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DEBRA THANA SAHID KSHUDIRAM SMRITI MAHAVIDYALAYA

(Autonomous)

P.O.- CHAKSHYAMPUR , DIST.- PASCHIM MEDINIPUR PIN:-7221124 , WEST BENGAL, INDIA

DEPARTMENT OF GEOGRAPHY

4 years Major and Minor course

Syllabus Framework for the Semester-II (Major & Minor)

Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
								CA	ESE	Total
B.Sc. (Hons.)	1 st	II	SEMESTER-II							
			Major-02	UG/II/GEO/4/ MJ-2	T: Climatology P: Climatology Lab (Practical)	4	3-0-1	15	60	75
			SEC-02	UG/II/GEO/4/ SE-2P	P: Coastal Management (Practical)	3	0-0-3	10	40	50
			AEC	AEC02	MIL-1 (common for all programmes)	2	2-0-0	10	40	50
			MDC	MDC02	Multidisciplinary Course -02 (<i>to be chosen from the list</i>)	3	3-0-0	10	40	50
			VAC	VAC 02	Value added Course 02 (<i>to be chosen from the list</i>)	4	4-0-0	10	40	50
			Minor-02 (Disc.-II)	UG/II/GEO/3/ MI-2T	T: Human Geography (<i>To be taken by students of other Disciplines</i>)	4	3-0-1	15	60	75
		Summer Intern	CS	Community Service	4	0-0-4	-	-	50	
		Semester-II Total					24			

CC = Core Course, AECC = Ability Enhancement Compulsory Course, GE = Generic Elective , SEC = Skill Enhancement Course DSE = Discipline Specific Elective, CA= Continuous Assessment, ESE= End Semester Examination, TBD=To be decided, CT = Core Theory, CP=Core Practical, L = Lecture, T = Tutorial, P = Practical, MIL = Modern Indian Language, ENVS = Environmental Studies



Syllabus for the Semester-II (Major) Theory (for 4 years Course)

Paper:- UG/II/GEO/4/MJ-2

Credits:-4

Full Marks:-75

Climatology

Course Learning Outcomes:

This course provides an understanding of atmospheric composition, energy balance, and temperature variation. It enables students to explain weather phenomena such as condensation, precipitation, wind systems, and cyclones. Students analyze monsoon dynamics, global climate patterns, and climate classification systems. Practical skills include measuring weather elements, interpreting maps, and creating climate diagrams. Overall, the course develops both theoretical and practical knowledge of atmospheric processes and the climate system.

Paper: - UG/II/GEO/4/MJ-2T Climatology (Theory)

3 Credits/40 marks

Course contents:

Unit I: Elements of the Atmosphere

1. Nature, composition and layering of the atmosphere.
2. Insolation: Controlling factors. Heat budget of the atmosphere.
3. Temperature: horizontal and vertical distribution. Inversion of temperature.
4. Climate change: Greenhouse effect and global warming, Ozone depletion, climate change effect.

Unit II: Atmospheric Phenomena and Climate Classification

5. Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence theory. Forms of precipitation and global distribution.
6. Atmospheric Circulation : Planetary winds, jet streams, index cycle. El nino & Southern Oscillation.
7. Atmospheric disturbance: Tropical and mid-latitude cyclones, thunderstorms.

8. Monsoon circulation and mechanism with reference to India.

9. Climate classification after Thornthwaite (1995) and Koppen.

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Suggested reading:-

- Ahrens, C.D. 2012. Essentials of Meteorology: An Invitation to the Atmosphere. 9th ed, Cengage Learning.
- Barry, R.G., Chorley R.J. 2009. Atmosphere Weather and Climate. 9th ed, Routledge.
- Critchfield, H. J. 1983. General Climatology. Prentice Hall India (2010 Reprint).
- Dessler, A.E. 2021. Introduction to Modern Climate Change, 3rd ed, Cambridge University Press.
- Hidore, J.J., Oliver, J.E., Snow, M., Snow, R. 2020. Climatology: An Atmospheric Science, 3rd ed, Pearson.
- Lal, D.S. 2012. Climatology. Sharda Pustak Bhawan.
- Lutgens, F.K., Tarbuck, E.J. 1998. The Atmosphere: An Introduction to Meteorology, 9th ed, Prentice-Hall.
- Oliver, J.E., Hidore J.J. 2002. Climatology: An Atmospheric Science, Pearson Education India.
- Rohli, R.V., Vega, A.J., 2017. Climatology, 4th ed, Jones & Bartlett Learning.
- WEBSITES:
- India Meteorological Department: <https://mausam.imd.gov.in>
- Intergovernmental Panel on Climate Change: <https://www.ipcc.ch>
- World Bank Climate Change Knowledge Portal: <https://climateknowledgeportal.worldbank.org>
- World Meteorological Organization: <https://public.wmo.int/en>



Climatology Lab (Practical)

Course contents:

1. Measurement of weather elements using analogue instruments: Mean daily temperature, air pressure, relative humidity and rainfall.
2. Components and Classification of Maps. Interpretation of a daily weather map of India (any two): Pre-Monsoon, monsoon and post monsoon.
3. Construction and interpretation of monthly rainfall dispersion diagram (quartile method). Seasonal water budget.
4. Construction and interpretation of hythergraph and climograph (after Taylor).
5. Laboratory Notebook and Viva-Voce (5 marks).

