SYLLABUS & PROGRAMME STRUCTURE OF FOUR YEARS UNDERGRADUATE PROGRAMME

GEOGRAPHY

(Major)

Semester : V - VI

(Under National Education Policy – 2020)

(Effective from the Academic Session 2023-2024)

MAHARAJA BIR BIKRAM UNIVERSITY
AGARTALA, TRIPURA: 799004

3RD YEAR (DEGREE COURSE)

SEMESTER -V

Economic Geography (Theoretical)

Paper- GE-501C

Full Marks-100(Credit–4)
(Internal Assessment-40;End Sem.Exam.-60)

Unit-1: Introduction to Economic Geography

Definition, Concept, scope and development; Resource: Meaning and concept, Classification (according to use of resources and Dasmann's classification of natural resources), significance; Classification and types of economic activities; Factors affecting location of economic activities with spatial reference to agriculture(Von Thunen Theory); industry (Weber's Theory).

Unit-2: Primary Economic Activities

Intensive Subsistence Agriculture; Extensive Commercial Agriculture; Plantation Agriculture; Mixed Farming; Forestry: Lumbering-Tropical and Temperate; Fishing: Temperate and Tropical fishing ground; Mining: Definition, examples and types.

Unit-3: Secondary Economic Activities

Manufacturing: Meaning, types and determinants of location of industries; Industry: Iron and steel, Cotton Textile, Aluminium, Petroleum refining and Paper; Industrial Regions: Definition, Characteristics and delimitation; Industrial regions of India: (a)Hooghly region (b) Mumbai- Pune region (c) Madurai- Coimbatore region (d) Chhotanagpur region; Special Economic zones; Technology Parks.

Unit-4: Tertiary Economic Activities

Transport and trade: Major transport system of the world–Trans-Siberian Railway; Canadian Pacific Railway, Panama Canal Route, Suez Canal Route; Concept of World Trade Organization (WTO); Multinational Corporation (MNC) and International Trade; International Trade system of India; Recent status of Indian Economy.

Selected References:

1. Jones, C.F. and Darkenwald, G.G. (1954) — Economic Geography, Me Milan, New York.
2. Smith, D.N. (1971) — Industrial Location – An Economical Geographical Analysis, John Wiley, New York.
3. Morgan, W.B.and Munton ,R.J.C .(1971) : Agricultural Geography ,Methuen, London .
4. Leong, G.C.(2000), Human and Economic Geography ,Oxford University Press, New Delhi , Kolkata.
5. Roy , Prithwish ,Economic Geography, (Latest Edition),New Central Book Agency (p) Ltd., Kolkata.
6. Hartshorn ,T.A .Alexander,J.W, Economic Geography (Latest Edition) ,Printice Hall of India Pv5. Ltd.
7. Chattaraj , Guha (Latest Edition), Economic Resources, John Wiley publication ,New Delhi, Kolkata.
8. Gautam ,Alka ,Advanced Economic Geography, Sharada Pustak Bhawan, University Road ,Allahabad .
9. Saxena, H.M., Economic Geography, Rawat Publications ,Jaipur New Delhi,

3RD YEAR (DEGREE COURSE)

SEMESTER -V

Oceanography and Tectonic Geography

(Theoretical)

Paper-GE-502C

Full Marks-60(Credit–2)
(Internal Assessment-24;End Sem.Exam.-36)

Unit-1: Introduction to Oceanography, Physical and Biological Ocean Properties and Ocean Management

Meaning, Scope and significance; Ocean Bottom Topography – Relief of Ocean Floor (Pacific, Indian and Atlantic), Origin of ocean basins, the origin of ocean waves, tides and ocean currents, Properties of Ocean Water: Salinity and Temperature (Horizontal and Vertical Distribution); Marine Ecosystems: Coral Reef, Mangrove; Marine Challenges and Management, Marine Policy: Integrated Coastal Zone Management (ICZM) with reference to India and SDG 14

Unit-2: Tectonic Geography and Structural Geology

Sea floor spreading and mid oceanic ridges; Isostasy: Models of Airy and Pratt; Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate margins, boundaries and hotspots, Plate movement mechanisms; Earthquake and earthquake belts; Volcanoes- types, distribution; Earth Movements: classifications and significance; Folding mechanisms, Fold morphology; Geometric classification of folds; associated landforms of folding; Faulting mechanisms, classifications and associated landforms

