

Department of Geography
Choice Based Credit System

M.A./M.Sc. Geography Syllabus 2023-24
Semester I

Semester	Nature of Course	Courses Code	Course Title	Lecture-Tutorial-Practical/Week	No. of credits	Continuous Comprehensive Assessment (CCA)	End-Semester Examination (ESE) [University Examination]	Total
I	DCC	GCC 101T	Advanced Physical Geography	6-0-0	4	30	70	100
	DCC	GCC 102T	Evolution of Geographical Thought	6-0-0	4	30	70	100
	DCC	GCC 103P	Principles of Cartography	0-0-6	4	30	70	100
	DSE I	GSE 104T (a)	Political Geography	6-0-0	4	30	70	100
		GSE 104T (b)	Fundamentals of Agricultural Geography	6-0-0	4	30	70	100
		GSE 104T (c)	Urban Geography	6-0-0	4	30	70	100
	DSE II	GSE 105T (a)	Advanced Geography of India	6-0-0	4	30	70	100
		GSE 105T (b)	Settlement Geography	6-0-0	4	30	70	100
		GSE 105T (c)	Social & Cultural Geography	6-0-0	4	30	70	100

DISCIPLINE CENTRIC CORE
GCC 101T
ADVANCED PHYSICAL GEOGRAPHY

Unit 1 : Interior of the earth, Isostasy, Continental drift, plate tectonics, Earth movements: folding and faulting

Unit 2 : Work of sub-aerial denudation: Erosional and depositional work of rivers, winds, glaciers, Karst topography

Unit 3: Heat balance of the earth and distribution of temperature, distribution of atmospheric pressure and winds

Unit 4: Fronts; climatic classification- Koppen

Unit 5 : Oceanography : Ocean bottom relief, ocean currents, coral reefs, tides

RECOMMENDED READINGS

1. Critchfield : General climatology
2. Davis, WM. : Geographical Essays: 2nd ed.
3. Jeffereys, H. : The earth
4. Jenkins, J.T. : A Text-Book of Oceanography
5. Miller, A.A. : Climatology
6. Monkhouse, F.J. : The principal of Physical Geography
7. Murray, J. : The ocean
8. Patterson, S. : Introduction to meteorology
9. Seeman, A. : Physical Geography
10. Stress, J. : The Unstable Earth
11. Strahler, A.N.: Modern Physical Geography
12. Thornbury, W.D.: Principles of Geomorphology
13. Worcester, P.G.: A text-book of Geomorphology
14. Wooldrighed& Morgan: A text book of Geomorphology
15. Kaushik, S.D. :Bhu-Akriti-Vigyan, Rustogi. & Co., Meerut, 1983
16. SavindraSingh :Bhu-Akriti-Vigyan, Tara Publication, Varanasi, 1976
17. Dayal, P. :Bhu- Akriti Vigyan, Shukla Book Depot, Patan, 1982

GCC 102T

EVOLUTION OF GEOGRAPHICAL THOUGHT

Unit 1: Contribution of Greek and Roman geographers

Unit 2: Arab scholars, the dark age in geography Recent trends in Geography

Unit 3: Main characteristics and contributions of German and French School of Geography.

Unit 4 : Main characteristics and contributions of American and British School of Geography. Concept of areal differentiation.

Unit 5: The study of man- land relationship; modern theme in geographical thought- positivism, Idealism, Marxism, radicalism, behaviorism and humanism.

Recommended Readings:-

1. Ali, S.M.: Geography of Puranas

2. Bunbury, E.H. : A History of Ancient Geography, 1955 (in two volumes).
3. Chatterjee S.P. : 50 years of Science in India, Development of Geography, Indian Science Congress Association, 1964.
4. Dickinson: Makers of Modern Geography ,1964
5. Dickson and Howarth: The Makers of Geography
6. East and Wooldridge : The Sprit and purpose of Geography
7. Freeman : A Hundred years of Geography
8. James , P.E. : All possible World A study of Geographical ideas, Indian Edition, Sachin Publication, Delhi 1980
9. Sykes, P. : A History of Exploration, routledge and Kegan Paul, London, 1954
10. Tylor, G. (ed.) : Geography in the 29 Century Wooldridge: Geographers as a Scientist

GCC 103P

Principles of Cartography

Teaching in Geography Practical shall be imparted in groups of 15 students.

