VIDYASAGAR UNIVERSITY

Midnapore, West Bengal

PROPOSED CURRICULUM & SYLLABUS (DRAFT) OF

BACHELOR OF SCIENCE (HONOURS)

MAJOR IN GEOGRAPHY

4-YEAR UNDERGRADUATE PROGRAMME

(w.e.f. Academic Year 2023-2024)

Based on

Curriculum & Credit Framework for Undergraduate Programmes

(CCFUP), 2023 & NEP, 2020

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VIDYASAGAR UNIVERSITY
BACHELOR OF SCIENCE (HONOURS) MAJOR IN GEOGRAPHY
(under CCFUP, 2023)

Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
								CA	ESE	TOTAL
B.Sc. (Hons.)	1st	I	**SEMESTER-I**							
			Major-1	**GEOHMJ101**	**T: Geotectonics and Geomorphology (Theory)** **P: Practical**	**4**	**3-0-1**	**15**	**60**	**75**
			SEC	**GEOSEC01**	**P: Computer Basics and Applications**	**3**	**0-0-3**	**10**	**40**	**50**
			AEC	**AEC01**	Communicative English -1 (***common for all programmes***)	**2**	**2-0-0**	**10**	**40**	**50**
			MDC	**MDC01**	Multidisciplinary Course -1 (***to be chosen from the list***)	**3**	**3-0-0**	**10**	**40**	**50**
			VAC	**VAC01**	ENVS (***common for all programmes***)	**4**	**2-0-2**	**50**	**50**	**100**
			Minor (Disc.-I)	**GEOMI01**	**T: Fundamentals of Earth System Science** ***(To be taken by students of other Disciplines)***	**4**	**3-1-0**	**15**	**60**	**75**
					Semester-I Total	**20**				**400**
		II	**SEMESTER-II**							
			Major-2	**GEOHMJ102**	**P: Cartographic Techniques (Practical)**	**4**	**0-0-4**	**15**	**60**	**75**
			SEC	**GEOSEC02**	**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**	Multi Disciplinary Course-02 (***to be chosen from the list***)	**3**	**3-0-0**	**10**	**40**	**50**
			VAC	**VAC02**	Value Added Course-02 (***to be chosen from the list***)	**4**	**4-0-0**	**10**	**40**	**50**
			Minor (Disc.-II)	**GEOMI02**	**T: Human Geography *(To be taken by students of other Disciplines)***	**4**	**4-0-0**	**15**	**60**	**75**
			Summer Intern.	**CS**	Community Service	**4**	**0-0-4**	**-**	**-**	**50**
					Semester-II Total	**24**				**400**
					TOTAL of YEAR-1	**44**				**800**

MJ = Major, MI = Minor Course, SEC = Skill Enhancement Course, AEC = Ability Enhancement Course, MDC = Multidisciplinary Course, VAC = Value Added Course; CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical, MIL = Modern Indian Language, ENVS = Environmental Studies

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Programme Specific Objectives

Geography has been broadly accepted as a bridge discipline between human and physical sciences. In the beginning, geography focussed on the physical aspects of the earth but modern geography is an all-encompassing discipline that seeks to understand the earth and all of its human and natural processes as integrating elements. Geography has emerged through time as a trans-disciplinary subject integrating regional diversity with the concepts of the timing of space and the spacing of time. It provides broad, human and place-centered perspectives on the transformation of rural ecology to globalized urban landscape at different levels, from the local/regional/national to global. Geography is transformed through:

- Journey from Village Ecology to Urban Regional Studies
- Qualitative Techniques to Spatial Information Technology
- Global to Micro-level Community Perception Approach

It is essential to focus on the current socio-spatial problems, issues and challenges to make the students aware of the application of geography to sort out the societal upcoming problems. It is also essential to rejuvenate the ancestral geographical knowledge to address the current local and global problems. In the light of exponential changes in the field of arts, science and technology, it is to be studied from multifaceted angles. It is important for the policy makers to consider the geo-spatial aspects with references to the location and in context of the best utilization of public utilities. It is further expected that if the above said spatial aspects are considered, it will certainly develop the lagging regions and people living therein.

Graduate Attributes in Geography The curriculum uses CBCS framework and organizes under Core Course, Skill Enhancement Course, Elective - Discipline Specific and Elective - Generic Courses. The core courses cover key areas of geography about which all students should have basic knowledge. These courses are grouped as follows:

A. Theory – These courses build up the theoretical and conceptual foundations of geography.

B. Practical – Three courses on Statistical Techniques in Spatial Analysis; Remote Sensing and Geographical Information System, GIScience and Research Methods and Fieldwork in Geography will strengthen the methodological and practical foundations of geography.

