

CHOICE BASED CREDIT SYSTEM
B.A/B.SC GEOGRAPHY (MAJOR COURSE) SYLLABUS
BODOLAND UNIVERSITY, KOKRAJHAR-783370

SEM-I						
Paper Code	Course	Credit	Credit Distribution (L+T+P)	End Semester Marks	Internal Marks	Total Marks
GGY-101H	C1:Understanding Geography	6	4+0+2	60(Th)+20(P)	20	100
GGY-102H	C-2: Geomorphology	6	4+0+2	60(Th)+20(P)	20	100
GGY-103R	GE-1:Physical Geography	6	4+0+2	60(Th)+20(R)	20	100
COMM-104HR	AECC-1: English/Hindi/MIL (Communication)	2	2+0+0	40	10	50
Total		20	20	280	70	350

SEM-II						
Paper Code	Course	Credit	Credit Distribution (L+T+P)	End Semester Marks	Internal Marks	Total Marks
GGY-201H	C-3:Human Geography	6	4+0+2	60(Th)+20(P)	20	100
GGY-202H	C-4:Basics of Cartography	6	4+0+2	60(Th)+20(P)	20	100
GGY-203R	GE-2: General Cartography	6	4+0+2	60(Th)+20(R)	20	100
COMM-204HR	AECC-2: Environmental Studies	2	2+0+0	40	10	50
Total		20	20	280	70	350

SEM-III						
Paper Code	Course	Credit	Credit Distribution (L+T+P)	End Semester Marks	Internal Marks	Total Marks
GGY-301H	C-5: Climatology	6	4+0+2	60(Th)+20(P)	20	100
GGY-302H	C-6: Evolution of Geographical Thought	6	4+0+2	60(Th)+20(P)	20	100
GGY-303H	C-7: Population and Settlement Geography	6	4+0+2	60(Th)+20(P)	20	100
GGY-304R	GE-3: Human Geography	6	4+0+2	60(Th)+20(R)	20	100
GGY-305HR	SEC-1: Statistical Methods in Geography	2	2+0+0	40	10	50
Total		26	26	360	90	450

SEM-IV						
Paper Code	Course	Credit	Credit Distribution (L+T+P)	End Semester Marks	Internal Marks	Total Marks
GGY-401H	C-8: Economic Geography	6	4+0+2	60(Th)+20(P)	20	100
GGY-402H	C-9: Geography of India	6	4+0+2	60(Th)+20(P)	20	100
GGY-403H	C-10: Advance Cartography	6	4+0+2	60(Th)+20(P)	20	100
GGY-404R	GE-4: Geography of India	6	4+0+2	60(Th)+20(R)	20	100
GGY-405HR	SEC-2: Research Methodology	2	2+0+0	40	10	50
Total		26	26	360	90	450

SEM-V						
Paper Code	Course	Credit	Credit Distribution (L+T+P)	End Semester Marks	Internal Marks	Total Marks
GGY-501H	C-11: Regional Planning and Development	6	4+0+2	60(Th)+20(P)	20	100
GGY-502H	C-12: Remote Sensing and Geographic Information System	6	4+0+2	60(Th)+20(P)	20	100
GGY-503H	DSE-1: Soil and Bio-Geography	6	4+0+2	60(Th)+20(P)	20	100
GGY-504H	DSE-2: Urban and Cultural Geography	6	4+0+2	60(Th)+20(P)	20	100
Total		24	24	320	80	400

SEM-VI						
Paper Code	Course	Credit	Credit Distribution (L+T+P)	End Semester Marks	Internal Marks	Total Marks
GGY-601H	C-13: Regional Geography of the World	6	4+0+2	60(Th)+20(P)	20	100
GGY-602H	C-14: Dissertation	6	6+0+0	80	20	100
GGY-603H	DSE-3: Social and Political Geography	6	4+0+2	60(Th)+20(P)	20	100
GGY-604H	DSE-4: Geography of North East India	6	4+0+2	60(Th)+20(P)	20	100
Total		24	24	320	80	400

CHOICE BASED CREDIT SYSTEM
B.A/B.SC GEOGRAPHY (MAJOR COURSE) SYLLABUS
BODOLAND UNIVERSITY, KOKRAJHAR-783370

Semester	Core Course (14)	Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Course (SEC)(2)	Discipline Specific Elective (DSE)(4)	Generic Elective (GE)(4)
I	C-1: Understanding Geography(4+2)	AECC-1: English/Hindi/MIL (Communication)			GE-1:Physical Geography
	C-2: Geomorphology (4+2)				
II	C-3: Human Geography(4+2)	AECC-2: Environmental Studies			GE-2: General Cartography
	C-4: Basics of Cartography(4+2)				
III	C-5: Climatology(4+2)		SEC-1: Statistical Methods in Geography		GE-3: Human Geography
	C-6: Evolution of Geographical Thought(4+2)				
	C-7: Population and Settlement Geography(4+2)				
IV	C-8: Economic Geography(4+2)		SEC-2: Research Methodology		GE-4: Geography of India
	C-9: Geography of India(4+2)				
	C-10: Advance Cartography(4+2)				
V	C-11: Regional Planning and Development(4+2)			DSE-1: Soil and Bio-Geography	
	C-12: Remote Sensing and Geographic Information System(4+2)			DSE-2: Urban and Cultural Geography	
VI	C-13: Regional Geography of the World (4+2)			DSE-3: Social and Political Geography	
	C-14: Dissertation(6)			DSE-4: Geography of North East India	

FIRST SEMESTER

Core Course: C-1: Understanding Geography

Total Marks: 100

60(Th) + 20(P) + 20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Field of Geography (20 class)

- Nature and scope of Geography: Geography as a spatial science, present day relevance of Geography, Geography as interdisciplinary and integrated discipline.
- Physical Geography and Human Geography: Nature, Contents and Interrelationship, Branches of Physical and Human Geography,

Unit 2: Fundamental Concepts in Geography (15 class)

- Relation of Geography with natural, social and earth sciences.
- Spatial and temporal variation, spatial association, spatial interaction, spatial diffusion, spatial organization, human ecology, system concept, Man-Environment Relationship.

Unit 3: Map and Geography (10 class)

- Importance of map in Geography, Types of map
- Representation of interrelationship among the physical and cultural features from Topographical Maps and Interpretation.

Unit 4: Practical (15 class)

- Elements of map reading and Interpretation of toposheet
- Drawing of a representative part from topographical map, such as - Mountain, Plateau, Hills and Ridges, Piedmont, Floodplain, Valley (U-shaped and V-shaped), spurs and their characteristics.

Books Suggested:

1. Hussain, M., 1989: *Evolution of Geographic Thought*, Rawat Publications, Jaipur
2. Dikshit, R.D., 1997: *Geographical Thoughts: A Contextual History of Ideas*, Printice Hall of India, New Delhi
3. Adhikari, S., 1992: *Geographical Thought*, Chaitanya Pustak Allahabad
4. Abler, R., Adams, J. and Gould, P.P., 1971: *Spatial Organization: the Geographers' View of the World*, Prentice Hall, Englewood Cliff
5. Hussain, M.: *Human Geography*, Rawat Publications, Jaipur 3
6. Brunhes, J., 1920: *Human Geography*, edited by Isaisah Bowman
7. Hartshorne, R., 1939: *The Nature of Geography*, Rand Mckully, Chicago
8. Knox, P.L., 1975: *Social Well-being: A Spatial Perspective*, Oxford University
9. Smith, David M., 1977: *Human Geography: A Welfare Approach*, Edward Arnold, London
10. Chorley, R.J. and Hagget, P. (eds.) 1967: *Models in Geography*, Methuen, London
11. Hartshorne, R., 1959: *Perspective on the Nature of Geography*, Indians edition, Scientific Publishers, Jodhpur
12. Johnston, R.J. (ed): *The Dictionary of Human Geography*, Oxford, Basil, Blackwell
13. Harvey, D., 1969: *Explanation in Geography*, St. Martin Press, New York

14. Dikshit, R.D., 1994: *The Art and Science of Geography*, Printice Hall of India, New Delhi

Core Course: C-2: Geomorphology

Total Marks: 100

60(Th) + 20(P) + 20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Basics of Geomorphology (12 class)

- Geomorphology: Definition, Nature and Scope, Evolution of Geomorphological Thoughts
- Theories of origin and Evolution of Earth (Nebular hypothesis, Big Bang theory)
- Earth: Chemical Composition and Interior Structure of the Earth, Geological Time scale; Era, period and epoch.

