.4 Social Well Being

Unit-3: Concept of Culture (20 Hours)

3.1 Elements of Culture; Culture and Civilization

3.2 Concept of Race and Ethnicity

3.3 Language and Religion

3.4 Human Adaptation to Environment: Eskimo and Santal

Reference Books

- Bergman, E.F (1995): Human Geography-Culture, Connections and Landscape, Prentice Hall, New Jersey
- Chisholm. (1975): Human Geography, Penguin Books, Hermondsworth.
- Daniel, P.A. and Hopkinson, M.F. (1989): The Geography of Settlement, Oliver & Boyd, London.
- Johnston R, Gregory D, Pratt G. et al. (2008): The Dictionary of Human Geography, Blackwell Publication.
- Jordan-Bychkov et al. (2006): The Human Mosaic: A Thematic Introduction toCultural Geography. W. H. Freeman and Company, New York.Norton. W. (2001): Human
- Pearce D. (1995): Tourism Today: A Geographical Analysis, 2nd edition, Longman Scientific & Technical, London
- Pickering K. and Owen A. A. (1997): An Introduction to Global Environmental Issues, 2nd edition Rutledge, London.
- Raw, M. (1986): Understanding Human Geography: A Practical Approach, Bell and Hyman. London
- Rubenstein, J.M. (2002), The Cultural Landscape, 7th edition, Prentice Hall, Englewood Cliffs
- Smith D M (1982): Human Geography: A Welfare Approach, Edward Arnold, London
- Roy, T.; Mandal, B.; Maity, M.C. (2020), Manabiya Bhugol Anneshwan in Bengali, Kalyani Publishers, Kolkata
- Dhara, S. (2013), Janasonkhya o Basoti Bhugol in Bengali, Naboday Publications, Kolkata
- Mandal, M. (2016), Samajik Bhugol in Bengali, Naboday Publications, Kolkata

6. Multidisciplinary Courses Syllabus

6.1: S/GEO/103/MD-1P: Surveying and Mapping Techniques

Surveying and Mapping Techniques		**3 Credits (45 Hours)**
Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Question-1**	**(1x10=10)**
	Question-2	**(1x10=10)**
	Question-3	**(1x10=10)**
	Lab Note Book & Viva-Voce	**(5+5=10)**

Instruction for Laboratory Note Book

- **Practical works are to be completed in the classroom.**
- **Works to be done manually or with the help of computer software and signed by class teachers.**
- **Laboratory Note Books have to be submitted in the examination.**

Unit-1: Conventional Surveying (15 Hours)

1.1 Concepts and Principles: Angle and Bearing, Traversing, Radiation, Intersection
1.2 Prismatic Compass: Preparation of land use maps by open and closed traverse; computations of compass traverse- Included Angle, Area of traverse
1.3 Levelling by Dumpy Level: Profile and Contouring
1.4 Calculation of Height and Distance by Transit Theodolite (Base accessible and inaccessible)

Unit-2: GNSS Surveying (15 Hours)

2.1 Basic Concept: GNSS and GPS, Segments, PRN Code, Waypoints and Tracks, Sources of Error
2.2 Distance Calculation, Open and Closed Traverse.
2.3 Plotting in Microsoft Excel
2.4 GNSS/GPS data downloading in software and mapping.

Unit 3: Mapping Techniques (15 Hours)

3.1 Population Maps and Diagrams: Choropleth method
3.2 Measures of Inequality: Location Quotient
3.3 Measures of Interaction: Nearest Neighbour Analysis
3.4 Combinational Analysis: Weaver's Crop Combination

References

- Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
- Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
- Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
- Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
- Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and
- Future, Elsevier, International Cartographic Association.
- Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
- Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
- Agor, R. (1999), Textbook of Surveying and Levelling, Khanna Publishers, Delhi
- Venkatramaiah, C. (2011), Textbook of Surveying, Universities Press, Hyderabad
- Adhikari, S. (2005), Honours Byaboharik Bhugol, Vol-I, Dove Publishing House, Midnapore
- Das, N.; Khatun, S. (2021), Kartographi- Dharona o Prayog in Bengali, Kalyani Publishers, Kolkata