Selected References:

1. *Siddhartha, K. (2018): Oceanography, A brief Introduction, Kitab Mahal.*
2. *D. S. Lal: Oceanography, Sharda pustak bhawan.*
3. *Savindra Singh:Oceanography, Pravalika Pustak Publications*
4. *R.C.Sarma & M Vatal:Oceanography for Geographers,* ***Surjeet Publications***
5. *Mark Denny:An Introduction to Oceanography How Ocean works,Overseas Press*
6. *Pinet, P. R., (2008): Invitation to Oceanography (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada*
7. *Condie, K.C. (2003). Plate Tectonics and Crustal Evolution, Butterworth-Heinemann, Oxford, Burlington.*
8. *Duff, D., (1993). Holmes' Principles of Physical Geology, Stanley Thornes, Cheltenham.*
9. *Erickson, J., (2001). Plate Tectonics: Unravelling the Mysteries of the Earth, Checkmark Books, New York.*
10. *Goudie, A.S. and Viles, H., (2010). Landscapes and Geomorphology: A Very Short Introduction, Oxford University Press, Oxford.*
11. *Holmes, A., (1978). Principles of Physical Geology, Van Nostr and Rheinhold, New York.*
12. *Huggett, R.J., (2011). Fundamentals of Geomorphology, Routledge, New York.*
13. *Kale, V.S. and Gupta, A., (2001). Introduction to Geomorphology, Orient Longman, Kolkata .*
14. *Keary, P. and Vine, M., (1997). Global Tectonics, Blackwell Scientific Publications, Oxford.*
15. *Ollier, C.D., (1981). Tectonics and Landforms, Longman Group Ltd., London.*
16. *Selby, M.J., (1985). Earth's Changing Surface: An Introduction to Geomorphology, Clarendon Press, Oxford .*
17. *Siddhartha, K., (2001). The Earth's Dynamic Surface, Kisalaya Publications, New Delhi • Singh, S., (2000). Geomorphology, Prayag Pustak Bhavan, Allahabad.*
18. *Strahler, A.H. and Strahler A.N., (1992). Modern Physical Geography, John Wiley & Sons, New York.*
19. *Summerfield, M.A., (1991). Global Geomorphology: An Introduction to the Study of Landforms, Longman, London*
20. *Summerfield, M.A., (ed.) (2000). Geomorphology and Global Tectonics, Wiley, Chichester .*
21. *Thorn, C., (1988). Introduction to Theoretical Geomorphology, Unwin Hyman, Boston .*
22. *Thornbury, W. D., (I960). Principles of Geomorphology, John Wiley & Sons, New York*

3RD YEAR (DEGREE COURSE)

SEMESTER -V

(Practical)

Paper-GE-502 C **Full Marks – 40 (Credit -2)**

(Internal Assessment-16; End Sem. Exam.-24)

Sl. No.	Practical	Marks
1.	Introduction of map Projection: Definition and classification and importance of map projections. Construction, characteristics and applications of followings projections. a. Cylindrical equal area projection. b. Simple conical projection with one standard parallel. c. Bonne's Projection. d. Polar Gnomonic Zenithal Projection e .Polar Stereographic Zenithal Projection f. Sinusoidal Projection	14
2.	Identification of rocks and minerals by Streak test and eye observation.	05
3.	Laboratory Notebook and Viva–voce	03+02
TOTAL		**24**

Selected References:

1. Mitra,K., Ghosh K. and Das, M.(2006):B.A. General Practical Geography, Kalyani Publishers, Kolkata.
2. Monkhouse,F.J. (1971): Maps and Diagrams, Methuen, London.
3. Sarkar,A. (2015): Practical Geography: A systematic approach, Orient Black Swan Private Ltd., New Delhi.
4. Saha, P.& Basu, P.(2015):Advanced Practical Geography– A Laboratory Manual, Books and Allied (P)Ltd., Kolkata.
5. Singh, R.L.,Singh, Rana P.B. (2003): Elements of Practical Geography, Kalyani Publishers, New Delhi.
6. Singh,R. and Singh,K.: Map Work and Practical Geography, Central Book Depot, Allahabad.
7. Saikia, R. and Thakuriah,G.(2015):Practical Geography, EBH Publishers (India),Guwahati.
8. Singh, Gopal., (1998): Map Work and Practical Geography (4th Edition), Vikas Publishing House, Ahmedabad.
9. Gupta, K.K. and Tyagi V.C.,(1992): Working with Map, Survey of India, DST, New Delhi.
10. Misra, R.P.,(2014): Fundamentals of Cartography (Second Revised and Enlarged Edition), Concept Publishing, New Delhi.
11. Monkhouse, F. J. and Wilkinson, H. R.,(1973): Maps and Diagrams, Methuen, London.