Unit II: Earth Movements (20 class)

- Continental Drift Theory, Sea Floor Spreading, Isostasy, Plate Tectonics, Mountain building (Orogeny) L. Kober and Arthur Holmes and Epeirogenic movements.
- Types of Fold and Fault Landforms, Earthquakes, Volcanoes and its location

Unit III: Geomorphic Processes (18 class)

- Weathering, Mass Wasting, Cycle of Erosion (Davis and Penck).
- Evolution of Landforms (Erosional and Depositional): Fluvial, Aeolian, Glacial, Karst and Coastal.
- Coral reefs and atolls formation

Unit IV: Practical (10 class)

- Relief representation through serial profiles, superimposed profiles, composite profiles and Projected profiles,
- Demarcation of basin and representation of basin relief through profiles, interpretation,
- Mapping of the major crustal plates of the earth, Rock types and Characteristics
- Preparation of Relative Relief Map using Smith's Method from Topographical Maps
- Drawing and analysis of Average Slope Map by Wentworth's Method

Books Suggested:

1. Bloom A. L., 2003: *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*, Prentice-Hall of India, New Delhi
2. Bridges E. M., 1990: *World Geomorphology*, Cambridge University Press, Cambridge.
3. Christopherson, Robert W., (2011), *Geosystems: An Introduction to Physical Geography*, 8 Ed., Macmillan Publishing Company
4. Kale V. S. and Gupta A., 2001: *Introduction to Geomorphology*, Orient Longman, Hyderabad.
5. Knighton A. D., 1984: *Fluvial Forms and Processes*, Edward Arnold Publishers, London.
6. Richards K. S., 1982: *Rivers: Form and Processes in Alluvial Channels*, Methuen, London.
7. Selby, M.J., (2005), *Earth's Changing Surface*, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), *The Dynamic Earth: An Introduction to physical Geology*, 4th Edition, John Wiley and Sons
9. Thornbury W. D., 1968: *Principles of Geomorphology*, Wiley.
10. Gautam, A (2010): *Bhautik Bhugol*, Rastogi Publications, Meerut

Generic Elective Paper

Generic Elective: GE-1: Physical Geography

Total Marks: 100

60 (Th) +20(R) + 20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Field of Geography (10 class)

- Nature and scope of Geography, Physical Geography and Human Geography: Nature, Contents and Interrelationship.
- Earth: Chemical Composition and Interior Structure of the Earth, Geological Time scale; Era, period and epoch.

Unit 2: Basics of Geomorphology (20 class)

- Types of landform – First order, second order and third order, Forces for landform development - endogenetic and exogenetic, Landform development processes- weathering, erosion, transportation and deposition
- Landform development under different conditions – fluvial, arid and glacial
- Cycle concepts in geomorphology Weathering, Mass Wasting, Cycle of Erosion (Davis and Penck).
- Evolution of Landforms (Erosional and Depositional): Fluvial, Aeolian, Glacial, Karst and Coastal.

Unit 3: Climatology and Oceanography (15class)

- Atmosphere: Composition, Structure and Functions
- Elements of Weather: Temperature, Pressure, Wind and Humidity
- Heat Zones, Atmospheric Pressure Belt and Atmospheric Circulation; Mechanism of Monsoon, Jet-stream, El-Nino; Cyclones: Tropical and subtropical
- Koppen's Climatic Classification
- Ocean Basin: Major features of the ocean floor; Coral reefs and atolls: types and factors, coral and volcanic islands;
- Ocean Current and Tides; Ocean currents and their influence.

Unit 4: Practical (15 class)

- Drawing of a representative part from topographical map, such as - Mountain, Plateau, Hills and Ridges, Piedmont, Floodplain, Valley (U-shaped and V-shaped), spurs and their characteristics.
- Relief representation through serial profiles, superimposed profiles, composite profiles and Projected profiles.
- Demarcation of basin and representation of basin relief through profiles, interpretation.
- Drawing and analysis of Average Slope Map by Wentworth's Method
- Drawing and interpretation of rainfall-temperature-humidity graph of tropical, sub-tropical and temperate regions/stations.
- Study of weather condition depicted by Indian Weather maps and prediction of weather conditions for next 48 hours.
- Calculation of average annual rainfall and variability of annual rainfall, and mapping and interpretation thereof.

Books Suggested:

1. Hussain, M., 1989: *Evolution of Geographic Thought*, Rawat Publications, Jaipur
2. Dikshit, R.D., 1997: *Geographical Thoughts: A Contextual History of Ideas*, Printice Hall of India, New Delhi
3. Adhikari, S., 1992: *Geographical Thought*, Chaitanya Pustak Allahabad
4. Abler, R., Adams, J. and Gould, P.P., 1971: *Spatial Organization: the Geographers' View of the World*, Prentice Hall, Englewood Cliff
5. Hussain, M.: *Human Geography*, Rawat Publications, Jaipur 3
6. Brunhes, J., 1920: *Human Geography*, edited by Isaisah Bowman
7. Hartshorne, R., 1939: *The Nature of Geography*, Rand Mckully, Chicago
8. Knox, P.L., 1975: *Social Well-being: A Spatial Perspective*, Oxford University
9. Smith, David M., 1977: *Human Geography: A Welfare Approach*, Edward Arnold, London
10. Chorley, R.J. and Hagget, P. (eds.) 1967: *Models in Geography*, Methuen, London
11. Hartshorne, R., 1959: *Perspective on the Nature of Geography*, Indians edition, Scientific Publishers, Jodhpur
12. Johnston, R.J. (ed): *The Dictionary of Human Geography*, Oxford, Basil, Blackwell
13. Harvey, D., 1969: *Explanation in Geography*, St. Martin Press, New York
14. Dikshit, R.D., 1994: *The Art and Science of Geography*, Printice Hall of India, New Delhi
15. Barry R. G. and Carleton A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
16. Barry R. G. and Corley R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
17. Critchfield H. J., 1987: *General Climatology*, Prentice-Hall of India, New Delhi
18. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, New Jersey.
19. Oliver J. E. and Hidore J. J., 2002: *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
20. Trewartha G. T. and Horne L. H., 1980: *An Introduction to Climate*, McGraw-Hill.
21. Lal, D. S. (2006): *Jalvayu Vigyan*, Prayag Pustak Bhavan, Allahabad
22. Bloom A. L., 2003: *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*, Prentice-Hall of India, New Delhi
23. Bridges E. M., 1990: *World Geomorphology*, Cambridge University Press, Cambridge.
24. Christopherson, Robert W., (2011), *Geosystems: An Introduction to Physical Geography*, 8 Ed., Macmillan Publishing Company
25. Kale V. S. and Gupta A., 2001: *Introduction to Geomorphology*, Orient Longman, Hyderabad.
26. Knighton A. D., 1984: *Fluvial Forms and Processes*, Edward Arnold Publishers, London.
27. Richards K. S., 1982: *Rivers: Form and Processes in Alluvial Channels*, Methuen, London.
28. Selby, M.J., (2005), *Earth's Changing Surface*, Indian Edition, OUP
29. Skinner, Brian J. and Stephen C. Porter (2000), *The Dynamic Earth: An Introduction to physical Geology*, 4th Edition, John Wiley and Sons
30. Thornbury W. D., 1968: *Principles of Geomorphology*, Wiley.
31. Gautam, A (2010): *Bhautik Bhugol*, Rastogi Punlications, Meerut

Ability Enhancement Compulsory Course (AECC)

AECC-1: (English/ Hindi/MIL/Communication)

Total Marks: 50

40 (Th) + 10(IA)

Total Credit: 2

SECOND SEMESTER

Core Course: C-3: Human Geography

Total Marks: 100

60(Th) +20(P) +20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Nature, Scope and Development of Human Geography (15 Class)

- Meaning, Scope, Branches and Approaches of Human Geography;
- Development of Human Geography; Contributions of German and French Geographers;
- Schools of Human Geography: ecology, landscape, locational, welfare and humanistic.