6.2: S/GEO/203/MD-2P: Geographical Information System

Geographical Information System	3 Credits (45 Hours)

Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Question-1**	**(1x10=10)**
	Question-2	**(1x10=10)**
	Question-3	**(1x10=10)**
	Lab Note Book & Viva-Voce	**(5+5=10)**

Instruction for Laboratory Note Book

- **Practical works are to be completed in the classroom.**
- **Works to be done in computer and signed by class teachers.**
- **Laboratory Note Books have to be submitted in the examination.**

Unit-1: Basic Concepts (15 Hours)

1.1 Components of GIS
1.2 Projection and Datum
1.3 Data Structure: Raster and Vector
1.4 Introduction to QGIS Software

Unit-2: GIS Data Input (15 Hours)

2.1 Georeferencing, Digitization of maps using in QGIS Software
2.2 Import of Excel Data in QGIS
2.3 Attribute Data Handling
2.4 Map Composition and Layout

Unit 3: GIS Mapping (15 Hours)

3.1 Choropleth Map
3.2 Isopleth Map
3.3 Proportional Pie
3.4 Bargraph

References

- Jatin Pandey and Darshana Pathak, 2013, Geographic Information System,TERI Publishing House.
- Chor Pang Lo, 2009, Concepts and Techniques of Geographic InformationSystem, Prentice Hall.
- Michael N. Demers, 2012, Fundamentals of Geographic InformationSystems, Willy.
- Chairsman, N. 1992. Exploring Geographical Information Systems, John
- Willey and Sons Inc., New York, 198p

7. Skill Enhancement Courses Syllabus

7.1: S/GEO/105/SEC-1P: Elementary Practicals in Geography

Elementary Practicals in Geography		3 Credits (45 Hours)
Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Question-1**	**(1x10=10)**
	Question-2	**(1x10=10)**
	Question-3	**(1x10=10)**
	Lab Note Book & Viva-Voce	**(5+5=10)**

Instruction for Laboratory Note Book

- **Practical works are to be completed in the classroom.**
- **Works to be done manually in note books and signed by class teachers.**
- **Laboratory Note Books have to be submitted in the examination.**

Unit-1: Map Scale (15 Hours)

1.1 Definition and Types of Map Scale
1.2 Construction of Linear, Comparative (Unit), Diagonal and Vernier scales.
1.3 Scale Enlargement and Reduction (Computations)
1.4 Calculation of area from maps (Graphical Methods)

Unit-2: Map Projections (15 Hours)

2.1 Map Projections: Nature, Classification and Uses
2.2 Basic Concepts: Parallels and Meridians, Datum, Geoid, Scale Factor, Deformation, Orthodrome and Loxodrome.
2.3 Principles, Theories, Construction and Properties of select Map Projections: Conical Case- Simple Conical with one Standard Parallel and Polyconic; Cylindrical Case- Equal Area, Mercator; Zenithal Case- Gnomonic, Stereographic
2.4 UTM Grid System.

Unit-3: Rocks-Minerals and Instruments (15 Hours)

3.1 Megascopic Identification of Rocks: Granite, Basalt, Limestone, Shale, Sandstone, Slate, Marble and Schist
3.2 Megascopic Identification of Minerals: Bauxite, Calcite, Chalcopyrite, Feldspar, Galena, Haematite, Magnetite and Quartz
3.3 Recording of Maximum-Minimum Thermometer (Six's)
3.4 Recording of Fortin's Barometer, Hygrometer

Reference Books

- Anson R. and Ormelling F. J., 1994: International Cartographic Association: BasicCartographic Vol. Pregmen Press.
- Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, NewDelhi.
- Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, NewDelhi.
- Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen,London.
- Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
- Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
- Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, KalyaniPublishers.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black SwanPrivate Ltd., New Delhi
- Adhikari, S. (2005), Honours Byaboharik Bhugol, Vol-I, Dove Publishing House, Midnapore
- Das, N.; Khatun, S. (2021), Kartographi- Dharona o Prayog in Bengali, Kalyani Publishers, Kolkata

