

COOCH BEHAR PANCHANAN BARMA UNIVERSITY

SYLLABUS FOR M.Sc. IN GEOGRAPHY (FOUR SEMESTER COURSE)

Semester Examination

SEMESTER – I

Course No. – C-1

First Semester

Course no.	Name of Course	Marks				Credit
		ESE	CE	A	Total	
C-1	Geomorphology and Oceanography	75	20 (Class Test)	5	100	5
C-2	Climatology and Biogeography	75	20 (Seminar)	5	100	5
C-3	Population and Settlement Geography	75	20 (Seminar)	5	100	5
C-4	General Practical	75	(10+10) Practical Laboratory Book and Viva	5	100	5

SEMESTER – I

Course No. – C-1

Course Name: GEOMORPHOLOGY & OCEANOGRAPHY

GEOMORPHOLOGY

Unit–I: Nature and scope of geomorphology: Fundamental concepts, systems in geomorphology; Geo-chronological methods: Concept of dating, Relative and absolute dating – principles and techniques; Geological time scale and major events on earth surface.

Unit–II: Periglacial process and landforms; Hill slope forms and processes: Mass movements – causing factors, classification and remedial conservative measures; Slope: Evolution, forms, parallel retreat and slope replacement models.

Unit–III: Numerical modeling of landscape evolution; Erosion surfaces; Applied geomorphology: Geomorphic hazards and mitigation measures; Geomorphology and economic deposits; Geomorphology in engineering construction.

OCEANOGRAPHY

Unit–I: Nature and scope of oceanography; History of oceanographic expedition; Ocean bottom relief: Indian, Pacific and Atlantic Oceans; Ocean deposits; Coral reefs; UNCLOS.

Unit–II: Temperature and salinity of the oceans; Density of sea water; Tides and ocean currents; Sea-level changes; Exclusive economic zone; Food and mineral resources of the sea; India's off-shore wealth.

References: GEOMORPHOLOGY

1. Ahnert, Frank, 1998: Introduction to Geomorphology, Arnold Publishers Ltd., London, UK, First Edition.
2. Alt, David, 1982: Physical Geology: Approach, Wardsworth Publishing Company, California, USA, First Edition.
3. Bartholomed, Rolland B. and Tillery, Bill W., 1984: Earth Science, D.C. Heath & Co., Lexington, USA, First Edition.
4. Bradshaw, M.J., Abbott, A.J. and Gelsthorpe, A.P., 1978: The Earth's Changing surface, Hodder & Stoughton, London, UK, First Edition.
5. Butzer, Karl W., 1976: Geomorphology from the Earth, Harper and Row, Publishers, New York, USA, First Edition.
6. Chorley, R.J. & Kennedy, 1971; Physical Geography: A systems approach, Prentice Hall.
7. Chorley, Richard J., Schumm, Stanley, A. and Sugden, David E., 1985: Geomorphology, Methuen & Company, New York, USA, First Edition.
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16. Gilluly, James, Waters, Arron C. and Woodford, A.O., 1968: *Principles of Geology*, W.H. Freeman and Company, London & Toppan Company, Ltd., Tokyo, Japan, Third Edition.
17. Holmes, Arthur, 1965: *Principles of Physical Geology*, First ELBS and Nelson Edition, London, UK, Second Edition.
18. Kale, Vishwas S. and Gupta, Avijit, 2001: *Introduction to Geomorphology*, Orient Longmen, Calcutta, First Edition.
19. King, Lester C., 1967: *The morphology of the earth: A study and synthesis of world scenary*, Oliver and Boyd, Edinburg, UK, Second Edition.
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21. Rice, R.J., 1977: *Fundamentals of Geomorphology*, Longman Group Ltd., London, UK, First Edition.
22. Selby, M.J., 1993: *Hillslope materials and processes*, Oxford University Press, Oxford, Second Edition.
23. Small, R. J., 1978: *The study of Landforms: A Textbook of Geomorphology*, Cambridge University Press, Cambridge, UK, Second Edition.
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26. Trinkler, K.J., 1989: *History of Geomorphology: From Hutton to Hack*, Unwin Hayman, Winchester, USA, First Edition.
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Reference: OCEANOGRAPHY

1. Ahmed, E., 1972: *Coastal Geomorphology of India*, Orient Longman Limited, New Delhi, India, First Edition.
2. Bose, A.N., Dwivedi, S.N., Danda, Ajit K., Mukhopadhyay, Dilip and Bandyopadhyay, K.K., (Ed.), 1989: *Coast Zone Management of West Bengal*, Sea Explorers' Institute, Calcutta.
3. Darke, Charles L., Imbrie, John, Knauss, John A. and Turekian, Karl K., 1978: *Oceanography*, Holt, Rinchart and Winston, New York, USA, First Edition.
4. Defant, Albert, 1961: *Physical Oceanography*, Pergamon Press, London, UK, First Edition, Volume – I.

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6. Garrison, T., 2001: Oceanography-An Introduction to Marine Science, Books/Cole, Pacific Grove, USA.
7. Gross, M. Grant, 1987: Oceanography, a view of the Earth, Prentice–Hall Inc., New Jersey.
8. Guilcher, Andre, 1958: Coastal and Submarine Morphology, Methuen & Co. Ltd., London, UK, Translated by B.W. Sparks and Rev. RHW Kneese.
9. Idyll, C.P., 1978: The Sea against hunger: harvesting the oceans to feed hungry world, Apollo Editions, New York, USA, New updated Edition.
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12. King, C.A.M., 1972: Beaches & Coasts, Edward Arnold (Publishers) Ltd., London, U.K., Second Edition.
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24. Williams, W.W., 1960: Coastal Changes, Routledge & Kegan Paul, London, UK, First Edition.
25. Yasso, Warren E. 1965: Oceanography, A Study of Inner Space, Holt, Rinehart and Winston, Inc., N.Y., USA, First Edition.