Unit 2: Man and Environment Relationship (20 Class)

- Elements of environment; physical and human environment; constraints and opportunities of the environment;
- Impact of environment on man; Human adaptation to environment: Eskimo, Masai and Bushman; Mode of living and emerging problems in different environments: cold desert, mountain, plain, hot desert, coastal and riverine lands.

Unit 3: Major Races (10 Class)

- Evolution of man; Classification of races; Physical Characteristics of major racial (Caucasoid, Mongoloid and Negroid),
- Diffusion of Major racial groups in the world; Primitive people of India: Naga and Bhil.

Unit 4: Practical (15 Class)

- Mapping of major racial groups in the world.
- Mapping of major racial groups of India.
- Mapping of linguistic and religious regions in the world.
- Mapping of linguistic regions of India.

Books Suggested:

1. Huntington, E., 1951: Principles of Human Geography, John Wiley & Sons, Inc, New York
2. Hussain, M., 1994: Human Geography, Rawat Publication, New Delhi.
3. Johnston, R.J. et al (eds.): The Dictionary of Human Geography, Basil Blackwell, Oxford.
4. Leong, G.C. and Morgan, G.C., 1992: Human and Economic Geography, Oxford University Press, Oxford
5. Chandna, R.C., 1986: A Geography of Population, Kalyani Publisher, New Delhi
6. Hagget, P., 1972: Geography: A Modern Synthesis, Harper & Row, New York
7. Strahler, A.N. & A.H. Strahler, 1976: Geography and Man's Environment, John Willey, New York
8. Park, C., 1997: The Environment, Routledge, London
9. Singh, S., 1991: Environmental Geography, Pustak Bhawan, Allahabad
10. Chhokas, K.B., Understanding Environment, Sage Publication.

Core Course: C-4: Basics of Cartography

Total Marks: 100

60 (Th) +20 (P) +20 (IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Field of Cartography (20 class)

- Nature and scope of Cartography, trend of development and present day relevance of Cartography in Geography, traditional and digital cartography.
- The concept of shape, size, coordinate system, latitude and longitude, direction and distance of earth.

Unit 2: Fundamental Concepts in Cartography (20 class)

- Concept of Scale and Application, Map Scale and Types, Scale factor, Conversion of scale, Concept of least count in Vernier Scale.
- Concept of map, map Classification and Types, Thematic maps and their classification, Base map, Principles of Map Design and layout.
- Mapping techniques and generalization principles

Unit 3: Cartography and Data Representation (10 class)

- Concept of Geographical data representation through Chorochromatic, Choroschematic, Isopleths and Choropleth maps.
- Concept of spot heights, Bench Mark, Triangulation stations, Contours and their use in Topographical Maps of India.
- Cartogram and Diagrammatic Data Presentation by Line, Bar and Circle
- Point, Line and Areal Data representation through Cartographic Overlays.

Unit 4: Practical: (10 class)

- Graphical Construction of Plain, Comparative and Diagonal Scale.
- Construction of Thematic Maps with the help of physical and socio-economic geographical data.
- Geographical data representation with the help of Bar diagram, pie chart and Block diagram
- Preparation of Isopleth and Choropleth maps with the help of Geographical Data

Note:

- Practical Include 15 Marks Practical Assignments and 5 Marks Viva Voce and practical copy.
- Minimum 10 numbers of practical exercises.
- Th: Theory, P: Practical, IA: Internal Assessment

Books Suggested:

1. Cuff J. D. and Mattson M. T., 1982: *Thematic Maps: Their Design and Production*, Methuen Young Books
2. Dent B. D., Torguson J. S., and Holder T. W., 2008: *Cartography: Thematic Map Design* (6th Edition), Mcgraw-Hill Higher Education
3. Gupta K. K. and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
4. Kraak M.-J. and Ormeling F., 2003: *Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall.
5. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
6. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
7. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
8. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: *Thematic Cartography and Geovisualization* (3rd Edition), Prentice Hall.
9. Tyner J. A., 2010: *Principles of Map Design*, The Guilford Press.
10. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
11. Singh, L R & Singh R (1977): *Manchitra or Pryaogatamek Bhugol* , Central Book, Depot, Allahabad
12. Bhopal Singh R L and Duttta P K (2012) *Prayogatama Bhugol*, Central Book Depot, Allahabad.

Generic Elective Paper

Generic Elective: GE-2: General Cartography

Total Marks: 100

60 (Th) +20(R) + 20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Field of Cartography (20 class)

- Nature and scope of Cartography, trend of development and present day relevance of Cartography in Geography, traditional and digital cartography.
- The concept of shape, size, coordinate system, latitude and longitude, direction and distance of earth.

Unit 2: Fundamental Concepts in Cartography (20 class)

- Concept of Scale and Application, Map Scale and Types, Scale factor, Conversion of scale, Concept of least count in Vernier Scale.
- Concept of map, map Classification and Types, Thematic maps and their classification, Base map, Principles of Map Design and layout.
- Mapping techniques and generalization principles

Unit 3: Cartography and Data Representation (10 class)

- Concept of Geographical data representation through Chorochromatic, Choroschematic, Isopleths and Choropleth maps.
- Concept of spot heights, Bench Mark, Triangulation stations, Contours and their use in Topographical Maps of India.
- Cartogram and Diagrammatic Data Presentation by Line, Bar and Circle
- Point, Line and Areal Data representation through Cartographic Overlays.

Unit 4: Practical: (10 class)

- Graphical Construction of Plain, Comparative and Diagonal Scale.
- Construction of Thematic Maps with the help of physical and socio-economic geographical data.
- Geographical data representation with the help of Bar diagram, pie chart and Block diagram
- Preparation of Isopleth and Choropleth maps with the help of Geographical Data

Books Suggested:

1. Cuff J. D. and Mattson M. T., 1982: *Thematic Maps: Their Design and Production*, Methuen Young Books
2. Dent B. D., Torguson J. S., and Holder T. W., 2008: *Cartography: Thematic Map Design* (6th Edition), Mcgraw-Hill Higher Education
3. Gupta K. K. and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
4. Kraak M.-J. and Ormeling F., 2003: *Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall.
5. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
6. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
7. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
8. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: *Thematic Cartography and Geovisualization* (3rd Edition), Prentice Hall.
9. Tyner J. A., 2010: *Principles of Map Design*, The Guilford Press.
10. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
11. Singh, L R & Singh R (1977): *Manchitra or Pryaogatamek Bhugol* , Central Book, Depot, Allahabad
12. Bhopal Singh R L and Duttta P K (2012) *Prayogatama Bhugol*, Central Book Depot, Allahabad.

Ability Enhancement Compulsory Course (AECC)

AECC-2: (Environmental Studies)

Total Marks: 50

40 (Th) + 10(IA)

Total Credit: 2

THIRD SEMESTER

Core Course: C-5: Climatology

Total Marks: 100

60(Th) +20(P)+20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Atmospheric Layer and Thermal Variation (10 Class)

- Nature, Composition and Structure of Atmosphere,
- Factors Controlling insolation, Heat Budget of Atmosphere, Distribution and processes of heating and cooling of the atmosphere;
- Factors controlling Horizontal and Vertical Distribution of Temperature.