Online Materials

- https://egyankosh.ac.in/bitstream/123456789/66733/1/Experiment-1.pdf
- https://egyankosh.ac.in/bitstream/123456789/66739/1/Experiment-7.pdf
- https://www.atri.edu.in/images/pdf/departments/Manual_Geology.pdf

7.2: S/GEO/205/SEC-2P: GIS and GNSS Applications

GIS and GNSS Applications	3 Credits (45 Hours)

Total Marks:	**50 (IA-10 Marks + ESE-40 Marks)**	
Question Pattern:	**Question-1**	**(1x10=10)**
	Question-2	**(1x10=10)**
	Question-3	**(1x10=10)**
	Lab Note Book & Viva-Voce	**(5+5=10)**

Instruction for Laboratory Note Book

- **Practical works are to be completed in the classroom.**
- **Works to be done in computer and signed by class teachers.**
- **Laboratory Note Books have to be submitted in the examination.**

Unit-1: Geographical Information System (15 Hours)

1.1 GIS: Basic Concepts
1.2 Components of GIS
1.3 Development of GIS Technology
1.4 GIS Data structure: Raster and Vector

Unit-2: Introduction to GNSS (15 Hours)

2.1 Basic Concept: GNSS and GPS, Segments, PRN Code, Waypoints and Tracks
2.2 Distance Calculation, Open and Closed Traverse.
2.3 Plotting in Microsoft Excel
2.4 GNSS/GPS data downloading in software and mapping.

Unit 3: Mapping in GIS (15 Hours)

3.1 Geo-referencing, Digitization of maps using QGIS Software
3.2 Attribute data creation and uses: Choropleth, Bar, Pie, Proportional circles and Dot Diagram
3.3 Map Composition
3.4 Layout

References

- Jatin Pandey and Darshana Pathak, 2013, Geographic Information System,TERI Publishing House.
- Chor Pang Lo, 2009, Concepts and Techniques of Geographic InformationSystem, Prentice Hall.
- Michael N. Demers, 2012, Fundamentals of Geographic InformationSystems, Willy.
- Chairsman, N. 1992. Exploring Geographical Information Systems, John
- Willey and Sons Inc., New York, 198p

8. Course Objectives

The principal objectives of this undergraduate course in Geography are:

i. To understand the core content and techniques particularly modern techniques in geography.

ii. To explore the theories and techniques used in regional planning and development.

iii. The syllabus also aims to develop basic skills of the subject to prepare students to pursue higher studies in geography and to make them successful in search of suitable employment.

9. Course Outcomes

The Geography is the study of distribution of elements over space as well as the mutual and reciprocal relationship between man and environment. It also studies different activities of man in different milieu of life in changing the face of the earth, how 'space' turns into 'place' with different values added to it by man's varied modes of life with due emphasis on major empirical questions of 'what', 'why', 'how' and 'where'. Therefore, the study of this discipline at undergraduate level would have the following learning outcomes in general:

i. It helps to develop a holistic understanding of the earth as the home of man.

ii. Student can understand what Geography really is. They shall come to know that geography is not merely a 'science of placenames', rather it is true science of distribution with expertise in various modern skills and techniques.

iii. Students will be to find their place in job market both in academic as well as corporate sector.

iv. Students also can explore the engineering aspects of the discipline particularly Geoinformatics, Geoinformation Science, Geomatics Engineering etc.

v. At the end of the course, students will be capable of segmenting the whole discipline in three different components- physical, human and applied.

