SYLLABUS

FOUR YEARS UNDERGRADUATE PROGRAMME

IN

GEOGRAPHY

UNIVERSITY OF NORTH BENGAL

RAJA RAMMOHUNPUR

W.E.F: ACADEMIC SESSION 2024-25

Semester: 1

PAPER: MAJOR

Paper Description: GEOTECTONIC

This paper deals with geotectonic, scale, and diagrammatic data presentation topics. In particular, the theoretical part of the course will cover the internal structure of the earth, rocks, isostasy, earth movements, mountain building, continental drift theory, sea-floor spreading, plate tectonics and volcanicity, while the practical part will cover the construction of linear and comparative scale and diagrammatic data presentation using line, bar and circle.

Paper Code: GEOGMAJ101

Paper Type: Theory + Practical Lab Based [L]

Credit: 3 credit theory and 1 credit practical.

Class Hours: 3 theory classes per week and 2 practical classes per week. Total 5 classes per week.

Duration of the Examinations: Theoretical – 2hrs 30 minutes; Practical – 2hrs

Syllabus:

Paper Objectives

Knowledge Acquired:

- Concept of geotectonic and earth's interior.
- Theories of mountain building.
- Continental drift, plate movements and volcanicity.

Skills Gained:

- Develop skills in constructing linear and comparative scales.
- Graphical representation of data using line, bar and circle diagrams.

Competency Developed:

- Develop skills in questioning, reasoning, and drawing logical conclusions based on evidence and scientific principles of various theories and concepts related to geotectonic.
- Enable students to interpret and visually communicate data effectively.

Syllabus Overview

Theory

Unit	*Content*	*Hours/Week*
1	Geological time scale; Internal structure of the earth; Classification of rocks: Igneous, sedimentary and metamorphic; Theory of isostasy: Views of Airy, Pratt and Vening Meneisz.	3
2	Earth movements: Types, processes and topographic effects of folding and faulting; Classification of mountains; Theories of mountain building: Geosynclinal Theory (Kober), Thermal Contraction Theory (Jeffreys) and Thermal Convection Current Theory (Holmes).	
3	Continental Drift Theory (Wegener); Concept of sea-floor spreading; Plate tectonics, plate boundaries and subduction zones; Concept of volcanicity; Classification of volcanoes; Volcanic landforms; World distribution of volcanoes.	

Practical

Unit	Content	Hours/Week
1	Scale: Definition and types; Construction of linear and comparative scale.	2
2	Diagrammatic data presentation: Line, bar (simple, compound and composite) and circle (pie graph, proportional circle and proportional divided circle).	

Suggested Reading

Brown, G.C. and Mussett, A.E. (1993). *The Inaccessible Earth (An integrated view to its structure and composition)*, Chapman & Hall, London.

Condie, K.C. (2003). *Plate Tectonics and Crustal Evolution*, Butterworth-Heinemann, Oxford, Burlington.

Cox, A. and Hart, R.B. (1986). *Plate Tectonics: How it Works*, Blackwell Scientific Publications, Oxford.

Das Gupta, A., & Kapoor, A. N. (2001). *Principles of Physical Geography*. S.C. Chand & Company Ltd. New Delhi.

Erickson, J. (2001). *Plate Tectonics: Unravelling the Mysteries of the Earth,* Checkmark Books, New York.

Farndon, J. (2012). *The Illustrated Guide to Rocks & Minerals*, Southwater.

Frisch, W., Meschede, M., Blakey, R.C. (2011). *Plate Tectonics: Continental Drift and Mountain Building*. Springer.

Gerrard, A.J. (1988). *Rocks and Landforms*, Unwin Hyman, London.

Gilbert, G.K. (1914). *The Transportation of Debris by Running Water*, USGS Professional Paper No. 86, United States Geological Survey, Denver.

Husain M. (2002). *Fundamentals of Physical Geography*, Rawat Publications, and Jaipur.

Kearey, P., Klepeis, K. A., and Vine, F. J. (2011). *Global Tectonics*, 3rd ed. Wiley-India.

Mishra R.P. and Ramesh, A. (1989). *Fundamentals of Cartography, Concept*, New Delhi.