Unit 2: Atmospheric Pressure, Air Circulation and Precipitation (20 Class)

- Global atmospheric pressure belts and their oscillation;
- Planetary Wind System, Forces affecting Movement of Air, Monsoon, JetStreams and index cycle;
- Processes and forms of condensation; Mechanism, forms and types of precipitation; Air Masses: Origin, classification and characteristics;
- Fronts: source regions, types and associated weather.

Unit 3: Weather Disturbances and Climatic Classification (10 Class)

- Cyclones: Tropical and Temperate, Effects of ElNino and La Nina;
- Climatic classification after Koppen, Climatic Classification after Thornthwaite: 1931 and 1948

Unit 4: Practical (20 Class)

- Construction of a schematic diagram of the vertical layers of earth's atmosphere and tabulation of compositional characteristics.
- Drawing and interpretation of rainfall-temperature-humidity graph of tropical, sub-tropical and temperate regions/stations.
- Study of weather condition depicted by Indian Weather maps and prediction of weather conditions for next 48 hours.
- Calculation of average annual rainfall and variability of annual rainfall, and mapping and interpretation thereof.

Book Suggested:

1. Barry R. G. and Carleton A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
3. Critchfield H. J., 1987: *General Climatology*, Prentice-Hall of India, New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., 2002: *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
6. Trewartha G. T. and Horne L. H., 1980: *An Introduction to Climate*, McGraw-Hill.

8. Lal, D. S. (2006): JalvayuVigyan, Prayag Pustak Bhavan, Allahabad

Core Course: C-6: Evolution of Geographical Thought

Total Marks: 100

60(Th) +20(P) +20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Foundation of Geography (20 Class)

- Pre-Modern - Early Origins of Geographical Thinking with reference to the Classical (Greek, Roman, Indian, Arab) and Medieval Philosophies (Varenius and Immanuel Kant).
- Modern - Evolution of Geographical Thinking and Disciplinary Trends in Germany, France, Britain, United States of America.

Unit 2: Dichotomies in Geography (10 Class)

- Environmental Determinism and Possibilism, Systematic and Regional, Ideographic and Nomothetic

Unit 3: Explanation in Geography (20 Class)

- Quantitative Revolution and its Impact, Systems Approach Morphology of landscape, Areal differentiation, locational school;
- Humanism, Behaviouralism, Marxism and Radicalism, Feminism, Post-modernism.

Unit 4: Practical (10 Class)

- Outline of the world map of Hecataeus, Anaximander, Eratosthenese, Ptolemy;
- Dwipas of the world as known to the Indians and during Mahabharata times;
- Outline of the world map of Mercator

Books Suggested:

1. Arentsen M., Stam R. and Thuijjs R., 2000: *Post-modern Approaches to Space*, ebook.
2. Bhat, L.S. (2009) *Geography in India (Selected Themes)*. Pearson
3. Bonnett A., 2008: *What is Geography?* Sage.
4. Dikshit R. D., 1997: *Geographical Thought: A Contextual History of Ideas*, Prentice– Hall India.
5. Hartshone R., 1959: *Perspectives of Nature of Geography*, Rand MacNally and Co.
6. Holt-Jensen A., 2011: *Geography: History and Its Concepts: A Students Guide*, SAGE.
7. Johnston R. J., (Ed.): *Dictionary of Human Geography*, Routledge.
8. Johnston R. J., 1997: *Geography and Geographers, Anglo-American Human Geography since 1945*, Arnold, London.
9. Kapur A., 2001: *Indian Geography Voice of Concern*, Concept Publications.
10. Martin Geoffrey J., 2005: *All Possible Worlds: A History of Geographical Ideas*, Oxford.
11. Soja, Edward 1989. *Post-modern Geographies*, Verso, London. Reprinted 1997: Rawat Publication, Jaipur and New Delhi.

Core Course: C-7: Population and Settlement Geography

Total Marks: 100

60(Th) +20(P) +20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Field of Population Geography (20 class)

- Meaning and scope of population geography; sources of population data.
- Malthus theory of population growth; and Demographic Transition Model.
- Components of population growth; factors influencing distribution and density of population;
- Definition, types, and causes and consequences of migration.

Unit 2: Population Characteristics and Population-Resource Relationship (10 class)

- Age-Sex composition; literacy and education; and work participation and occupational composition;
- Concept of population-resource relationship with reference to optimum population, over population and under population

Unit 3: Field of Settlement Geography (15 class)

- Meaning and scope of settlement geography;
- Concept of hierarchy of settlements and Christaller's Central Place Theory; concept of dichotomy and continuum.
- Factors influencing origin and growth of rural and urban settlements;
- Morphology and functional characteristics of rural and urban settlements.

Unit 4: Practical (15 class)

- Determination of Spatial Mean and Median Centres of Settlements and Standard Distance
- Weighted Mean Centre of Population or any other attribute
- Construction of population growth model and the distance decay model from the given datasets
- Trend of world population growth, major population density zones in the world
- Age-Sex pyramid
- Mapping Settlement Types and Pattern

Books Suggested:

1. Leong, G.C. and Morgan, G.C., 1992: Human and Economic Geography, Oxford University Press, Oxford
2. Chandna, R.C., 1986: A Geography of Population, Kalyani Publishers, New Delhi 18
3. Clarke, J.I., 1972: Population Geography, Pargamon Press, Oxford
4. Singh, R.L. and Sing, K.N. (eds), 1975: Readings in Rural Settlement Geography, BHU, Varanasi
5. Singh., R.Y., 1994: Geography of Settlement, Rawat Publication, Jaipur & Delhi
6. Zelinsky, W., 1966: A Prologue to Population Geography, Printice-Hall, Englewood Cliffs.
7. Hagget, P., 1972: Geography: A Modern Synthesis, Harper & Row, New York
8. Money, D.C., 1972: Patterns of Settlement, Evan Brothers, London

Generic Elective Paper

Generic Elective: GE-3: Human Geography

Total Marks: 100

60 (Th) +20(R) + 20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Nature, Scope and Development of Human Geography (15 Class)

- Meaning, Scope, Branches and Approaches of Human Geography;
- Impact of environment on man; Human adaptation to environment: Eskimo, Masai and Bushman; Mode of living and emerging problems in different environments: cold desert, mountain, plain, hot desert, coastal and riverine lands.
- Evolution of man; Classification of races; Physical Characteristics of major racial (Caucasoid, Mongoloid and Negroid)

Unit 2: Population Geography (20 Class)

- Components of population growth; factors influencing distribution and density of population; Concept of population-resource relationship with reference to optimum population, over population and under population
- Definition, types, and causes and consequences of migration
- Malthus theory of population growth; and Demographic Transition Model.

Unit 3: Settlement Geography (10 Class)

- Meaning and scope of settlement geography.
- Factors influencing origin and growth of rural and urban settlements.
- Morphology and functional characteristics of rural and urban settlements.