10. Course Specific Outcomes

Geography is widely accepted as the most emerging science in recent years due to its versatile character to include contents of both science and humanities. Therefore, students from both the streams can choose the subject at their undergraduate level. Bankura University offers B.Sc, degree in Geography keeping in view the demand of the students as well as towards making it more suitable for higher education where stiff competition is prevailed from other science students. Since its inception, the university follows CBCS curriculum based on UGC guidelines with slight modification in view of the local aspects. Geography basically deals with space. The spatial aspects of the earth, their guiding laws and theories, nature and evolution are recorded and represented through a number of instrumental and mechanical ways. A holistic view of the Earth as an entity and the features within the earth are taught to students. The evolution of natural landscape to cultural landscape is illustrated. The mapping techniques are guides to represent all the physical, social, cultural features through proper scaling and elaborative description. The project based studies and analysis are very helpful in building up a research outlook among the students. They learn about the sample drawing procedures and detailed idea about the important issues around them. The course is intersected into several small sections and put under expert faculties of that field to provide the students the desired benefit of the course. The course outcome/learning outcome along with the broad divisions of the syllabus are represented as under:

Course Code	Course Title	Course Outcome/Learning Outcome
UG (Semester- I)		
S/GEO/101/MJC-1T S/GEO/102/MN-1T	Geotectonics and Geomorphology	1. Understanding origin and evolution of Earth with special reference to cross-cutting approach like Big Bang Model 2. To have an idea of our dynamic earth and its geological make up. 3. Understanding major processes that are responsible for its surface features.
S/GEO/103/MD-1P	Surveying and Mapping Techniques	1. Learning measurement of the various features of the earth by developing expertise on cartographic methods and techniques 2. Developing concepts in projecting the earth as a planet. 3. Measuring the earth's surface features on horizontal and vertical planes through learning of different surveying and levelling operations. 4. Develop skills of map making and basics of cartography. 5. They will also be able to handle GPS/GNSS devices, collect waypoints and working with them in MS-EXCEL as well as GIS platforms.
S/GEO/105/SEC-1P	Computer Basics and Applications	1. Students will learn basics of computer architecture-hardware and software components, operating systems, input and output devices etc. 2. They will be made capable of handling MS-EXCEL particularly statistical calculations, formula making and graphical representation of data which has immense application in higher studies.
UG (Semester- II)		
S/GEO/201/MJC-2P S/GEO/202/MN-2P	Cartographic Techniques	6. Learning measurement of the various features of the earth by developing expertise on cartographic methods and techniques 7. Developing concepts in projecting the earth as a planet. 8. Measuring the earth's surface features on horizontal and vertical planes through learning of different surveying and levelling operations.
S/GEO/203/MD-2P	Geographical Information System	1. Students will have practical experience on handling GIS softwares and its theoretical background. 2. At the UG level, students will also be able to make their own maps in GIS software and they will have hands on experience on Digital Cartography.
S/GEO/105/SEC-1P	GIS and GNSS Applications	1. Students will have practical experience on handling GIS softwares and its theoretical background. 2. They will also be able to handle GPS/GNSS devices, collect waypoints and working with them in MS-EXCEL as well as GIS platforms. 3. At the UG level, students will also be able to make their own maps in GIS software and they will have hands on experience on Digital Cartography.

11. Technical Skillsets and possible Job opportunities after each exit

Semester	Exit Level	Credits	Technical Skillsets	Job Opportunities
II	Certificate	40+4	• Geomorphic Analysis • Map Interpretation • Surveying skill • GIS Mapping skill • GNSS Surveying	• Field Surveyor • GIS Expert in Govt. and private sector • Digital Cartographer
IV	Diploma	82+4	• Climatic Data Analysis • Map Interpretation • Surveying skill • GIS Mapping skill • GNSS Surveying	• Field Surveyor • GIS Expert in Govt. and private sector • Digital Cartographer
VI	Degree	124	• Map Interpretation • Surveying skill • GIS Mapping skill • GNSS Surveying • Tourism Management • Digital Image Processing	• Field Surveyor • GIS Expert in Govt. and private sector • Project Assistants in academic institutions • Hotels and Tourist Industries such as Travel Agency, Transport Operators
VIII	Degree with Honours/ Research	164	• Map Interpretation • Disaster Management Techniques • Climate Change concepts • Knowledge on diseases and their distribution	• Tourism Planner • Town Planner • Cartographer • GIS Consultant • Geography Teacher • Geography Researcher