Out of 100 marks assigned for geography practical, 30 marks for CA and 70 marks for EoSE .The division of EoSE marks will be as - 40 marks are reserved for Laboratory Work Test, 15 marks for the evaluation of record book and 15 marks for viva on record book.

Syllabus Contents –

Unit 1: Laboratory Test: Scheme and nomenclature of Survey of India topographical maps

Unit 2: Profiles: Meaning and usefulness of profile in studying landforms, types of profiles: Serial, Superimposed, composite, projected

Unit 3: Map Projections; Projections and their classification; simple conical equal area (Lambert's Projection), Bonne's Projection, Mercators; Gnomonic Zenithal (Polar and Equatorial cases), Orthographic Zenithal(Polar and Equatorial cases)

Unit 4: Statistical Methods: Classification and Tabulation of Statistical data, Frequency Distribution and graphs,

Unit 5: Measures of Central tendency (Arithmetic mean, geometric mean, median and mode).

RECOMMENDED READINGS

1. Monkhouse, fJ and Wilkinson, H.R. : Maps and Diagrams, Methuen & Co., London
2. Raisze, E. : General Cartography, McGraw Hill, New york, 1960
3. Strees, J.A. : Maps Projections
4. Gregory, S : Statistical Methods and the Geographers, Methuen & Co., London, 1971
5. Singh R.L. : Elements of Practical Geography, Kalyani Publishers, new Delhi, 1979
6. Robinson, A.H. : Elements of Cartography, Chapman and Hall, London
7. Lawrence, G.R.P. : Cartographic methods, Methuen & Co., London 1971
8. Singh R. and Kanujia, L.R.S. : Map Work and Practical Geography, Allahabad
9. J. Kellaway : Map Projections

DISCIPLINE SPECIFIC ELECTIVE
GSE 104T(a)
POLITICAL GEOGRAPHY

Unit 1: Nature, scope and development of Political Geography. Approaches, School and Methodology of Political Geography. Recent trends and developments in Political Geography .Themes in political geography: State, Nation, Nation-state and Nation-building

Unit 2: Frontiers and Boundaries: Concepts and Classifications, Continental and Maritime Boundaries, Case studies of South Asia, Europe and Africa. Federalism and other forms of governance. Geographic elements and the state; Physical, Human and Economic Elements.

Unit 3: Geopolitics and Geostrategy: Principal Components and Exponents, Global Geopolitical and Geostrategic Pattern, Changing Perspectives and perceptions of World Order, Geopolitics of Climate Change, Geopolitics of World Resources.

Unit 4 : Regional Organisations of Cooperation (SAARC, BIMSTEC, SCO, ASEAN, OPEC, EU). Neopolitics of World Natural Resources. Geostrategic ideas of Mahan, Mackinder, Spykman, Cohen and Seversky and their present relevance.

Unit 5 : Political geography of contemporary India with special reference to: Politico-geographic factors in the rise of Indian federalism, centripetal & centrifugal forces; stability & instability; Interstate issues (like water disputes & riparian claims) and insurgency in border states; Emergence of New States; Unity in Diversity; Geo-politics of Indian Ocean. Electoral Geography (Geography of elections with special reference to India)- Importance and Concepts. Electoral Reforms in India, Determinants of Electoral Behaviour.