Suggested Readings:

- Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.
- Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.
- Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.
- Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.
- WEBSITES:
 - India Meteorological Department: <https://mausam.imd.gov.in>
 - Climatological tables of observatories of India:
<https://www.imdpune.gov.in/library/public/Climatological%20Tables%201991-2020.pdf>



Skill Enhancement Course (SEC) for 4 years Course

Paper:- UG/II/GEO/4/SE-2P

Credits: -3

Full Marks:-50

SEC-1 P: Coastal Management

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Course Learning Outcomes:

The course develops an understanding of coastal types, processes, and morpho-dynamic variables shaping coastal landforms. It enables students to evaluate the impacts of human activities and formulate sustainable coastal management strategies. Learners gain knowledge of coastal hazards and apply both structural and non-structural mitigation approaches. The course explains legal and policy frameworks like EEZ and CRZ in the Indian context. Practical components enhance skills in applying Remote Sensing and GIS in coastal analysis and project-based assessments.

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Course contents:

1. Coast: Definition, types. Coastal Process and forms. Coastal morpho-dynamic variables and their role in evolution of coastal forms.
 2. Impacts and management of anthropogenetic activity: Fishing, mining, oil exploration, salt manufacturing, land reclamation and tourism.
 3. Coastal hazards and their management using structural and non-structural measures: cyclone, erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation and pollution
 4. Principles of Coastal Zone Management. Exclusive Economic Zone and Coastal Regulation Zones with reference to India.
 5. Application of Remote Sensing & GIS in coastal studies and management.
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Suggested Readings:

- Carter, R.W.G (1988): Coastal Environments: An Introduction to the Physical, Ecological and Cultural Systems of Coastlines, Academic Press, London

- Dayer K.R. (1979): Estuary Hydrography, and Sedimentation, Cambridge Univ. Press, Cambridge.
- Devis R.A. (ed) (1978): Coastal Sedimentary Environmental; Springer-Verlag, New York.
- Harikawa , K. (1978): Coastal Engineering, Univ Of Tokyo Press, Tokyo.
- Inman, D.L. (1960): Shore Processes, Encyclopedia of Science & Technology, Mc Graw Hill, New York.
- Knight, B. and Philip, A. (1979): Estuarine and coastal Land reclamation and water storage, Saxon House.
- Laussn, E and Lato, I.(ed): Chemistry and Biochemistry of estuaries, Wiley, New York.
- Pethick, J. (2000): An Introduction to coastal Geomorphology, Arnold, London.
- Stanley, D.J. and Suist D.J.P.(ed)(1976): Marine Sediment Transport and environmental management;Wiley, NewYork.
- Wagret,P. (1968): Polderlands, Methuen, London



Syllabus for the Semester-II 3 years Minor course (Theory)

Paper:- UG/II/GEO/3/MI-2T

Credits: -4

Full Marks:-75

Human Geography

Course Learning Outcomes:

This paper introduces the nature and scope of human geography along with key approaches to its study. It explains the evolution of human societies and adaptations to varied environments. Students learn about population distribution, growth, and demographic transitions, with emphasis on India. It explores characteristics and patterns of rural and urban settlements and their classification. Learners develop an understanding of human-environment interaction and spatial organization of society.

Course contents

Unit I: Scope and Approaches

1. Elements of human geography: Nature, scope and recent trends.
2. Approaches to Human geography: Resource based, locational, landscape based, environmental.

Unit II: Social Geography

3. Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming and industrial society.
4. Human adaptation to the environment: Santal, Lodha, Sabar
5. Evolution and characteristics of post-industrial urban societies

Unit III: Population Geography

6. Distribution, density and growth of population special references to India.
7. Demographic transition. Significance of demographic dividend.

Unit IV: Settlement Geography

8. Characteristics of settlements: Urban and Rural
9. Site, situation, types and patterns of rural settlements

Unit V: Urban Geography

10. Size-class classification of urban settlements after Census of India

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Suggestion Reading:-

- Ashok, A., Lakshminath, P.V. 2018. Tribes of India, vol 1 &2, Telugu Akademia
- Bose, N.K. 2020. Tribal Life In India, 5th ed (updated by Tripathi, C.B.) National Book Trust.
- Chandna, R.C. 2016. Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers.
- Dorrel, D., Henderson, P. 2018. Introduction to Human Geography. University Of Georgia press. Fouberg
- E.H., Nash, A.B., Murphy, A.B., de Blij, H., 2015. Human Geography: People, Place and Culture, 11th ed willy
- De Blij, H.J. and Murphy, A.B. 2002, Human Geography: Culture, society and space, 7th edition, John Willy and Sons, New York, 608p.
- Fellmann, J.D., Getis, A., Getis, J., 2000, Human Geography- Landscape of Human Activity, McGraw Hill
- Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley
- Ghosh, S. 1998. Introduction to Settlement Geography, Sangam Books Ltd.
- Johnston R. J., (Ed.): Dictionary of Human Geography, Routledge.
- Knox, P.L., Marston, S.A. 2014. Human Geography: Places and Regions in Global Context, 6th ed, Pearson Education Limited
- Majumdar, P.K. 2013. India's Demography: Changing Demographic Scenario in India, Rawat Publications.
- Norton. W. (2001): Human Geography, 4th Edition Oxford University press, Oxford
- Paul., C., Crang, P., Goodwine, M.G. 2014, Introduction Human Geographies, 3rd ed, Routledge.
- Rubenstein, J.M. (2002), The Cultural Landscape, 7th edition, Prentice Hall, Englewood Cliffs
- Short, R.J. 2017. Human Geography: A Short Introduction, 2nd ed, Oxford University Press.
- Singh, R.Y., (2002). Geography of Settlements, Rawat Publications, Jaipur.