3RD YEAR (DEGREE COURSE)

SEMESTER -V

Environmental Geography (Theoretical)

Paper- GE-503C

Full Marks-100(Credit– 4)

(Internal Assessment-40; End Sem.Exam.-60)

Unit-1: Introduction to Environmental Geography

Concept, Meaning, development, nature and scope of Environmental Geography, Recent Dimensions of Environmental studies in Geography; Major physical and cultural elements of environment; Functioning of environmental systems – role of biotic and abiotic elements.

Unit-2: Ecosystem Approach in Environmental Studies

Ecosystem Structure and function, terrestrial and aquatic ecosystems; Principle of ecology; human ecological adaptation; influence of man on ecology and environment; bio-geo- chemical cycles. Energy flow in an ecosystem; food chain, food web and Ecological pyramids.

Unit-3: Environmental Degradation and Hazards:

Water, Air, Noise and Solid waste problems in urban-industrial Environment, Water and soil pollution in rural landscape (with reference to India), Major pollutants: types, sources and effects. Global issues- Climatic Hazards and Management, Social Response to Climatic Hazard, Human response to Flood, Drought, Landslide, Earthquake and Cyclone, Forest Fires. Impact of Green revolution

Unit-4: Conservation and management of environment:

Environmental Perception, Environment Conservation and challenges in developing countries, Environmental Movements in India*: Bisnoi*, *Chipko*, Silent valley and Narmada. Environmental issues, policies and efforts in India, Concept of sustainable development, Significance of environmental laws, EIA (Environmental Impact Assessment).

Selected References:

1. Singh,S.(2001): Environmental Geography, Prayag Pustak Bhawan, Allahabad.
2. Gautam,A. (2009): Environmental Geography, Sharda Pustak Bhawan, Allahabad.
3. Dash, M.C. (2001):Fundamental of Ecology, 2nd edition,Tata Mc Graw Hill, New Delhi
4. ChapmanJ.L.and Reiz,M.J.(1993):Ecology-Principle and Applications, Cambridge University Press.
5. Hagget,R.J.(1995):Geoecology: An Evolutionary Approach, Routledge, London.
6. Agarwal, D.P. (1992): *Man and Environment in India through Ages*, Books & Books, New Delhi.
7. Arthur N. Strahler and Alan H. Strahler (1973 1st Ed): *"Environmental Geoscience – Interaction between natural systems and man",* Wiley International Ed.
8. Bala Krishnan, M., 1998: *Environmental Problems and Prospects in India*, Oxford & IBH Pub., New Delhi.
9. Barrow, C. J. (2003): *Environmental Change and Human Development*. Arnold Publication.
10. Blowers, Andrews, (1993): *"Planning for a sustainable Environment,"* Earth scan Publication, London.
11. Botkin, D.B., and Keller,E.A.(2013): *Environmental Science*, Wiley, New Delhi
12. Gole, P., (2001): *Nature Conservation and Sustainable Development in India*, Rawat Pub., Jaipur
13. Goudie, A. (1986): *The Human Impact on the Natural Environment*, 2nd edition, Blackwell Pub. Co., London
14. Lohani, B. N. (1997). *Environmental impact assessment for developing countries in Asia (Vol 1).* Manila: ADB.
15. Smith,K.(2001):*EnvironmentalHazards:AssessingRiskandReducingDisaster*, Routledge

3RD YEAR (DEGREE COURSE)

SEMESTER -V

Paper-GE-504C

Agricultural Geography (Theoretical)

FullMarks-60(Credit–2)
(Internal Assessment-24; End Sem. Exam.-36)

Unit-1: Fundamentals of Agricultural Geography

Meaning, Scope and Importance of Agricultural Geography; Factors Influencing Agriculture: Physical-Climate, Soil, Relief, Water Resources, Economic-Landholding, Technology, Market, Transport, Social & Political-Land Reforms, Government Policies; Cropping Patterns and Agricultural Productivity; Concept of Agricultural Region; Agricultural Regions of India: Agro- Climatic Regions (Planning Commission); Agro-ecological and Crop Combination Regions