RECOMMENDED READINGS:

1. [Sara Smith](#)(2020). Political Geography: A Critical Introduction, Wiley-Blackwell.
2. John R. Short(2019). An introduction to Political Geography, Rawat Publications .
3. Jyotirmoy Sen (2019). A Text Book of political Geography, Kalyani Publishers.
4. Prescott, John Robert Victor (2014). Political Frontiers and Boundaries (Routledge Library Editions: Political Geography). Vol. 12. New York: Routledge
5. Agnew, John, and Luca Muscarà. (2012). Making political geography. Boston: Rowman & Littlefield Publishers
6. Flint, Colin, and Peter J. Taylor. (2007). Political geography: World-economy, nation-state, and locality. Edinburgh: Pearson Education
7. Adhikari, Sudepto (2008), Political Geography of India, Allahabad: Sharda PustakBhandar.
8. Dikshit R.D. (1996) Political Geography; A Contemporary Perspective, New Delhi, Tata McGraw Hill.
9. Dikshit, Ramesh Dutta. (2000). Political Geography: The spatiality of Politics 3E. New Delhi: Tata McGraw-Hill Education.
10. Cox, Kevin R. (2008) The Sage Handbook of Political Geography, New Delhi sage.
11. Strasz, R.H. : Geopolitics - The Struggle for Space and Power, G.P. Pitman's
12. & Sons, New York.
13. Sukhwal, B.L.(1968): Modern Political Geography of India, Sterling Publishers, New Delhi.
14. Adhikari, Sudipta (2002): Political Geography, Rawat Publications.
15. Saxena, H. M(2018) . Rajnitik Bhugol, Rastogi Publications.
16. Tiwari, R.C (2017). RajnitikBhugol, Pravalika Publication

GSE 104T (b)
FUNDAMENTALS OF AGRICULTURAL GEOGRAPHY

Unit 1:- The nature, subject matter and progress in agricultural geography.

Unit 2: Approaches: Commodity, systematic, regional. Selected agricultural concepts and their measurement

Unit 3:—Intensity of cropping, degree of commercialization, diversification and specialization, efficiency and Productivity.

Unit 4:- Land-use survey and classification (British and Indian), Land capability classification (U.S. and Britain).

Unit 5:- A critical evaluation of the classification of world agriculture with special reference to Whittlesey, New perspectives in agriculture : contract farming, agri- business and food security.

RECOMMENDED READINGS :

1. Hussain, M., systematic Agricultural geography, Rawat Publications, Jaipur,1996.
2. Ibery,B.W , Agricultural Geography ,Oxford university press ,oxford,1985.
3. Singh,J and Dhillon,S.S., Agricultural geography TATA McGraw Hill ,New delhi ,1984.
4. Singh ,Jasbir, Agricultural geography ,3rd edition, Oxford ,new delhi,2003
5. Symons ,L.,Agricultural Geography ,G.Bells ,London, 1967.
6. Alexander,j.w., economic geography ,prentice Hall ,n.j.,1968.
7. Gosal,G.S.and Krishan, Gopal, Regional disparities in levels of socio-economic development in Punjab, vishal publications,kurukshetra,1984.
8. Grigg D.B., The Agricultural systems of the world : An evolutionary approach, Cambridge university press ,Cambridge ,1978.

GSE 104T (c)
URBAN GEOGRAPHY

Unit-1: Meaning, scope and methods of approaches in urban geography, origin and growth of cities from the earliest to the modern times, forces and processes of urban growth,

Unit-2: Theories of urban Structure, Urban morphology and land use pattern, City retail structure and delimitation of CBD, Residential land use,

Unit-3: Location, spacing and size of towns, urban hierarchy; The Central Place Theory, Rank-size rule, Growth Pole Theory

Unit-4: Urban population Characteristics, Functional Classification of towns,

Unit-5: Urban sphere of Influence- Methods and criteria of delimitation, Rural- urban fringe, Elements and principles of town planning, Law of Garden City.

RECOMMENDED READINGS

1. Abercrombie, P.: Town and Country Planning, Oxford University Press, London, 1961
2. Alam, S.M. : Hyderabad-Secunderabad(Twin-cities) – A Study in Urban Geography, Allied Publishers, Bombay, 1965
3. Bartholomew, H. : Urban Landuse, Harwad University Press, Harward, 1932
4. Berry B.J. L. & A. Pred : Central Place Studies-Bibliography of Theory Applications, Regional Science Research Institute, Philadelphia 1961
5. Chorley, RJ. & P. Hagget : Socio-Economic Models in Geography(Part II and III or Models in Geography) Methuen, London, 1968
6. Dickinson, R.E. : The West European City, Rutledge and Kegan Paul, London, 1964