Course No. –C-2

Course Name: CLIMATOLOGY & BIOGEOGRAPHY

CLIMATOLOGY

Unit–I: Composition and structure of the atmosphere; Insolation; Heat budget of the earth; Distribution of temperature; Atmospheric pressure and general circulation of winds: planetary and local winds; Monsoon and jet stream; Stability and instability of the atmosphere.

Unit–II: Air pressure; Air masses and frontogenesis; Temperate and tropical cyclones; Types and distribution of precipitation; Classification of world's climate: Koppen's, Thornthwaite's and Trewartha's scheme; Climate change and global warming: evidences, probable causes and impact; Society's response to climate change.

BIOGEOGRAPHY

Unit–I: Physical factors influencing world distribution of plants and animals; Forms and functions of ecosystem; Forest, grassland, marine and mountain ecosystem; Bio-diversity and its depletion through natural and man induced causes; Conservation and management of ecosystem.

Unit–II: Genesis of soils; Soil profile; Classification and distribution of soils; Soil erosion; Soil degradation and conservation; Social forestry and agro-forestry; Wild Life; Major gene pool centers.

References: CLIMATOLOGY

1. Barry, R.G. and Chorley, R.G., Atmosphere, Weather and Climate, Methuen & Co., London, 1968.
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12. Mason, B.J., Clouds, Rain and Rain making, Cambridge University Press, Cambridge, 1962.
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19. Saha, P.K., Nature and Natural Processes in ‘Environment’, Calcutta University, Calcutta, 2000.
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References: BIOGEOGRAPHY

1. Aaradhana, P.S., 1998: Himalayan Ecology, Rajat Publications, Delhi.
2. Brodie, Juliet, 1985: Grassland studies; Practical ecology series, George Allen & Unwin Publishers Ltd., London.
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18. Woodward, F.I., 1987: Climate and Plant distribution, Cambridge series in Ecology, Cambridge University Press, Cambridge

Course Name: POPULATION & SETTLEMENT GEOGRAPHY

POPULATION GEOGRAPHY

Unit–I: Nature and scope of population geography; Data sources; Population dynamics: Fertility, mortality and migration; Theories of population growth: Malthus, Marx, optimum and demographic transition; Migration theories: Ravenstien and Everetts Lee.

Unit–II: Population resource region; Human development index; India's population: Population distribution, density and growth; National population policy.

SETTLEMENT GEOGRAPHY

Unit–I: Site, situation, types, size and spacing of settlement and internal morphology of rural and urban settlements; Ecological processes of urban growth; Urban fringe; City-region; Settlement system; Primate city; Rank-size rule; Settlement hierarchy; Christaller's Central Place theory; August Losch's theory of Market Centers.

Unit–II: Urban settlement; Morphology of Indian cities; Functional classification of towns; Conurbation and metropolitan region; Urban sprawl; Slum and associated problems; town planning; Problems of urbanization in India and remedies.

References: POPULATION GEOGRAPHY

1. Berclay George W. – Techniques of Population analysis.
2. Bhattacharya A. – Human migration through the ages, The Calcutta Review, new Series, Vol. III, No. 1, 1977.
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References: SETTLEMENT GEOGRAPHY

1. Ambrose, Peter, 1970: Concepts in Geography, Vol.-I, Settlement Pattern, Longman.
2. Baskin, C., (Translator) 1996: Central Places in Southern Germany, Prentice-Hall Inc. Englewood Cliffs New Jersey, Originally written by C.W. Christaller in German with title Dio Zentralen Orle Suddeutsch land in 1933.
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4. King, Leslie, J., 1986: Central Place Theory, Saga Publications, New Delhi.
5. Mayer, M. Harold and Clyde F. Kohn (Ed.) 1967 Readings in urban Geography, Central Book Depot, Allahabad.
6. Mitra, Asok, Mukherjee S and Bose, R., 1980: Indian Cities Abhinav Publications, New Delhi.
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8. Prakasa, Rao, V.L.S., 1992: Urbanisation in India: Spatial Dimensions, Concept Publishing Co., New Delhi.
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Course No. – 104

Course Name: GENERAL PRACTICAL

Unit-I: Surveying

- i) Contouring of an area with the help of Dumpy Level
- ii) Theodolite Survey: Principles and application, Measurement of height of an object with the help of Theodolite when the base is inaccessible
- iii) Total Station and GPS survey

Unit-II: Map Projection

- i) Concepts, types, properties and uses of map projection
- ii) Simple Conical Projection with Two Standard Parallels
- iii) Cylindrical Equal-Area Projection
- iv) Polyconic Projection
- v) Polar Zenithal Gnomonic Projection
- vi) Universal Transverse Mercator (UTM)

Unit-III: Study of Topographical Maps

- i) Principles of topographical map and numbering system
- ii) Drainage patterns; Basin demarcation, Morphometric analysis – Stream ordering (Strahler), basin circulatory and elongation ratio, drainage density and texture, relative relief and dissection index
- iii) Altimetric and hypsometric curves
- iv) Nearest neighbor analysis of settlements
- v) Interpretation of physical and cultural landscapes

References

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4. Hinks, A.R.: Map Projections, Cambridge University Press, Cambridge, UK, First Edition, 1921.
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