C. Regional Approach – Such courses focus on World Geography, Geography of India / West Bengal.

D. Application Oriented – This includes disaster management, climate change, tourism geography, health and wellbeing, etc.

Each Course has objective, learning outcomes, five uniform contents and reference books lists also attached with each course.

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MAJOR (MJ)

MJ-1: Geotectonics and Geomorphology (Theory) **Credits 04 (Full Marks: 75)**

Course Objective

1. To understand the geotectonic processes and understand the association between geomorphological landforms, concepts and processes.
2. To critically evaluate and connect information about geomorphic processes.
3. To provide a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes by studying different theories

Course Learning Outcomes

After the completion of course, the students will have ability to:

1. Understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms
2. Distinguish between the mechanisms that control these processes
3. Assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.

MJ-1T: Geotectonics and Geomorphology (Theory) **Credits 03**

Course contents:

1. Geological time scale: Tectonic and biological history of Earth; Dating of rocks: absolute and relative dating. Earth's interior structure: Seismological evidence. Isostasy: Models of Airy and Pratt.
2. Continental Drift; Plate Tectonics: Processes along different margins and resulting landforms. Types of Fold and Fault; Sea floor spreading
3. Geomorphic processes and resultant forms: Weathering, Mass wasting, River, Glacier and Wind
4. Structural impact on landforms: Drainage and landform development on Horizontal, Homoclinal, Folded and Faulted structure
5. Models of landscape evolution: Views of Davis, Penck, King and Hack

MJ-1P: Geotectonics and Geomorphology (Practical) **Credits 01 (20 Hrs.)**

1. Characteristics of Rocks and minerals and their identification:
2. Geological Maps: Understanding topography, structure, relation between topography and structure, geological succession and geological history through construction of geological section on Horizontal, Homoclinal, Folded and faulted Structure

Suggested Readings:

1. Anderson, R.S. and Anderson, S.P. 2010. Geomorphology, the Mechanics and Chemistry of Lanscape, Camdridge: Cambridge University Press.
2. Bloom A. L., 2001: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, Third edition , New Delhi.

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3. Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
4. Chorley, R., Schumm, S. and Sugden, D.E. 1994. Geomorphology, Methuen, London: 605p.
5. Chorley, R.J. and Kennedy, B.A. (1971) Physical Geography: a System Approach. London: Prentice Hall.
6. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
7. Goudie, A. (Ed) (1990): Geomorphological Techniques, 2nd edition, Allen Unwin Crows Nest.
8. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
9. Keary, P. and Vine, M. 1997. Global Tectonics, 2nd edition, Blackwell Scientific Publications, Oxford: 302p.
10. Knighton, D.1998: Fluvial Forms and Processes: A New Perspective, Arnold, London: 385p.
11. Leopold, L.B., Wolman, M.G. and Miller, J.P. 1964. Fluvial Processes in Geomorphology, Sanfransisco: W.H. Freeman & Co.
12. Maiti, R. K. 2016. Modern Approaches to Fluvial Geomorphology. New Delhi: Primus.
13. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
14. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
15. Thornbury W. D., 1969: Principles of Geomorphology, Wiley.

MJ-2: Cartographic Techniques (Practical) **Credits 04 (Full Marks: 75)**

MJ-2T: Cartographic Techniques (Practical) **Credits 04**

Course Objective

1. Create professional and aesthetically pleasing maps through thoughtful application of cartographic conventions;
2. Develop an understanding of the concepts regarding scale, map projections to suit map purposes;
3. Better understand the techniques of ground surveying and apply them in real situations

Course Learning Outcomes

After the completion of course, the students will have ability to:

1. Read and prepare maps.
2. Comprehend locational and spatial aspects of the earth surface.
3. Use and importance of maps for regional development and decision making.

Course contents:

1. Maps: Classification and types. Components of a map.
2. Concept and Construction of scales: Linear, comparative, diagonal and vernier
3. Map projections: Classification of map projection.
4. Construction, properties and uses of projections: Cylindrical Equal area, Polar Zenithal Stereographic, Simple conical with one standard parallel, Polyconic projection,, Bonne's, and Mercator's. Concept and significance of UTM projection.
5. Basic concepts and principles of surveying. Survey with equipment: Prismatic Compass, Dumpy level, Theodolite, Abney level, Clinometer.