7. Gallion, A.B. & S.E. Isner : The Urban Pattern, City Planning and Design, D. Van Nostrand, Princeton, New Jersey, 1965
8. Garnier, B.J. & G. Chabot: Urban Geography, Longmans Green and Co. Ltd., London, 1967
9. Ghose, M.: Calcutta – A study in Urban Growth Dynamics, 1972
10. Jackson, J.N.: Surveys for Town and Country Planning, Hutchinson University Press, Syracuse, N.Y. , 1954
11. Jonson, J.N.: Urban Geogrpahy- An Introductory Analysis, Pergamon Press, 1967
12. Mayer, H.M. and Kohn, O.P.(ed.) : Readings in Urban Geography, University of Chicago Press, Chicago, 1959
13. Humford, L.: The city in History, Pehcan: 1966
14. Murfy, R.S. : The American City an Urban Geography, McGraw Hill, N.Y. 1966
15. King, I.J. & Golledge, R.G. : Cities, Space, and Behavior- The elements of
16. Norgorg, K (ed.) : Proceedings of the I.G.U. Symposium on Urban Geography, John Wiley & Sons, 1975
17. Putnom, R.G. FJ – Taylor and P.G. Kettle (ed.) : A Geography of Urban Places, Methuen, London, 1970
18. Robson, B.T. : Urban Growth, Methuen, Lodnon, 1963
19. Singh, R.L. : Banaras – A Study in Urban Geography, Nand Kishore & Sons, Banaras, 1965
20. Singh O.P. : Urban Geography (in Hindi), Tara Publishers, Varanasi, 1979
21. Smailes, A.E. : The Geography of Town, Hutchinson University Press, London, 1961
22. Taneja, K.L. : Morphology of Indian Cities, 1971
23. Taylor, T. : Urban Geography, Methuen, London, 1961

GSE105T (a)

ADVANCED GEOGRAPHY OF INDIA

Unit 1: Terrain units of India: Northern Mountain Region, The Great Plains, Peninsular Uplands, Indian Coast and Islands and their characteristics.

Unit 2: Drainage systems; Evolution of Himalayan and Peninsular Drainage System; National Water policy, Origin and Mechanism of Indian Monsoon; Monsoon forecast, Weather conditions, Climatic divisions

Unit 3: Population-growth, distribution and density; Population problems - Poverty, Migration, Dependency Ratio, Human Development Index and population policies; Indian Agriculture-main characteristic and problems, Agricultural regions; Major Irrigation schemes-Damodar, Bhakra Nagal , Indira Gandhi Canal and Chambal projects.

Unit 4: Major minerals (Iron-ore, Manganese, Mica and Copper,) and Power Resources (Coal, Petroleum, Hydro-electricity and Nuclear)- their distribution, reserves, production and conservation

Unit 5: Transportation and trade-different modes and their functional significance; International trade composition and trends; India's Trade Policy, planning regions of India

RECOMMENDED READINGS

1. Choudhary, M.R. : An Economic Geography of India, Oxford and IBH Publishing Co., New Delhi, 1976
2. Chouhan, T.S. : Bharat Ka Bhugol, Vigyan Prakashan, Jodhpur, 1997 Nag. Pub. And S. Sengupta : Geography of India, Concept Publishing Co., New Delhi, 1992

3. Sharma T.C. : and O. Coutinho : Economic and Commercial Geography Geography of India, Vikash Publishing Pvt. Ltd. , New Delhi, 1993
4. Singh J. : India-A Comprehensive Systematic Geography, GyanodayaPrakashan, 234, Daudpur, Gorakhpur, 1995
5. Spate, O.H.K. and A.T.A. Larnmouth : India, Pakistan and Ceylon, Methuen & Co., London,1967
6. Ramamoory and Gopalkrishan : Geography of India, Jawahar Publishers and Distributors, New Delhi, 1996
7. Tirtha, R. : Geography of India, Rawat Publication, Jaipur, 1996
8. Sharma, R.C. : Reading in General Geography and Geography of India, Jawahar Publishers and Distributors, New Delhi, 1992
9. Mamoria, C.B. : Economic and Commercial Geography of India, shiva lap Agarwal & Co., Agra, 1986
10. Despande, C.D. : India- A Regional Synthesis, new Delhi, 1996
11. Dutta, R. and K.P., Sundkram : Indian Economy
12. Tiwari, R.C. : Geography of India, Prayag Pustak Bhawan, Allahabad, 2003