Unit-2: Agricultural Development and Challenges:

Types of Farming: Subsistence Farming, Commercial Farming, Mixed Farming, Shifting Agriculture; Challenges in Agriculture: Soil Erosion, Water Scarcity, Pests and Diseases, Deforestation, Impact of Climate Change on Agriculture; Introduction to Sustainable Practices: Organic Farming, Agroforestry, Crop Rotation, Importance of Technology in Agriculture: Farm Mechanization, Irrigation Systems, Biotechnology

Selected References:

1. Alka Gautam(2012): *"Agricultural Geography "*Sharda Pustak Bhawan, Allahabad.
2. Bryant,C.R., Johnston,T.R.(1992),"*Agriculture in the City Country side*",Belhaven Press, London.
3. Burch,D.,Gross,J.and Lawrence,G.(eds.)(1999),"*Restructuring Global and Regional Agriculture*", Ashgate Publishing Company, Burlington.
4. Cakmak,I.and Welch,R.M.(eds)(2009),"*Impacts of agriculture on Human Health and Nutrition*", EOLSS Publications, UK.
5. Ferroni, Marco (2013):"*Transforming Indian agriculture-India2040:Productivity, Markets and Institutions*" , Sage Publications, New Delhi.
6. Grigg David (1995): *"An introduction to agricultural geography",*(secondedition), Routledge, London and New York.
7. Illbery,B.W.(1985):"*Agricultural Geography, Social & Economi cAnalysis*", Oxford University Press.
8. Mohammad,N.(1992):"*New Dimension in Agriculture Geography*",Vol. I to VIII, Concept Publishing Company, New Delhi.
9. Mohammad,N.and Rai,S.C.(2014):"*Agricultural Diversification and Food Security in the Mountain Ecosystem*", Concept Publishing Company, New Delhi.
10. Randhawa,M.S.(1980):"*An History of Agriculture in India*",Vols.I,II, III,IVICAR, New Delhi
11. Roling, N.G.,and Wageruters,M.A.E.(eds.)(1998):"*Facilitating Sustainable Agriculture*",Cambridge University Press, Cambridge.
12. Shafi,M.(2006):"*Agricultural Geography*",Pearson Education,Delhi.
13. SingJasbir and Dhillon,S.S.(1994): *"Agricultural Geography"*Tata Mc Graw Hill,New Delhi.
14. Shrivastava,Sahay,Vidyarti and Singh(2010): *"Second Green Revolution Vs.Rainbow Revolution".*
15. Tiwari,R.andSingh,B.(1994):"*Krishi Bhoogol*",Prayag Pustak Bhandar,Allahabad. (Hindi). 15. White P. (2007) :" *Emergence of agriculture:A global view*",Routledge, London.
16. WrightJ.(2009):"*Sustainable agriculture and food security in ane raof oilscarcity*", Earthscan, London.
17. Young,A.(1998):"*Landuse Resources: Now and for the Future*",Cambridge University Press, Cambridge.

3RD YEAR (DEGREE COURSE)

SEMESTER -V

PRACTICAL

Paper-GE-504C **FullMarks-40(Credit– 2)**

(Internal Assessment-16; End Sem.Exam.-24)

Sl. No.	Practical	Marks
1.	• Survey and mapping of agricultural land use and cropping patterns (observational study, using toposheets and satellite images (Google Earth interpretation) • Agricultural Density • Crop combination method Rafiullah's method	09
2.	Surveying with instruments (Selection of any one by Lottery during Examination) a. Prismatic Compass Survey for Closed Traversing of a Quadrangular area b. Survey with Dumpy Level along a road c. Triangular measurements of height and distance by Transit Theodolite with accessible base	10
4.	Laboratory Notebook and Viva–voce	3+2=5
TOTAL		**24**

Selected References:

1. Saha, P.& Basu, P.(2015):Advanced Practical Geography– A Laboratory Manual, Books and Allied (P)Ltd., Kolkata.
2. Singh, R.L.&Singh, RanaP.B.(2003):Elements of Practical Geography, Kalyani Publishers, New Delhi.
3. Sarkar,A.(2015):Practical Geography:A Systematic approach, Orient Black Swan Private Ltd.,New Delhi.
4. Singh, R. & Singh,K.: Map Work and Practical Geography, Central Book Depot, Allahabad.