Mohan, K. (2018). *GES PERIODOS VOL 1*, An Ultimate Guide to Physical Geography. Oak Bridge Publication, New Delhi.

Monkhouse, F. J. (2009). *Principles of Physical Geography*, Platinum Publishers, Kolkata.

Robinson A. H. (2009). *Elements of Cartography*, John Wiley and Sons, New York.

Saha, P.K. and Basu, P. (2009). *Advanced Practical Geography*, Books and Allied (P) Ltd., Kolkata.

Sarkar, A. (2015). *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi.

Selby, M.J. (2005). *Earth's Changing Surface*, Indian Edition, OUP.

Siddhartha, K. (2001). *The Earth's Dynamic Surface*, Kisalaya Publications, New Delhi.

Singh, S. (2011). *Geography*, Tata Mc-graw Hill Publishing Co. Ltd. -New Delhi.

Singh, S. (2022). *Physical Geography*. Pravalika Publications, Prayagraj.

Skinner, B. J., & Porter, S. C. (2000). *The Dynamic Earth: An Introduction to Physical Geology*, 4th Edition. John Wiley and Sons.

Sorrell, C.A. and Sandström, G.F. (2001). *Rocks and Minerals: A Guide to Field Identification*, St. Martin's Press.

Practical guidelines: Students will prepare a laboratory notebook covering all the practical units duly signed by the internal faculty members. Viva voce is compulsory at the time of the practical examination.

Question Pattern

Type	Marks			Total
Theoretical	2: 5 out of 8	5: 4 out of 6	10: 3 out of 5	60
Practical	15: 1 out of 1	5: Laboratory notebook and Viva-voce		20
Full marks				80

Semester: 1

PAPER: MAJOR

Paper Description: SETTLEMENT GEOGRAPHY

This paper deals with topics such as settlement geography, scale, and map projection. In particular, the theoretical part of the course will cover the concept of site and situation, the morphology of rural and urban settlements, types, patterns, and distribution of rural settlements, theories of the origin of towns, theories of urban land use, primate cities, rank-size rule, and central place theory. The practical part will cover the diagonal and vernier scale construction and map projections.

Paper Code: GEOGMAJ102

Paper Type: Theory + Practical Lab Based [L]

Credit: 3 credit theory and 1 credit practical.

Class Hours: 3 theory classes per week and 2 practical classes per week. Total 5 classes per week.

Duration of the Examinations: Theoretical – 2hrs 30 minutes; Practical – 2hrs

Syllabus:

Paper Objectives

Knowledge Acquired:

- Concept of site and situation, origin and growth of rural and urban settlements, as well as the types, patterns and distribution of rural settlements.
- Physical layout, structure, and form of rural and urban settlements.
- Theories of the origin of towns and urban land use and morphology.

Skills Gained:

- Develop skills in constructing diagonal and vernier scales.
- Expertise in the mathematical/graphical construction and properties of map projections.

Competency Developed:

- Analyzing the suitability of different locations for settlements and understand the factors that contribute to their success or decline.
- Understanding the morphological patterns will enable students to identify and analyse the characteristics of different settlement.
- Students will develop competency in constructing diagonal and vernier scales and equip with practical skills in map reading, interpretation, and cartographic analysis.

Syllabus Overview:

Theory

Unit	*Content*	*Hours/Week*
1	Definition, nature, scope and content of settlement geography; Concept of site and situation; Origin and growth of rural and urban settlements.	3
2	Types, patterns and distribution of rural settlements; Morphology of rural settlements; Theories of origin of towns after Childe and Mumford; Functional classification of urban settlements (Nelson and Mitra); Urban land use and morphology: Concentric Zone Theory, Sector Theory and Multiple Nuclei Theory.	

3	Settlement hierarchies; Concept of primate city and rank size rule; Central place theory (Christaller and Losch).	

Practical

Unit	*Content*	*Hours/Week*
1	Scale: Construction of diagonal and vernier scale.	2
2	Map projection: Definition, nature, properties, classification and uses; Mathematical / graphical construction of Polar Zenithal Gnomonic Projection, Polar Zenithal Stereographic Projection, Polar Zenithal Orthographic Projection, Cylindrical Equal Area Projection and Mercator Projection.	