GSE 105T (b)
SETTLEMENT GEOGRAPHY

Unit 1: Settlement geography: definition, nature, scope and significance. Geographical factors affecting distribution and growth of settlements.

Unit 2: Theories of origin of settlements. Types of settlements. Definition, nature and characteristics of rural and urban settlement.

Unit 3: Site, situation, spacing and internal morphology of rural settlement. Rural house types in different geographical environment. Types and pattern of rural settlements with reference to Rajasthan. Rural-urban fringe.

Unit 4: Morphology of urban settlements. Ecological processes of urban growth. City region. primate city. rank size rule. Christaller's central place theory. August Losche's theory of market centres. Concept of smart city and its implementation in India.

Unit 5: Spatial pattern and distribution of settlements, nearest neighbour analysis. Settlement planning. Problems and policies related to settlement infrastructure with reference to India.

Recommended readings:

1. Sing R.L. and Singh K.: Readings in rural settlement geography, National geographical Society of India, Varanasi, 1975.
2. Ghosh S. : Introduction to settlement geography, Sangam books Ltd, 1998.
3. Hudson F.S. : Geography of settlement, McDonnell and events Ltd, 1970
4. Hussain M. : Models in Geography, Rawat publication, 2007
5. Sing R.Y. : Geography of settlements, Rawat publication, 2000
6. मौर्यएस.डी. : अधिवासभूगोल, शारदापुस्तकभवन, प्रयागराज
7. वर्माएल.एन. : अधिवासभूगोल, राजस्थानहिन्दीग्रंथअकादमी, जयपुर

GSE 105T (c)
SOCIAL AND CULTURAL GEOGRAPHY

Unit 1: Nature, scope and contents of cultural geography; Evolution of cultural geography;

Unit 2: Environment: Culture and resources; Techniques and methods in cultural geography; Man's role as socio-cultural agent,

Unit 3: Analysis of world population in terms of ethnic, religious and language groups; World pattern of literacy

Unit 4: Cultural regionalization of the world: A Study of the Culture, World with special reference to new world revolution – Polar World, European World, American World