Unit 4: Practical (15 Class)

- Mapping of major racial groups in the world.
- Mapping of linguistic and religious regions in the world.
- Trend of world population growth, major population density zones in the world
- Age-Sex pyramid
- Mapping Settlement Types and Pattern
- Determination of Spatial Mean and Median Centres of Settlements

Books Suggested:

1. Huntington, E., 1951: Principles of Human Geography, John Wiley & Sons, Inc, New York
2. Hussain, M., 1994: Human Geography, Rawat Publication, New Delhi.
3. Johnston, R.J. et al (eds.): The Dictionary of Human Geography, Basil Blackwell, Oxford.
4. Leong, G.C. and Morgan, G.C., 1992: Human and Economic Geography, Oxford University Press, Oxford
5. Chandna, R.C., 1986: A Geography of Population, Kalyani Publisher, New Delhi
6. Hagget, P., 1972: Geography: A Modern Synthesis, Harper & Row, New York
7. Strahler, A.N. & A.H. Strahler, 1976: Geography and Man's Environment, John Willey, New York
8. Park, C., 1997: The Environment, Routledge, London
9. Singh, S., 1991: Environmental Geography, Pustak Bhawan, Allahabad
10. Chhokas, K.B., Understanding Environment, Sage Publication.
11. Leong, G.C. and Morgan, G.C., 1992: Human and Economic Geography, Oxford University Press, Oxford
12. Chandna, R.C., 1986: A Geography of Population, Kalyani Publishers, New Delhi 18
13. Clarke, J.I., 1972: Population Geography, Pargamon Press, Oxford
14. Singh, R.L. and Sing, K.N. (eds), 1975: Readings in Rural Settlement Geography, BHU, Varanasi
15. Singh., R.Y., 1994: Geography of Settlement, Rawat Publication, Jaipur & Delhi
16. Zelinsky, W., 1966: A Prologue to Population Geography, Printice-Hall, Englewood Cliffs.
17. Hagget, P., 1972: Geography: A Modern Synthesis, Harper & Row, New York
18. Money, D.C., 1972: Patterns of Settlement, Evan Brothers, London

Skill Enhancement Course

Skill Enhancement Course: SEC-1: Statistical Methods in Geography

Total Marks: 50

40 (Th) + 10 (IA)

Total Credit: 2 (Total Number of Class: 30)

Unit 1: Nature of Geographic Data (20 class)

- Use of Data in Geography, Geographical Data Matrix, Significance of Statistical Methods in Geography; Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval, Ratio).
- Tabulation and Descriptive Statistics their use in Geography: Frequencies, Cross Tabulation, Measures of Central Tendency (Mean, Median and Mode) Measures of Dispersion (Range, Quartile deviation, Deciles and Percentile, Mean Deviation, Standard Deviation and Relative Dispersion)

Unit 2: Quantitative Expression of Geographic Data (10 class)

- Use of Sampling Technique in Geography, Method of Sampling (Purposive, Random, Systematic and Stratified)
- Probability and Normal Distribution of Geographic Data
- Correlation and Regression analysis (Karl Pearson and Spearman's Rank method), Regression line and Regression Residuals.

Books Suggested:

1. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
2. Ebdon D., 1977: *Statistics in Geography: A Practical Approach*.
3. Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
4. King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall.
5. Mahmood A., 1977: *Statistical Methods in Geographical Studies*, Concept.
6. Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
7. Sarkar, A. (2013) *Quantitative geography: techniques and presentations*. Orient Black Swan Private Ltd., New Delhi
8. Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London.
9. Spiegel M. R.: *Statistics, Schaum's Outline Series*.
10. Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.
11. Shinha, I. (2007) *Sankhyikibhugol*. Discovery Publishing House, New Delhi

FOURTH SEMESTER

Core Course: C-8: Economic Geography

Total Marks: 100

60 (Th) +20 (P) + 20 (IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Introduction to Economic Geography (20 class)

- Meaning and scope of economic geography, Approaches in economic geography: regional, systematic and sectoral.
- Concept and classification of economic activity, Primary Activities: Subsistence and Commercial agriculture, forestry, fishing and mining; Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel), Tertiary Activities: Transport, Trade and Services; role of tertiary activity in economic development of a country.

Unit 2: Geography of Resource (15 class)

- Concept of resources and resource classification; Distribution of renewable and non renewable resources in global context: Forests, Water, Coal, Iron ore; Conservation of resources.
- Factors Affecting location of Economic Activity with special reference to Agriculture (Von Thunen theory), Industry (Weber's theory and Losch theory).

Unit 3: Geography of Economic Activity (15 class)

- Agriculture: physical and socio-economic factors influencing agricultural practice; types of agriculture; major food and cash crops, their distribution and production (Rice, wheat, Sugarcane, Tea, Cotton)
- Industry: Factors of industrial location, classification of industries, distribution and production of iron and steel, textile, petro-chemicals.
- Concept of Manufacturing Regions, Special Economic Zones and Technology Parks.

Unit 4: Practical: (10 class)

- Cartographic representation of economic data of India/N.E. India in spatio-temporal contexts : pie-graph, line graph, bar graph and choropleth mapping
- Trend analysis of production, etc. of India/N.E. India using moving average method
- Transport network analysis using connectivity indices (alpha, beta & gamma).
- Traffic Flow Cartogram, crop combination analysis

Books Suggested:

1. Guha, J.L. and Chattoraj, P.R.: A New Approach to Economic Geography, The World Press Pvt. Ltd., Kolkata.
3. Leong, G.C. and Morgan, G.C.: Human and Economic Geography, Oxford University Press, New Delhi.
4. Roy, P. and Mukherjee, S.: Economic Geography – An Appraisal of Resources, Central Educational Enterprise, Kolkata.
5. Thoman, R.S. and Corbin, P.B.: The Geography of Economic Activity, McGraw Hill
6. Memoria, C.B.: Economic and Commercial Geography, Shivalal Agarwala and Company Educational Publishers, Agra-3

Core Course: C-9: Geography of India

Total Marks: 100

60 (Th) +20 (P) + 20 (IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Regional Basis of India (20 class)

- Locational entity of India, Strategic location of India,
- Physiographic division of India, Drainage system, Climate, Soil, Natural Vegetation

Unit 2: Social Basis of India (15 class)

- Population distribution, growth and Density of India
- Distribution of population by race, caste, religion, language, tribes and their correlates

Unit 3: Economic Basis of India (15 class)

- Agriculture: Problems of Indian Agriculture, Agricultural modernization and development in India and Agro-climatic regions of India.
- Industry: Development of major industrial sectors in India, industrial backward regions of India and regionalization of Industries throughout the country.
- Distribution and production pattern of major Industries (Iron and steel, cotton textile, petrochemicals, sugar, paper and cement industries), Industrial policies and industrial trade.
- Transport: Roads and railways, air transport, water and pipe transport

Unit 4: Practical: (10 class)

- Mapping of Physiographic, climatic regions and Agricultural regions of India,
- Mapping of major drainage system of India
- Trend of population growth, population density and religious composition of India
- Preparation of Age-Sex pyramid of population data of India
- Distribution pattern of major industries of India.

Book Suggested:

1. Deshpande C. D., 1992: *India: A Regional Interpretation*, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. *Geographical Dictionary of India*. Vision Books, New Delhi.
3. Sdyasuk Galina and P Sengupta (1967): *Economic Regionalisation of India*, Census of India
4. Sharma, T. C. 2003: *India - Economic and Commercial Geography*. Vikas Publ., New Delhi.
5. Singh R. L., 1971: *India: A Regional Geography*, National Geographical Society of India.
6. Singh, Jagdish 2003: *India - A Comprehensive & Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
7. Tirtha, Ranjit 2002: *Geography of India*, Rawat Publs., Jaipur & New Delhi.
8. Pathak, C. R. 2003: *Spatial Structure and Processes of Development in India*. Regional Science Assoc., Kolkata.
9. Tiwari, R.C. (2007) *Geography of India*. Prayag Pustak Bhawan, Allahabad
10. Sharma, T.C. (2013) *Economic Geography of India*. Rawat Publication, Jaipur.

Core Course: C-10: Advance Cartography

Total Marks: 100

60 (Th) +20 (P) + 20 (IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Map Projection (20 class)

- Definition, need of Map Projection, Principles, Function and Classification of map projection, Choice of Map Projection;
- Graphical Construction of Zenithal group of projection both polar and equatorial case, cylindrical group of projection, conical group of projection and conventional group of projection, their properties and uses.

Unit 2: Surveying (15 class)

- Concept and Principles of Geodetic and Plane Surveying, Principles of triangulation
- Principles and techniques of surveying by Plane Table (Radiation and Intersection Method), Prismatic Compass (Closed Traverse and Open Traverse), Dumpy Level (Profile) and Theodolite (Traversing).

Unit 3: Data Representation Techniques (5 class)

- Principle of Enlargement and Reduction of Maps by Graphical and Instrumental Methods.
- Importance, scope and purpose of Digital Planimeter, principles of working and application of the instrument; Measurement of area of a part of topographical map / drainage basin with the help of Digital Planimeter.