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Suggested Readings:

1. Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
2. Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
3. Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
4. Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
5. Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
6. Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
7. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
8. Sarkar, A. (2015) Practical Geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

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MINOR (MI)

MI – 1: Fundamentals of Earth System Science Credits 04 (Full Marks: 75)

Course Learning Outcomes

After the completion of course, the students will have ability to:

1. Understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms
2. Distinguish between the mechanisms that control these processes
3. Understand different aspects of physical geography like hydrology, oceanography, climatology and soil science

MI – 1T: Fundamentals of Earth System Science Credits 04

Course contents:

1. Geotectonics: Origin of Earth, Earth's interior, Isostasy, Continental drift and Plate tectonics.
2. Geomorphology: Working of processes and landforms developed by weathering, mass wasting, river, glacier and wind. Landscape evolution models of Davis, Penck, King and Hack
3. Hydrology and Oceanography: Hydrological Cycle. Hydrological Parameters: Run off, Infiltration and evapotranspiration. Occurrence and storage of Groundwater. Major relief features of the ocean floor: Pacific, Atlantic and Indian Ocean. Formation of coral reefs. Distribution of Salinity and Temperature in Pacific, Atlantic and Indian Ocean.
4. Climatology: Composition and layering of the atmosphere. Factors of Insolation, Heat budget of the atmosphere. Horizontal and vertical distribution of temperature. Mechanism and forms of precipitation. Pressure belts and general circulation in the atmosphere. Tropical and mid-latitude cyclones. Monsoon. Climatic classification after Köppen, Thornthwaite
5. Soil Geography: Factors or soil formation. Soil profile development in Lateritic, Podzol and Chernozem soils. Physical and chemical properties: soil texture, structure, p^H, organic matter and NPK. Principles of soil classification: Genetic and USDA

Suggested Readings:

1. Andrew. D. Ward and Stanley, Trimble (2004): Environmental Hydrology, 2nd edition, Lewis Publishers, CRC Press.
2. Barry, R.G. and Chorley, R.J. (2003): *Atmosphere, Weather and Climate*, Routledge, London
3. Biswas, T.D. and Mukherjee, S.K. 1997: Textbook of Soil Science, TataMcGraw Hill,
4. Bloom A. L., 2001: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, Third edition , New Delhi.
5. Brady, N.C. and Weil, R.R. 1996. The Nature and Properties of Soil, 11th edition, Longman, London :
6. Chandrasekar, A. (2010): *Basics of Atmospheric Science*, PHI Learning Pvt. Ltd., New Delhi
7. Das, P.K. 1995 : Monsoons, 2nd edition, National Book Trust, New Delhi
8. Floth, H.D. 1990. Fundamentals of Soil science, 8th edition, John Wiley and Sons, New York.
9. Houghton, J. (2002): *Physics of Atmosphere*, Cambridge University Press, Cambridge
10. Karanth, K.R., 1988: Ground Water: Exploration, Assessment and Development, Tata- McGraw Hill, New Delhi.
11. Keary, P. and Vine, M. 1997. Global Tectonics, 2nd edition, Blackwell Scientific Publications, Oxford:302p

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12. Kershaw S., 2000: Oceanography: An Earth Science Perspective, Stanley Thornes, And UK.
13. Lal, D.S. 1993 : Climatology, 3rd edition, Chaitanya Pub. House, New Delhi
14. Morgan, R.P.C. 1995 Soil Erosion and Conservation, 2nd edition, Longman, London
15. Oliver J.E. & Hioddore J.J, 2003.: Climatology: An atmospheric science, Pearson
16. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
17. Singh, Vijay P. (1995): Environmental Hydrology. Kluwer Academic Publications, the Netherlands.
18. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
19. Sverdrup K. A. and Armrest, E. V., 2008: An Introduction to the World Ocean, McGraw Hill, Boston.
20. Thornbury W. D., 1969: Principles of Geomorphology, Wiley.
21. Wallace, J.M. and Hobbs, P.V. (1977): *Atmospheric Science-An Introductory Survey*, Academic Press, New York.

MI-2: Human Geography **Credits 04 (Full Marks: 75)**

Course Objective

1. Various dimensions of human geography and cultural landscape.
2. Detailed analysis of population growth and distribution.
3. Understanding of the relationship between population and resource.

Course Learning Outcomes

After the completion of course, the students will have ability to:

1. Know the changing human and cultural landscape at different levels.
2. Understand patterns and processes of population growth and its implications.
3. Appreciate the nature and quality of human landscapes.

MI-2T: Human Geography **Credits 04**

Course contents:

1. Definition, Nature, Major Subfields, Contemporary Relevance.
2. Space and Society: Cultural Regions; Race; Religion and Language
3. Population: Population Growth and Demographic Transition Theory.
4. World Population Distribution and Composition (Age, Gender and Literacy).
5. Settlements: Types and Patterns of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization

Suggested Readings:

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
2. Daniel, P.A. and Hopkinson, M.F. (1989), The Geography of Settlement, Oliver & Boyd, London.