Unit 5: Dry World, Oriental World, African World and Pacific World

RECOMMENDED READINGS

1. Carter, G.F. : Man and Land – A Cultural Geography, Holt, Rinehart and Winstom, Inc. New York, 1968
2. De Blij, Harm, J. : Man Shapes the Earth – Topical Geography, Hamilton Publication Company, Santa Barbara, California, 1974
3. De Blij, Harm, J. : Human Geography- Culture, Society and Space, John Wiley and Sons, Inc., New York, 1977
4. Dicken, S.N. and Pitts, F.R. : Introduction to Cultural Geography- A Study of Man and His Environment, Exrox College Publishing, Waltnam, Massachusetts, 1970
5. Dohrs, F.E. : Cultural Geography – Selected Readings, Dun-Donnelly Publishing Corporation, New York, 1967
6. Eidt. R.C., Singhj K.N. and Rana, P.B. Singh (ed.) : Man Culture and Settlement, Kalyani Publishers, New York, 1977
7. Haggett, P. : Geography A Modern Synthesis, Harper and Row, New York, 1975
8. Jones E. (ed.) : Readings in Social Geography, Oxford University Press, London, 1975
9. Jordon, T.G. and Rowtree, L. : The Human Mosaic – A Thematic Introduction in Cultural Geography7, Canfield Press, Harper and Row, New York, 1976
10. Kariel H.G. and Kariel, P.F. : Explorations in Social Geography, Addison-Wesley Publishing Company, Inc. Reading, Massachusetts, 1972
11. Kotars, John, F., and John, D. Nysteen ; Geography The Study of Location, Cultural and Enviornment, jMcGraw Hill Book Company, New York, 1974
12. Phillbrick, A.K. :- The Human World, John Wiley and Sons. Inc., New York, 1967
13. Raitz, Kari, B. : Cultural Geography on Topographic Maps, Hamilton Publishing Company, Santa Barbara, California, 1975
14. Rolstlung, F. : Outline of Cultural Geography, California Book Company, Berkely, California, 1963
15. Russel, R.J.F.B. Kniffen and E.L. Pruitt ; Culture Worlds, the Max Million Company Ltd., London, 1969
16. Saure, Carl O. : Agricultural Origins and Dispersal, The Domestication of Animals and Foods Stuffs, The M.L.T. Press, Massachuseets, 1970
17. Sopher, David E. : Geography of Religions : Foundations of Cultural Geography Series, Prentice Hall Inc., Englewool Cliffs, New Jersey, 1967
18. Spencer, E; & W.L. Thomas: Asia, East by South – A Cultural Geography Jon Wiley & Sons, Inc. New York, 1971
19. Wagner, P.L. & M.W. Mikesell : Readings in Cultural Geography, The University of Chic age Press, Chicago, 1962
20. Wagner, P.L. : The Human Use of Earth, The Free Press, New York, 1964.
21. tSu] ts.ds. ,oacksgjk] Mh.,e. % fo'o dk lkaLd' frdHkwxksy] ,sdsMsfedifCy'klZ] t;iqj] 1983
22. Prakasa Rao, V.L.S. : Urbanization in India, Spatial Dimensions concept Publishers, 1983

M.A./M.Sc. Geography Syllabus 2023-24
Semester II

Semester	Nature of Course	Courses Code	Course Title	Lecture-Tutorial-Practical /Week	No. of credits	Continuous Comprehensive Assessment (CCA)	End-Semester Examination (ESE) [University Examination]	Total
II	DCC	GCC 201T	Economic & Resources Geography	6-0-0	4	30	70	100
	DCC	GCC 202T	Regional Planning & Development	6-0-0	4	30	70	100
	DCC	GCC 203P	Cartography and Project /Instrumental Survey of a Reputed Institute/ Geographical Tour	0-0-6	4	30	70	100
	DSE I	GSE 204T (a)	Geography of Arid Lands	6-0-0	4	30	70	100
		GSE 204T (b)	Livestock Geography	6-0-0	4	30	70	100
		GSE 204T (c)	Geography of Health	6-0-0	4	30	70	100
	DSE II	GSE 205T (a)	Environmental Geography	6-0-0	4	30	70	100
		GSE 205T (b)	Geography of Land use planning	6-0-0	4	30	70	100
		GSE 205I (c)	Internship in Geography	6-0-0	4	30	70	100

SEMESTER II
DISCIPLINE CENTRIC CORE
GCC 201T
ECONOMIC & RESOURCES GEOGRAPHY

Unit 1: Changing nature of Economic Geography as a field of study, Factors affecting Production, Consumption and distribution of Principal raw materials.

Unit 2: Sectors of economy-primary, secondary and tertiary, quaternary; Agricultural Regions of the world; Von Thunen's model and its modifications.

Unit 3:, Nature, Scope and Signification of Resource Geography , Definition and Concept of Resources, Classification of Resources.

Unit 4:, , Decision Making Process, Economic regions , Conservation and Management of Natural Resources: Meaning and Concept of conservation of Natural Resources

Unit 5: Resources Conservation and Management Methods of Natural resources: Soil Resource, Water Resource, Problems of Natural Resource Management in India