Unit 4: Practical: (20 class)

- Construction of graticules based on Mathematical derivation and calculation ;
 - (a) Zenithal group (polar cases): Gnomonic, Stereographic, Orthographic, and Equal-area
 - (b) Cylindrical group: Cylindrical equal area and Mercator's projection
 - (c) Conical Group: Simple Conical Projection, Conical Projection with two standard parallels.
 - (d) Conventional Group: Sinusoidal
- Principles of Surveying
 - (a) Plane table surveying (Radiation & Intersection methods)
 - (b) Prismatic Compass and Theodolite Surveying (Open and Closed Traverse)
 - (c) Dumpy Level (Profile) and Theodolite (Traversing and Profile);

Books Suggested:

1. Campbell, J., 1984: Introductory Cartography, Prentice Hall Inc., Englewood Cliff
2. Misra, R.P. and Ramesh, A., 1995: Fundamentals of Cartography, Concept Publishing Company, New Delhi
3. Robinson, A.H., et al: Elements of Cartography, John Wiley & Sons, New York
4. Raisz, E. : Principles of Cartography, McGraw Hills, London
5. Kenetkar, T.P. and Kulkarni, S.U.: Surveying and Levelling, Vol. I & II, VidyarthiGrithaPrakashan, Pune
6. Kellaway, G.P.: Map Projection, Methuen & Co., London
7. Steers, J.A., 1965: An Introduction to the Study of Map Projection, University of London, London
8. Bygott, J., An Introduction to Map work and Practical Geography 17
9. Talukder, S., 2008: Introduction to Map Projections, Eastern Book House, Guwahati.
10. Mahmood, A., 1999: Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
11. Hammond, R. and McCullagh, P. (1965): Quantitative Techniques in Geography, Clarendon Press, Oxford Sarkar, Ashis, Practical Geography: A Systematic Approach, Orient Longman Pvt. Ltd., Kolkata.
12. Elhance, D.N., 1972: Fundamentals of Statistics, KitabMahal, Allahabad
13. Monkhouse, F.J. & Wilkinson, H.R., 1989: Maps & Diagrams, B.I. Publications, New Delhi
14. Gregory, S., 1963: Statistical Methods and Geographers, Longman, London
15. Singh, R. & Singh, R.: Map Work & Practical Geography, Central Book Depot, Allahabad.
16. Sarkar, Ashis, Practical Geography: A Systematic Approach, Orient Longman Pvt. Ltd., Kolkata.

Generic Elective Paper

Generic Elective: GE-4: Geography of India

Total Marks: 100

60(Th) +20(R) +20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Regional Basis of India (20 class)

- Locational entity of India, Strategic location of India,
- Physiographic division of India, Drainage system, Climate, Soil, Natural Vegetation

Unit 2: Social Basis of India (15 class)

- Population distribution, growth and Density of India
- Distribution of population by race, caste, religion, language, tribes and their correlates

Unit 3: Economic Basis of India (15 class)

- Agriculture: Problems of Indian Agriculture, Agricultural modernization and development in India and Agro-climatic regions of India.
- Industry: Development of major industrial sectors in India, industrial backward regions of India and regionalization of Industries throughout the country.
- Distribution and production pattern of major Industries (Iron and steel, cotton textile, petrochemicals, sugar, paper and cement industries), Industrial policies and industrial trade.
- Transport: Roads and railways, air transport, water and pipe transport

Unit 4: Practical: (10 class)

- Mapping of Physiographic, climatic regions and Agricultural regions of India,
- Mapping of major drainage system of India
- Trend of population growth, population density and religious composition of India
- Preparation of Age-Sex pyramid of population data of India
- Distribution pattern of major industries of India.

Book Suggested:

1. Deshpande C. D., 1992: *India: A Regional Interpretation*, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. *Geographical Dictionary of India*. Vision Books, New Delhi.
3. Sdyasuk Galina and P Sengupta (1967): *Economic Regionalisation of India*, Census of India
4. Sharma, T. C. 2003: *India - Economic and Commercial Geography*. Vikas Publ., New Delhi.
5. Singh R. L., 1971: *India: A Regional Geography*, National Geographical Society of India.
6. Singh, Jagdish 2003: *India - A Comprehensive & Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
7. Tirtha, Ranjit 2002: *Geography of India*, Rawat Publs., Jaipur & New Delhi.
8. Pathak, C. R. 2003: *Spatial Structure and Processes of Development in India*. Regional Science Assoc., Kolkata.
9. Tiwari, R.C. (2007) *Geography of India*. Prayag Pustak Bhawan, Allahabad
10. Sharma, T.C. (2013) *Economic Geography of India*. Rawat Publication, Jaipur.

Skill Enhancement Course: SEC-2: Research Methodology

Total Marks: 50

40 (Th) + 10 (IA)

Total Credit: 2 (Total Number of Class: 30)

.Unit 1: Fundamentals of Research (15 class)

- Concept of Research Definition of research, identification of research problem – major criteria and considerations, Essentials of formulating research questions and hypothesis
- Key methods and skills in Geography - Literacy (Descriptive /Qualitative), Numeracy (Quantitative) and Graphicacy (Cartographic): Their significance, need and limitations
- Sources of geographic data, data processing, analysis and presentation

Unit 2: Field Work in Geographical Studies (15 class)

- Literature Review and Referencing Systems in research - its needs, functions, significance and limitations;
- Introductory idea on use of theory and model in Geography
- Research and field report writing - Guiding principles, reporting components, techniques

Books Suggested:

1. Burrough, P. A. (1998): Principles of Geographical Information Systems for Land Resources Assessment, Oxford University Press.
2. Burrough P. A. and McDonnell R. A., (2000): Principles of Geographical Information Systems–Spatial Information Systems and Geostatistics, Oxford University Press.
3. Chorley, R. J., Hagget, P. (1979): Integrated Models in Geography, Methuen & Co. Ltd., London.
4. Gonjalez, R. C., Woods, R.E. (2000): Digital Image Processing, Addison- Wesley Longman (Singapore), Pvt. Ltd, Delhi-92.
5. Hammond, R. and McCullagh, P. (1965): Statistical Methods in Geographical Studies, Oxford University Press.
6. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
7. Jensen, John R. (2011): Remote Sensing of Environment: An Earth Resource Perspective, Pearson Education India, Noida
8. King, L. J., (1969): Statistical Analysis in Geography, Prentice-Hall.
9. Mahmood, A.: Quantitative Methods in Geography, Rajesh Publications., New Delhi.
10. Mathew, J. A., David, H.J., (2008): Geography: A Very Short Introduction, Oxford, New York
11. Pal S. K., (1998): Statistics for Geoscientists, Tata McGraw Hill, New Delhi.

FIFTH SEMESTER

Core Course: C-11: Regional Planning and Development

Total Marks: 100

60 (Th) +20 (P) + 20 (IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Fundamentals (15 class)

- Definition of Region, Evolution and Types of Regional planning (Formal and Functional), Need for Regional Planning; Regionalism and Types of regional Planning.
- Concept of Development, Sectoral Development and Regional Development, and development indicators.

Unit 2: Models for Development (15 class)

- Choice of a Region for Planning, Characteristics of an Ideal Planning Region; Delineation of Planning Region; Regionalization of India for Planning (Agro Ecological Zones)
- Theories and Models for Regional Planning: Growth Pole Model of Perroux; Growth Centre Model in Indian Context; Myrdal, Hirschman, Rostow and Friedmann; Village Cluster.