Suggested Reading

Daniel, P.A. and Hopkinson, M.F. (1989). *The Geography of Settlement*, Oliver & Boyd, London.

Ghosh, S. (1998). *Settlement Geography*, Orient Longman Ltd., Kolkata.

Gregory, D. and Urry, J. (1985). *Social Relation and Spatial Structure*, MacMillan.

Herbert, D.T. and Johnston, R.J. (1982). *Geography and Urban Environment*. John Wiley& Sons.

Hudson, F.S. (1977). *A Geography of Settlements*, Macdonald & Evans Ltd., Plymouth.

Hussain, J. (2021). *Settlement Geography*. Notion Press.

Hussain, M. (2007). *Models in Geography*, Rawat Publication.

Johnston R., Gregory D., Pratt G., et al. (2008). *The Dictionary of Human Geography*, Blackwell Publication.

Majumdar, P.K. (2013). *India's Demography: Changing Demographic Scenario in India*, Rawat Publications.

Mandal, R.B. (2001). *Introduction to Rural Settlements*, Concept Publishing Company, New Delhi.

Maurya, S.D. (2015). *Settlement Geography*. Sharda Pustak Bhawan.

Misra, R.P. and Sundaram, K.V. (Eds) (1979). *Rural Area Development: Perspectives and Approaches*, Sterling Publishers.

Monkhouse, F.J. and Wilkinson, H.R. (1971). *Maps and Diagrams: Their Compilation and Construction*, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Ramachandran, R. (2010). *Urbanisation and Urban Systems of India*, Oxford University Press, New Delhi.

Sarkar, A. (2015). *Practical Geography: A Systematic Approach*. Orient Black Swan Private Ltd., New Delhi.

Singh, R.L., & Singh, R.P.B. (1999). *Elements of Practical Geography*. Kalyani Publishers.

Singh, R.Y. (1994). *Geography of Settlement*, Rawat Publications, Jaipur.

Smith D.M. (1982). *Human Geography: A Welfare Approach*, Edward Arnold, London.

Tiwari, R.C. (2020). *Settlement Geography: Rural and Urban Settlements*. Pravalika Publication.

Verma, L.N. (2006). *Urban Geography*, Rawat Publications, Jaipur.

Practical guidelines: Students will prepare a laboratory notebook covering all the practical units duly signed by the internal faculty members. Viva voce is compulsory at the time of the practical examination.

Question Pattern

Type	Marks			Total
Theoretical	2: 5 out of 8	5: 4 out of 6	10: 3 out of 5	60
Practical	15: 1 out of 1	5: Laboratory notebook and Viva-voce		20
Full marks				80

Semester: 1

PAPER: MINOR

Paper Description: GEOMORPHOLOGY

This paper in Geomorphology offers a comprehensive examination of Earth's surface processes and landform evolution. The theoretical portion covers fundamental concepts including the nature and scope of geomorphology, the Earth's interior, Continental Drift Theory, Plate Tectonics, and structural features such as folds and faults. It further explores weathering processes, mass wasting, drainage classifications, and the Cycle of Erosion and Slope Development Theories. The evolution of landforms shaped by fluvial, aeolian, glacial, and karst processes is also studied. The practical part focuses on construction of scale and map projection techniques.

Paper Code: GEOGMIN101

Paper Type: Theory + Practical Lab Based [L]

Credit: 3 credit theory and 1 credit practical.

Class Hours: 3 theory classes per week and 2 practical classes per week. Total 5 classes per week.

Duration of the Examinations: Theoretical - 2 hrs 30 minutes; Practical – 2 hrs.

Syllabus:

Paper Objectives

Knowledge Acquired:

- Understand the foundational principles of geomorphology, including key theories such as Continental Drift and Plate Tectonics, and the structure of the Earth's interior.
- Comprehend the processes of weathering and mass wasting, including their types, controlling factors, and their impact on landform creation.
- Grasp the evolution of landforms through different geomorphic processes such as fluvial, aeolian, glacial, and karst activities.

Skill Gained:

- Perform construction of scales, such as linear, comparative and diagonal scale.
- Students will acquire skills in constructing different types of map projections, including polar zenithal gnomonic, simple conical and cylindrical equal area projection.