3rd Year (Degree Course)
Semester-VI

Social and Cultural Geography
(Theoretical)

Paper-GE-601C

Full Marks-100(Credit–4)
(Internal Assessment-40;End Sem.Exam.-60)

Unit-1: Introduction to Social Geography

Meaning, Concept, Nature and Scope; Society and Environment: Influence of Environment on Society and Society on Environment; Social Categories: Tribe, Caste, Language and Religion; Space in Social Geography: Concept and Types

Unit-2: Human Settlement

Origin and Growth of Human Settlement: Rural and Urban; Factors influencing Rural Settlement with special reference to India; Socio-Cultural characteristics of Urban Settlement with special reference to India; Rural-Urban Dichotomy and Rural-Urban Continuum.

Unit-3: Introduction to Cultural Geography

Meaning, Nature and Scope of Cultural Geography; Themes in Cultural Geography: Cultural Region, Cultural Diffusion, Cultural Ecology, Cultural Integration and Cultural Landscape; Cultural Hearth and Cultural Realms; Concept of Race, Language and Religion their divisions and distribution.

Unit-4: Ecoonomy towns and cities

Forms of Economy: Food gathering and Agriculture in Tribal Societies; Land use in Traditional and Modern Societies; Towns and Cities: Site and Situation, Cities in Modern Era, Facets of Contemporary Cities; Distribution of large Metropolises

Selected References:

1. *Ahmad, A. (2006): Social Geography, Rawat Publications, New Delhi.*
2. *Broek, J. O. M. and Webb, J. W. (1978): A Geography of Mankind, McGraw Hill International Book Company, London.*
3. *Johnston, R. J., Gregory, D., Pratt, G. and Watts, M. (edited) (2000): The Dictionary of HumanGeography, Blackwell Publishing, Oxford, UK.*
4. *Jordan Terry, G. and Rowntree, L. (1990): The Human Mosaic: A Thematic Introduction to Cultural Geography, Harper Collins Publishers, New York.*
5. *Smith, S. J., Pain, R., Martson, S. A. and Jones, J. P. (2009): The SAGE Handbook of Social Geographies.*
6. *Sopher, D. (1980): An Exploration of India, Cornell University Press, Ithasa.*
7. *Taher, M. (2005): An Introduction to Social Geography, North East India Geographical Society, Gauhati University, Guwahati*

3rd year (Degree Course)

Semester -VI

Statistical Methods in Geography

(Theoretical)

Paper-GE-602C

Full Marks-60(Credit–2)

(InternalAssessment-24;EndSem.Exam.-36)

Unit-1: Basics of Statistics and Statistical Measurement and assessment:

Definition, Importance, use and applications of statistical techniques in geography, Sources of statistical data in geography; Scales of measurement: Nominal, Ordinal, Interval and Ratio; Frequency Distribution, Typical Patterns of Frequency Distribution; Measurement of Central Tendencies; Measurement of Dispersion-Variance, Standard deviation, Mean deviation, Quartiles; Computation of Index of Skewness and Kurtosis, Concept of probability assessment, Probability assessment of discrete and continuous random variable.

Unit-2: Hypothesis Testing and Techniques of Bivariate Analysis:

Concept of Population and sample, Sampling Methods, Testing of hypothesis, Hypothesis-Null hypothesis and Alternative hypothesis, Parametric and Non-parametric Tests, Student's t‟ test and Chi square test ; Concept of covariance and correlation, Pearson‟s Product moment Correlation Coefficient, Spearman‟s Rank Correlation Coefficient, Straight line regression equation.

Selected References:

1. Alvi, Z.(1995):"*Statistical Geography: Methods and Applications*", Rawat Publications, Jaipur
2. David Ebdon (1989):"*Statistics in Geography-A Practical Approach*",2nd Edn.,Blackwell Publishing.
3. Gupta,C.B.(1978):"*An Introduction to Statistical Methods*",Vikas Pub.House,New Delhi.
4. John Matthews,(1981):"*Quantitative & Statistical Approaches to Geography:A Practical Manual*", Pergamon Press.
5. Karlekar Shrikant (2007):"*Statistical Methods in Geography*", Diamond Publication, Pune.
6. Karlekar, Shrikant and Kale, Mohan (2006):"*Statistical Analysis of Geographical Data*", Diamond Publication, Pune.
7. King,L.J.(1991): "*Statistical Analysis in Geography*",Prentice Hall, Englewood.
8. Mahmood,A.(1977):"*Statistical Methods in Geographical Studies*",Rajesh Publications, New Delhi.
9. Mandal,R.B.(1981):"*Statistics for Geographers & Social Scientists*",Rawat Publication.
10. Pal,Saroj K(1982):"*Statistical Techniques, A Basic Approach to Geography*",Tata McGraw Hill Publishing Comp. Ltd. New Delhi.
11. Peter Rogerson:"*Statistical Methods for Geography*",3rd Edn. Sage Publishing New Delhi.
12. Rogerson P.A.(2001) :"*Statistical for Geography*",SAGE publication, New Delhi.
13. Shaw G. & Wheller D. (1985) : "*Statistical Techniques in Geographical Analysis*", John Wiley & Sons, New York.

3rd Year (Degree Course)
Semester -VI

(Practical)

Paper-GE-602 C **FullMarks-40 (Credit–2)**

(Internal Assessment-16;End Sem.Exam.-24)

Sl. No.	Practical	Marks
1.	Diagrammatic representation of Frequency distribution (Histogram, Frequency Polygon, Normal and Skewed Distribution, Ogive) Calculation and Diagrammatic representation of Measures of central Tendency Calculation and Diagrammatic representation of Measures of Partition Values	10
2.	Construction of cross section and Interpretation of Geological maps a) Simple Folded maps b) Simple Uniclinal maps c) Folded maps with unconformity	9
4.	Laboratory Notebook and Viva–voce	03+02
TOTAL		**24**

Selected References:

1. Mitra,K., Ghosh,K.and Das M.(2006): B.A. General Practical Geography, Kalyani Publishers, Kolkata.
2. Monkhouse,F.J. (1971): Maps and Diagrams, Methuen, London.
3. Sarkar,A.(2015):Practical Geography: A systematic approach, Orient Black Swan Private Ltd.,New Delhi.
4. Saha, P.& Basu,P.(2015):Advanced Practical Geography–A Laboratory Manual, Books and Allied (P)Ltd., Kolkata.
5. Singh, R.L.,Singh, Rana P.B. (2003): Elements of Practical Geography, Kalyani Publishers, New Delhi.
6. Singh,R. and Singh,K.: Map Work and Practical Geography, Central Book Depot, Allahabad.
7. Saikia,R.and Thakuriah,G.(2015):Practical Geography, EBH Publishers (India),Guwahati.
8. Singh, Gopal., (1998): Map Work and Practical Geography (4th Edition), Vikas Publishing House, Ahmedabad.
9. Gupta, K.K. and Tyagi V.C.,(1992): Working with Map, Survey of India, DST, New Delhi.
10. Misra, R.P.,(2014): Fundamentals of Cartography (Second Revised and Enlarged Edition), Concept Publishing, New Delhi.

3rd Year (Degree Course)

Semester-VI

Paper-GE-603C

Fundamentals of Remote Sensing and GIS (Theoretical)

Full Marks-100 (Credit-4)

(Internal Assessment-40;End Sem.Exam.-60)

Unit-1: Introduction to Remote Sensing

Definition of Remote Sensing, developmental stages, electromagnetic waves, spectrum, regions, wavelength, frequencies and applications. Types-Satellites, Sensors, Energy Interaction in the Atmosphere (Scattering, Absorption, Refraction and Reflection);Remote Sensing Platforms and Types; Process of remote sensing, interaction of radiation with atmosphere and targets, resolutions of remote sensing, visible region of the spectrum

Unit-2: Geographic Information System (GIS):

Concept of Geographic Information System (GIS); Components of GIS; Origin of GIS; Functions of GIS; Advantages of GIS, Basic Concepts about Spatial Information, Spatial vs. Non-spatial data ; Spatial data models – Raster and Vector ; Data Conversions ; Comparison between Raster and Vector Data, advantages and disadvantages of raster and vector data Advantages of GIS

Unit-3: Image Classification and Interpretation

Satellite products and its spectral characteristics, composite images, band ratios; Land use land cover classification schemes- Visual image interpretation, elements, stages of interpretation and interpretation keys. Image classification- supervised, unsupervised, and principal component analysis (PCA) and accuracy assessment

Unit-4: Applications of Remote Sensing and GIS:

Disaster Management, Meteorological Studies, Agricultural and Irrigation Studies, Forestry Studies, Hydrological Studies, Natural Resource, Oceanic and Coastal mapping, Soil resource mapping, Urban and Rural Mapping and Management Visual Interpretation using Satellite Data: Forest monitoring, Water resources and Urban Sprawl analysis (Change detection)

Selected References:

1. *Bhatia, B. (2008): Remote Sensing and GIS, Oxford University Press, New Delhi.*
2. *Lillesand, T., Ralph, M., Kiefer,W. and Chipman, J. W. (2016): Remote Sensing and Image Interpretation, Wiley, New Delhi*
3. *Reddy, M. A. (2010): Textbook of Remote Sensing & Geographical Information System, B. S. Publications, Hyderabad.*
4. Campbell, J.B.(2002): Introduction to Remote Sensing. Taylor Publications
5. Drury, S.A., (1987): Image Interpretation in Geology, Allen and Unwin
6. Gupta, R.P.(1990): Remote Sensing Geology. Springer Verlag
7. Jensen, J.R.(2000): Remote Sensing of the Environment: An Earth Resource Perspective. Prentice Hall.
8. Joseph George, (2003): Fundamentals of Remote Sensing. Universities Press
9. Lillesand, T.M., and Kieffer, R.M., (1987): Remote Sensing and Image Interpretation, John Wiley.
10. Sabbins, F.F., (1985): Remote Sensing Principles and interpretation. W.H. Freeman and company

3rd Year (Degree Course)

Semester-VI

Political Geography (Theoretical) **FullMarks-60(Credit–2)**

Paper-GE-604C **(Internal Assessment-24;End Sem.Exam.-36)**

Unit-1: Introduction and themes in Political Geography

Definition, Nature and Scope; Elements of Political Geography, location, Size and shape in Political Geography; Trends in Development in Political Geography; Concept of State, Centrifugal and Centripetal Forces in the State, Factor affecting the State; Concept of Nation, Difference between State and Nation; Territorial, Federalism and other forms of Government, Neo-colonialism.

Unit-2: Geopolitics and Frontiers and Boundaries:

Origin and Concept; Geo-strategic theories: Mackinder's Heartland Theory, Spykman Rim land Theory & Mahan's Sea power; Geostrategic importance of Indian Ocean, Neopolitics of World Natural Resources; Definition and Difference between Frontiers and Boundaries, Classification of International Boundaries, Maritime Boundaries; Boundaries of India ; Characteristics and Problems; Regional Organisations of Cooperation (SAARC, ASEAN, OPEC, EU).

Selected References:

1. Adhikari S., 1997: Political Geography, Rawat Pub. Jaipur.
2. Cohen S.B., 1973: Geography and Politics in divided world. Oxford, New York.
3. Dixit R.D., 1982: Political Geography. Tata McGraw Hill, New Delhi.
4. Dwivedi R.L., 1996: Political Geography. Chaitanya Prakashan , Allahabad.
5. Moor R., 1981: Modern Political Geography. McMillan, London.
6. Pounds N.G., 1972: Political Geography. McGraw Hill, London.
7. Taylor P., 1998: Political Geography, Prentice Hall.

3rd Year (Degree Course)

Semester-VI

(Practical)

Paper-GE-604C

Full Marks-40 (Credit–2)

(Internal assessment-16;End Sem.Exam.-24)

Sl. No.	Practical	Marks
1.	Field Survey The Department is required to perform a field tour (Outside state/within State). • Objective and Methodology in relation to Physical and Cultural landscape of either a Rural or Urban area. • The Field will include Preparation of questionnaire for Household Survey. • The page limit of the field report should be 30-32 pages inclusive of text, maps, diagrams and photographs. **Note:** The Department shall undertake field tours solely as a team or, if desired, will collaborate with other Colleges to organise field tours most conveniently. Field Report and Viva–voce	14+10
TOTAL		**24**

Selected References:

1. Saha, P.& Basu, P.(2015): Advanced Practical Geography–A Laboratory Manual, Books and Allied
2. (P)Ltd., Kolkata.
3. Singh, R.L. & Singh, Rana P.B. (2003): Elements of Practical Geography, Kalyani Publishers, New Delhi.
4. Sarkar,A.(2015):Practical Geography: A Systematic approach, Orient Black Swan Private Ltd., New Delhi.
5. Singh, R.& Singh,K.: Map Work and Practical Geography, Central Book Depot, Allahabad.

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