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3. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
4. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
5. Ghosh, S. (2015) Introduction to settlement geography. Orient Black Swan Private Ltd., Kolkata
6. Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur

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SKILL ENHANCEMENT COURSE (SEC)

SEC 1: Computer Basics and Applications (Practical) **Credits 03**

SEC1P: Basic Computer Applications in Economics (Practical) **Full Marks: 50**

Course Objective

This course is designed to get a preliminary ideas of computer and its applications. Those who didn't learn computer in 10+2 level, this course is a stepping stone for them to venture first time into computer-based applications. The objectives of the course are -

- To get an overview of the computer system and its applications.
- To get an exposure to the computer-based applications.

Course Learning Outcomes

Upon completion of this course, students will be able to -

- Get an working knowledge of computer hardware and software.
- Get an idea of managing folders and files.
- Run an application, preferably, MS Word, MS Excel, MS PowerPoint.

Course Outline:

1. Knowing computer: what is computer, basic application of computer, computer memory, concepts of hardware and software; operating system; running an application, viewing of file, folders and directories, creating and renaming of files and folders.
2. Understanding word processing.
3. Using spreadsheet: basics of spreadsheet; manipulation of cells; formulas and functions; editing of spreadsheet, printing of spreadsheet.
4. Concept of internet; application of internet; World Wide Web; email.
5. Making a small presentation: MS PowerPoint

Suggested Readings:

1. Bartee, Thomas C. (1977): Digital Computer Fundamental; McGraw Hill.
2. Chauhan, S.; Chauhan, A. and Gupta, K. (2006): Fundamental of Computer; Firewall Media.
3. Flake, L.J.; McClintock, C.E. and Turner, S. (1989): Fundamental of Computer Education; Wordsworth Pub. Co.
4. Leon, A .and Leon,M.(1999): Introduction to Computer, USB Publishers' Distributors Ltd.
5. Malvino, A.P. and Leach, D.P. (1981): Digital Principles and Appications; TataMcGraw Hill.
6. Mano, Moris M. and Kime, Charles R. (2004): Logic and Computer Design Fundamental; Prentice Hall.
7. Rajaraman, V. (2003): Fundamentals of Computer, Prentice Hall Publisher
8. Sarkar, A. and Gupta, S.K (2002) Elements of computer Science, S Chand and Company, New Delhi
9. Blissmer (1996): Working with MS Word; Houghton Mifflin Co.
10. Johnson, Steve (2007): Microsoft Power Point 2007; Pearson Paravia Bruno.
11. Leon, A .and Leon,M.(1999): Introduction to Computer, USB Publishers' Distributors Ltd.
12. Leon, A. and Leon, M.(1999): A beginners Guide to Computers, Vikas

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13. Rajaraman, V. (2008): Computer Primer; Prentice Hall of India Pvt. Ltd.
14. Shepard, Aaron (2007): Perfect Pages; Shepard Publications.
15. Tyson, Herbert L. (2007): Microsoft Word 2007 bible; John Wiley.
16. Walkenbach, John (2007): Excel 2007 Bible; John Wiley.

SEC 2: Coastal Management — Credits 03 (Full Marks: 50)

SEC 2P: Coastal Management (Practical)

Course Outline:

1. Components of a coastal zone. Coastal morphodynamic variables and their role in evolution of coastal forms.
2. Environmental impacts and management of mining, oil exploration, salt manufacturing, land reclamation and tourism.
3. Coastal hazards and their management using structural and non-structural measures: Erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation and pollution
4. Principles of Coastal Zone Management. Exclusive Economic Zone and ICZM
5. Coastal Regulation Zones with reference to India (2018-2019).

Assessment:

1. Project Report to be submitted on any one of the topic based on the above syllabus
2. Viva-voce

Suggested Readings:

1. Carter, R.W.G (1988): Coastal Environments: An Introduction to the Physical, Ecological and Cultural Systems of Coastlines, Academic Press, London
2. Dayer K.R. (1979): Estuary Hydrography, and Sedimentation, Cambridge Univ. Press, Cambridge.
3. Devis R.A. (ed) (1978): Coastal Sedimentary Environmental; Springer-Verlag, New York.
4. Harikawa , K. (1978): Coastal Engineering, Univ Of Tokyo Press, Tokyo.
5. Inman, D.L. (1960): Shore Processes, Encyclopedia of Science & Technology, Mc Graw Hill, New York.
6. Knight, B. and Philip, A. (1979): Estuarine and coastal Land reclamation and water storage, Saxon House.
7. Laussn, E and Lato, I.(ed): Chemistry and Biochemistry of estuaries, Wiley, New York.
8. Pethick, J. (2000): An Introduction to coastal Geomorphology, Arnold, London.
9. Stanley, D.J. and Suist D.J.P.(ed)(1976): Marine Sediment Transport and environmental management;Wiley, NewYork.
10. Wagret,P. (1968): Polderlands, Methuen, London

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