Unit 3: Developmental Strategies (15 class)

- Regional Disparities, Global Pattern of Development, Inter-regional variations.
- Changing Concept of Development, Concept of underdevelopment; Efficiency-Equity Debate
- Regional Planning in India, Regional Approach to Planning in India's Five Year Plans Decentralization and Multi-Level Planning - State, District and Block level planning in India.
- Planning regions of India; Case Studies of a River Valley Development Plan – Damodar Valley and National Capital Region Plan

Unit 4: Practical: (15 class)

- Measures of Disparity Calculation for Indicators of Development
- Measures of level of development with the help of Z-Scores and PCA techniques.
- Delineation of Industrially backward regions of India with choropleth mapping.
- Regional mapping of developmental activities in India with special reference to Assam.

Book Suggested:

1. Blij H. J. De, 1971: *Geography: Regions and Concepts*, John Wiley and Sons.
2. Claval P., 1998: *An Introduction to Regional Geography*, Blackwell Publishers, Oxford and Massachusetts.
3. Friedmann J. and Alonso W. (1975): *Regional Policy - Readings in Theory and Applications*, MIT Press, Massachusetts.
4. Gore C. G., 1984: *Regions in Question: Space, Development Theory and Regional Policy*, Methuen, London.
5. Gore C. G., Köhler G., Reich U-P. and Ziesemer T., 1996: *Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention*, Metropolis- Verlag, Marburg.
6. Haynes J., 2008: *Development Studies*, Polity Short Introduction Series.
7. Johnson E. A. J., 1970: *The Organization of Space in Developing Countries*, MIT Press, Massachusetts.
8. Peet R., 1999: *Theories of Development*, The Guilford Press, New York.

10. World Bank 2001-05: *World Development Report*, Oxford University Press, New

Core Course: C-12: Remote Sensing and Geographic Information System

Total Marks: 100

60 (Th) +20 (P) + 20 (IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Fundamentals of Remote Sensing and GIS (18 class)

- Remote Sensing and GIS: Definition, Components and Principles, Electro Magnetic Radiation, Interaction with Atmosphere and Earth Surface
- Remote Sensing, Platforms and Types, Global Positioning System (GPS) Principles and application
- Aerial Photography: Types and Geometry of Aerial Photograph, Satellites (Landsat and IRS) and Sensors, Type of resolution.

Unit 2: Geographic Information System (16 class)

- GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure
- Image Processing (Digital and Manual) and Data Analysis: Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Un-supervised), Geo-Referencing; Editing and Output.
- Overlay Operations and its advantages

Unit 3: Application of Remote Sensing and GIS (10 class)

- Elements of Image interpretation and application of Remote Sensing and GIS: Land use/ Land Cover, Urban Sprawl Analysis; Forests Monitoring, Watershed management, Disaster management, Environmental management, Planning, Engineering, Health and Decision making,

Unit 4: Practical (16 class)

- Geo-Referencing the map/Toposheet, Drawing base map from Satellite imagery/Toposheet,
- Mapping point, line and polygon features, Land use/ Land Cover mapping (Supervised and Un-supervised), Isopleths, Choropleth and Chorochromatic mapping, Proportional mapping,
- Relief analysis from DEM. Data collection from GPS and mapping.

Books Suggested:

1. Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press.
2. Jensen J. R., 2004: *Introductory Digital Image Processing: A Remote Sensing Perspective*, Prentice Hall.
3. Joseph, G. 2005: *Fundamentals of Remote Sensing*, United Press India.
4. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
5. Nag P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
6. Rees W. G., 2001: *Physical Principles of Remote Sensing*, Cambridge University Press.
7. Singh R. B. and Murai S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBH Pub.

Discipline Specific Elective

Discipline Specific Elective: DSE-1: Soil and Biogeography Geography

Total Marks: 100

60(Th)+20(P)+20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Nature and Scope of Soil Geography (15 class)

- Definition and Scope of Soil Geography, Soil Formation, Characteristics and Properties, Soil as life supporting system;
- Soil profile (Soil horizon) – their characteristics and significance; Processes and factors of soil formation;

Unit 2: Soil and Land Management (15 class)

- Physical and Chemical properties of soil: Soil texture, Structure and Moisture, Soil colour, pH value, Organic Matter and NPK.
- Processes and Controlling factors of soil erosion, Various measures of soil conservation,
- Principles of soil classification: Genetic School and USDA

Unit 3: Concepts of Biogeography (15 class)

- Definition and scope of biogeography, Concept and Components of Biosphere, vertical and horizontal limits of biosphere;
- Concept of Ecology and Ecosystem, Types of Ecosystem, Trophic Structure, Food Chain and Food Web, Energy flow in Ecosystem.
- Ecological Aspects of Biogeography: Bio-geo-chemical cycles, concepts of biomes, Ecotone and Community.
- Concept of biodiversity, its types and conservational issues, Nature and distribution of biodiversity in N.E. India and Assam; Man as an agent of environmental/ecological change

Unit 4: Practical (15 class)

- Construction and interpretation of soil profile with the data derived from the field (college campus/ river site/ foot hill, etc.)
- Drawing and interpretation of soil map of India/North East India
- Mapping of vegetation of India/north east India, Representation of soil-vegetation relationship along selected cross-section of India and North-East India Biogeographic regions of the world
- Mapping of the national parks and sanctuaries of India with the major species therein.
- Showing location of the megalopolis, and metropolitan and port cities of the world

Book Suggested:

1. Bunting, B. T., 1967: The Geography of Soil, Hutchinson, London.
2. Foth, H. D. and Turk, L. M. 1972: Fundamentals of Soil Science, John Wiley, New York.
3. GovindaRajan, S. V. and Gopala Rao, H. G., 1978: Studies on Soils of India, Vikas, New Delhi.
4. Goudie, Andrew, 1981: The Human Impact, Basil Blackwell, Oxford.
5. Hussain, M. (ed), 1994: Biogeography (Part I&II), Anmol Publications Pvt. Ltd., New Delhi.
6. Newbiggin: Plant and Animal Geography.
7. Pears, N., 1985: Basic Biogeography. 2nd Edition, Longman, London.

8. Robinson, H., 1982: Biogeography, E.L.B.S., Mc Donald & Evans, London.

Discipline Specific Elective: DSE-2: Urban and Cultural Geography

Total Marks: 100

60(Th)+20(P)+20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Urban Geography (15 class)

- Introduction, nature and scope, Patterns of Urbanization in developed and developing countries, Urban Morphology, Satellite towns,
- Functional classification of cities: Quantitative and Qualitative Methods

Unit 2: Urban Issues (15 class)

- Problems of housing, slums, civic amenities (water and transport),
- Case studies of Delhi, Mumbai, Kolkata, Chennai Chandigarhand Guwahati with reference to Land use and Urbanization, Urban sprawl, Sustainable development of cities.

Unit 3: Cultural Geography (20 class)

- Introduction, Nature and Scope of Cultural Geography,
- Concept of Society, Culture, Race, Ethnicity and different facets of culture,
- Historical perspective of Indian societies; racial, linguistic and ethnic diversity,
- Major Tribes of India and their problems

Unit 4: Practical (10 class)

- Sphere of Urban Influence
- Major Tribal area of India
- Linguistic Region of India
- Cultural Region of the world

Books Suggested:

1. Fyfe N. R. and Kenny J. T., 2005: *The Urban Geography Reader*, Routledge.
2. Graham S. and Marvin S., 2001: *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, Routledge.
3. Hall T., 2006: *Urban Geography*, Taylor and Francis.
4. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: *Urban Geography*, John Wiley.
5. Knox P. L. and McCarthy L., 2005: *Urbanization: An Introduction to Urban Geography*, Pearson Prentice Hall New York.
6. Knox P. L. and Pinch S., 2006: *Urban Social Geography: An Introduction*, Prentice-Hall.
7. Pacione M., 2009: *Urban Geography: A Global Perspective*, Taylor and Francis.
8. Sassen S., 2001: *The Global City: New York, London and Tokyo*, Princeton University Press.
9. Ramachandran R (1989): *Urbanisation and Urban Systems of India*, Oxford University Press, New Delhi
10. Ramachandran, R., 1992: *The Study of Urbanisation*, Oxford University Press, Delhi
11. Singh, R.B. (Eds.) (2001) *Urban Sustainability in the Context of Global Change*, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
12. Singh, R.B. (Ed.) (2015) *Urban development, challenges, risks and resilience in Asian megacities*. *Advances in Geographical and Environmental Studies*, Springer

SIXTH SEMESTER

Core Course: C-13: World Regional Geography

Total Marks: 100

60(Th)+20(P)+20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: The World Geography in regional context (10 class)

- An overview Brief regional account of the continents: Physiography, Climate, Natural Vegetation,
- Population growth, Density and distribution, major population density zones.