Competency Development:

- Apply theoretical geomorphological knowledge to practical map analysis, linking theoretical concepts with real-world topographical data.
- Integrate and synthesize geomorphological data to provide comprehensive insights into landform evolution and landscape analysis.
- Solve practical geomorphological problems using both theoretical understanding and practical mapping techniques to analyze and interpret physical landscapes effectively.

Syllabus Overview

Theory

Unit	*Content*	*Hours/Week*
1	Nature and scope of geomorphology; Interior of the earth; Continental Drift Theory (Wegener); Plate Tectonics; Folds and faults.	3

2	Weathering: Definition, controlling factors, types and resulting landforms; Mass wasting: Definition, factors affecting mass wasting and types; Classification of drainage and drainage patterns; Cycle of Erosion and Slope Development Theories (Davis and Penck).	
3	Evolution of landforms (erosional and depositional): Fluvial, aeolian, glacial and karst.	

Practical

Unit	*Content*	*Hours/Week*
1	Scale: Definition and types; Construction of linear, comparative and diagonal scale.	2
2	Map projection: Definition, classification, properties and uses; Mathematical/graphical construction of Polar Zenithal Gnomonic Projection, Simple Conical Projection with One Standard Parallel, Cylindrical Equal Area Projection.	

Suggested Reading

Bloom, A. L. (2003). *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*. New Delhi: Prentice-Hall of India.

Goudie, A.S. (2004). *Encyclopaedia of Geomorphology*, vol. 1 & 2, Routledge.

Gupta, K. K., & Tyagi, V. C. (1992). *Working with Map.* New Delhi: Survey of India, DST.

Huggett, R.J. (2007). *Fundamentals of Geomorphology*, Routledge, New York.

Khan, Md. Z.A. (1998). *Text Book of Practical Geography*, Concept Publishing Company, New Delhi.

KIhullar, D.R. (2012). *Physical Geography*, Kalyani Publishers, New Delhi.

Mishra R.P. nd Ramesh, A. (1989). *Fundamentals of Cartography, Concept*, New Delhi.

Robinson, A. H. (2009). *Elements of Cartography*. New York: John Wiley and Sons.

Saha, P.K. and Basu, P. (2009). *Advanced Practical Geography*, Books and Allied (P) Ltd., Kolkata.

Sarkar, A. (2015). *Practical geography: A systematic approach.* Orient Black Swan Private Ltd., New Delhi.

Selby, M.J. (1986). *Earth's Changing Surface*, Oxford University Press.

Siddhartha, K. (2001): *The Earth's Dynamic Surface*, Kisalaya Publications, New Delhi.

Singh, R. L., & Singh, R. P. B. (1999). *Elements of Practical Geography*. New Delhi: Kalyani Publishers.

Singh, S. (2000). *Geomorphology*, Prayag Pustak Bhavan, Allahabad.

Skinner, B. J., & Stephen, C. P. (2000). *The Dynamic Earth: An Introduction to Physical Geology*, 4th Edition, John Wiley and Sons.

Strahler, A. H., Strahler, A. N. (2006). *Physical Geography*. Spain: Wiley.

Summerfield, M.A. (2003). *Global Geomorphology: An Introduction to the Study of landforms*, Longman.

Thornbury, W. D. (1968). Principles of Geomorphology. Wiley.

Vaidyanadhan, R., Subbarao, K.V. (2014). *Landforms of India from Topomaps and Images*, Geological Society of India.

Practical guidelines: Students will prepare a laboratory notebook covering all the practical units duly signed by the internal faculty members. Viva voce is compulsory at the time of the practical examination.

Question Pattern

Type	Marks			Total
Theoretical	2: 5 out of 8	5: 4 out of 6	10: 3 out of 5	60
Practical	15: 1 out of 1	5: Laboratory notebook and Viva-voce		20
Full marks				80

Semester: 1

PAPER: DSC

Paper Description: GEOMORPHOLOGY

This paper in Geomorphology offers a comprehensive examination of Earth's surface processes and landform evolution. The theoretical portion covers fundamental concepts including the nature and scope of geomorphology, the Earth's interior, Continental Drift Theory, Plate Tectonics, and structural features such as folds and faults. It further explores weathering processes, mass wasting, drainage classifications, and the Cycle of Erosion and Slope Development Theories. The evolution of landforms shaped by fluvial, aeolian, glacial, and karst processes is also studied. The practical part focuses on construction of scale and map projection techniques.