Unit 2: Profile of developed and developing nations (25 class)

- Developed (Canada, U.S.A., Western Europe, Russia, Japan, Australia and New Zealand) and developing (S.E. Asia, S.W. Asia, China, Southern Africa and Brazil) nations: Demographic, Social and Economic Profile.

Unit 3: Regional Geography of Asia (15 class)

- Regional Geography of Asia: Location, Physiography, Climate, Population growth and distribution, agriculture and industries.

Unit 3: Practical on World Regional Geography (10 class)

- Mapping major mountain ranges of the world
- Mapping major river system of the world
- Showing trend of world population growth by line/bar graph
- Mapping and interpretation of world population density
- Demarcation of developed, developing and underdeveloped countries on a world map based on appropriate social and economic indicators
- Showing the distribution of major rivers and lakes on a map of Asia

Books Suggested:

1. Manku Darshan Singh: *A Regional Geography of the World* 7
2. Khullar, D.R.: *India: A Comprehensive Geography*
3. Singh, R.L. (ed): *India – A Regional Geography*, National Geographical Society, India
4. Cole, J. *A Geography of the World's Major Regions*, Routledge, London
5. Israel, S. Johnson, D.I. and Wood, D.: *World Geography Today*
6. Jackson, R.H. and Hudman, L.E.: *Regional Geography: Issues for Today*.
7. *An Introduction to Regional Geography*, Paul claval, Rawat Publication, Jaipur & Delhi
8. Wheeler, J.H. Jr. and Kostbade, J.T., 1990: *World Regional Geography*, Holt Rinshort and Winston, Inc
9. Israel, S., Johnson, D.I. & Wood, D., 1976: *World Geography Today*, Holt Renhart and Winston Publishers
10. Holier, G.P., 1988: Regional Development in Michael Pacione (ed), *The Geography of the 3rd World: Progress & Prospects*, Rutledge, London, New York.

DISSERTATION

Core Course: C-14: Dissertation

Total Marks: 100

80(C) + 20(IA)

Total Credit: 6

Discipline Specific Elective: DSE-3: Social and Political Geography

Total Marks: 100

60(Th) +20(P)+20(IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: Situating Social Geography (20 Class)

- Origin, Nature and Scope of Social Geography,
- Concept of Social Space: First, Second and third Space,
- Social Categories: Defining Caste, Class, Religion, Ethnicity and Gender and their Spatial Underpinnings;
- Concepts of Social differentiation and integration and social change.

Unit 2: Political Geography and Geopolitics (20 Class)

- Definition and Scope of Political Geography, Geopolitics;
- State, Nation and Nation State – Concept of Nation, State and Nation State, Attributes of State –Frontiers, Borders, Shape, Size, Territory and Sovereignty, Nation Building, Concepts of Lebensraum, Heartland and Rimland, Colonialism, desalinization and Neocolonialism,

Unit 3: Geography of Welfare and Well-being (10 Class)

- Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime.
- Political Geography of Resource Conflicts – Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals, issues of land locked states in Asia and Africa.

Unit 4: Practical (10 Class)

- Mapping Frontiers, buffer zone, boundaries and border zones; boundary problems with reference to India and North East India
- Showing distribution of displaced people of India by using cartograms (with reference to Dams) and Special Economic Zones.

Books Suggested:

1. Ahmed A., 1999: *Social Geography*, Rawat Publications.
2. Casino V. J. D., Jr., 2009) *Social Geography: A Critical Introduction*, Wiley Blackwell.
3. Panelli R., 2004: *Social Geographies: From Difference to Action*, Sage.
4. Rachel P., Burke M., Fuller D., Gough J., Macfarlane R. and Mowl G., 2001: *Introducing Social Geographies*, Oxford University Press.
5. Sen, Jyotirmoy : A text book of Social and Cultural Geography
6. Taher, M 1994 : An Introduction to Social Geography, NEIGS
7. Ahmed, A : 1999 Social Geography, Rawat Publications Jaipur & New Delhi
8. Dikshit , R.D.1982 : Political Geography – A Contemporary Perspective, Tata
9. McGraw Hill Publishing Co.Ltd,NewDelhi
10. Carlson: Geography and World Politics
11. Taylor, P. J., 1989: Political Geography, Longman, London
12. Sukhuwal, B.J., 1979: Modern Political Geography of India, Sterling, New Delhi
13. De Blij, H.J. 1972: Systematic Political Geography, John Wiley, New York

14. Adhikari 1996: Political Geography, Rawat Publications Jaipur & New Delhi

Elective Discipline Specific: DHE-4: Geography of North East India

Total Marks: 100

60 (Th) +20 (P) + 20 (IA)

Total Credit: 6 (Total Number of Class: 60)

Unit 1: North East India and Assam (15 class)

- Locational significance of North East India and Assam
- Physical characteristics: Physiography, drainage, climate, soil and natural vegetation of North East India with special reference to Assam

Unit 2: Economic Traits and Development (15 class)

- Agriculture and Industries of North East India
- Agriculture and industrial characteristics (Brahmaputra valley, the Barak Valley, Hill region)
- Transport and communication system
- Disparity in socio-economic development; socio-economic problems

Unit 3: Population Dynamics and Associated Correlates (15 class)

- Population characteristics: peopling, growth, distribution and density, age sex composition, rural-urban composition and religious composition
- Regions of Assam and their population
- Tourism and its potentiality in Assam
- Biodiversity and its conservation issues
- Look-East Policy and North East India

Unit 4: Practical: (10 class)

- Mapping of Physical Features of North East India
- Locating of Major and Minor Industries of North East India
- Mapping of Biodiversity region of North East India
- Preparation of Tourist Potentiality map of North East India

Books Suggested:

1. Bhagabati, A.K., Bora, A. K. and Kar, B.K.: Geography of Assam, Rajesh Publications, New Delhi.
2. Taher, M and Ahmed, P.: Geography of North East India, Mani Manik Prakash, Guwahati.
3. Das, M. M.: Peasant Agriculture in Assam, Inter – India Publications, New Delhi.
4. Govt. of India: National Atlas of India, NATMO Publication, Kolkata
5. North Eastern Geographer, NEIGS Publications, Guwahati
6. Gopal Krishnan, R: Geography of North East India
7. Bhattacharya, P.2006: Trend in Tourism Potentiality, BaniMandir, Guwahati
8. Bhagabati, A.K. (ed): Biodiversity of Assam, Eastern Book House, Guwahati
9. Bhattacharyya, N.N.: North East India, Rajesh Publication, New Delhi

Abbreviation

CC: Core Course

DSE: Discipline Specific Elective

AECC: Ability Enhancement Compulsory Course

SEC: Skill Enhancement Course

GE: Generic Elective

Th: Theory

P: Practical

IA: Internal Assessment

R: Report

L: Lecture

T: Teaching

Mark Distribution

- | | |
|--|------------|
| 1. Discipline Specific Core Paper (DSC)
Th (60) + P (20) + IA (20) | Total: 100 |
| 2. Discipline Specific Elective paper (DSE)
Th (60) + P (20) + IA (20) | Total: 100 |
| 3. Generic Elective Paper (GE)
Th (60) + R (20) + IA (20) | Total: 100 |
| 4. Skill Enhancement Course Paper (SEC)
Th (40) + IA (10) | Total: 50 |