Paper Code: GEOGDSC101

Paper Type: Theory + Practical Lab Based [L]

Credit: 3 credit theory and 1 credit practical.

Class Hours: 3 theory classes per week and 2 practical classes per week. Total 5 classes per week.

Duration of the Examinations: Theoretical - 2 hrs 30 minutes; Practical – 2 hrs.

Syllabus:

Paper Objectives

Knowledge Acquired:

- Understand the foundational principles of geomorphology, including key theories such as Continental Drift and Plate Tectonics, and the structure of the Earth's interior.
- Comprehend the processes of weathering and mass wasting, including their types, controlling factors, and their impact on landform creation.
- Grasp the evolution of landforms through different geomorphic processes such as fluvial, aeolian, glacial, and karst activities.

Skill Gained:

- Perform construction of scales, such as linear, comparative and diagonal scale.
- Students will acquire skills in constructing different types of map projections, including polar zenithal gnomonic, simple conical and cylindrical equal area projection.

Competency Development:

- Apply theoretical geomorphological knowledge to practical map analysis, linking theoretical concepts with real-world topographical data.
- Integrate and synthesize geomorphological data to provide comprehensive insights into landform evolution and landscape analysis.
- Solve practical geomorphological problems using both theoretical understanding and practical mapping techniques to analyze and interpret physical landscapes effectively.

Syllabus Overview

Theory

Unit	*Content*	*Hours/Week*
1	Nature and scope of geomorphology; Interior of the earth; Continental Drift Theory (Wegener); Plate Tectonics; Folds and faults.	3

2	Weathering: Definition, controlling factors, types and resulting landforms; Mass wasting: Definition, factors affecting mass wasting and types; Classification of drainage and drainage patterns; Cycle of Erosion and Slope Development Theories (Davis and Penck).	
3	Evolution of landforms (erosional and depositional): Fluvial, aeolian, glacial and karst.	

Practical

Unit	*Content*	*Hours/Week*
1	Scale: Definition and types; Construction of linear, comparative and diagonal scale.	2
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Bloom, A. L. (2003). *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*. New Delhi: Prentice-Hall of India.

Goudie, A.S. (2004). *Encyclopaedia of Geomorphology*, vol. 1 & 2, Routledge.

Gupta, K. K., & Tyagi, V. C. (1992). *Working with Map.* New Delhi: Survey of India, DST.

Huggett, R.J. (2007). *Fundamentals of Geomorphology*, Routledge, New York.

Khan, Md. Z.A. (1998). *Text Book of Practical Geography*, Concept Publishing Company, New Delhi.

KIhullar, D.R. (2012). *Physical Geography*, Kalyani Publishers, New Delhi.

Mishra R.P. nd Ramesh, A. (1989). *Fundamentals of Cartography, Concept*, New Delhi.

Robinson, A. H. (2009). *Elements of Cartography*. New York: John Wiley and Sons.

Saha, P.K. and Basu, P. (2009). *Advanced Practical Geography*, Books and Allied (P) Ltd., Kolkata.

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Selby, M.J. (1986). *Earth's Changing Surface*, Oxford University Press.

Siddhartha, K. (2001): *The Earth's Dynamic Surface*, Kisalaya Publications, New Delhi.

Singh, R. L., & Singh, R. P. B. (1999). *Elements of Practical Geography*. New Delhi: Kalyani Publishers.

Singh, S. (2000). *Geomorphology*, Prayag Pustak Bhavan, Allahabad.

Skinner, B. J., & Stephen, C. P. (2000). *The Dynamic Earth: An Introduction to Physical Geology*, 4th Edition, John Wiley and Sons.

Strahler, A. H., Strahler, A. N. (2006). *Physical Geography*. Spain: Wiley.

Summerfield, M.A. (2003). *Global Geomorphology: An Introduction to the Study of landforms*, Longman.

Thornbury, W. D. (1968). Principles of Geomorphology. Wiley.

Vaidyanadhan, R., Subbarao, K.V. (2014). *Landforms of India from Topomaps and Images*, Geological Society of India.

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