Recommended Readings:-

1. Alexander, J.W., Economic geography, Prentice Hall of India, New Delhi.
2. Berry, B.J.J., et al., D.M., Economic Geography, Prentice Hall.
3. Chatterjee, S.R., Economic Geography of Asia, Allied Book Agency, Calcutta, 1984.
4. Chisholm, M., Geography and Economy, G.Bell, London.
5. Guha and Chatterjee, A New Approach to Economic Geography of resources.
6. Morgan, W.B. and R.J.C. Munton, Agricultural Geography, Methuen, London, 1997.
7. Robinson, H., Economic Geography, MacDonald and Evans.
8. Rostow, W.W., The Stages of Economic Growth, Cambridge University Press, London, 1960.
9. Thomas, R.S., The Geography of Economic Activity, McGraw Hill, New York.
10. Zimmermann, E.W., World Resources and Industries, Harber.
11. Ramesh, A. (1984) Resource Geography (Ed.) R.P. Misra, Contribution to Indian geography, Vol Heritage Publishers, New Delhi.
12. Borton, I. and R.W. Kates. (1984) Readings in Resource Management and Conservation, University of Chicago Press, Chicago.

DISCIPLINE CENTRIC CORE
GCC 202T
REGIONAL PLANNING & DEVELOPMENT

Unit – 1: Regional concept in Geography, merits and limitations for application to regional planning and development; changing concept of the region, Regions: Typology, characteristics, regional delineation methods; Concept, nature and scope of Regional Planning;

Unit-2: Indicators of development and disparities - case study of India. Regional development Strategies, Theories of Regional Development - Albert O. Hirschman, Gunnar Myrdal, John

Friedman, Walter Whitman Rostow, Growth centres and Growth pole theory of Perroux. Dependency theory of Underdevelopment

Unit- 3: Short- term and long term planning in a national context. Regional development in India - problems and prospects, Planning for tribal, agricultural, industrial and urban (metropolitan) regions

Unit- 4: Planning process - sectoral, temporal and spatial dimensions, Concept of Multi-level planning : Decentralized planning; Peoples participation in the planning process,

Unit- 5: Regional economic imbalances and inequalities in India; Development Strategies in the 21st century; Regional Development and Social Movements in India.

Books Recommended :

1. Abler, R. et.al : Spatial Organisation : The Geographer's View of the World, Prentice Hall, Englewood Cliffs, N.J., 1971
2. Bhat, L.S. : Regional Planning in India, Statistical Publishing Society, Calcutta, 1973
3. Bhat, L.S. : Micro-Level Planning : A Case Study of Karnal Area, Haryana, K.B. Publications, New Delhi, 1976
4. Chorley, R.J. & Hagget, P.: Models in Geography, Methuen, London, 1967
5. Christaller, W. : Central Places in Southern Germany, Translated by C.W. Baskin, Prentice Hall, Englewood Cliffs, New jersey, 1966
6. Friedmann, J. & Alonso, W.: Regional Development Policy - A Case Study of Venezuela, M.I.T. Press Cambridge, Mass, 1966
7. Friedmann, J. & Alonso, W.: Regional Development and Planning - A Reader, M.I.T. Press Cambridge, Mass, 1967
8. Glikson, Arthur : Regional Planning and Development, Netherlands Universities Foundation for International Co-operation, London, 1955
9. Gosal, G.S. & Krishan, G.: Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984
10. Govt. of India, Planning Commission - Third Five Year Plan, Chapter on Regional Imbalances in Development, New Delhi, 1961
11. Indian Council of Social Science Research - Survey of Research in Geography, Popular Prakashan, Bombay, 1972
12. Johnson, E.A.J. : The Organisation of Space in Developing Countries, Harward University Press, Cambridge, 1970
13. Kuklinski, A.R. (ed.) : Growth Poles and Growth Centres in Regional Planning, Mouton, The Hague, 1972
14. Kundu, A. & Raza, Moonis: Indian Economy - The Regional Dimension, Spectrum Publishers, New Delhi, 1982
15. Losch, A. : The Economics of Location, University Press, Yale, New Haven, 1954
16. Misra, R.P. : Regional Planning Concepts, Techniques and Policies, University of Mysore, Mysore, 1969
17. Misra, R.P. & Others (eds.): Regional Development Planning in India - A Strategy, Institute of Development Studies, Mysore 1974
18. Mitra, A. : Levels of Regional Development, Census of India, Vol.I, Part 1A (I) and (II) New Delhi 1965
19. Myrdal, G : Economic Theory and under Development Regions Gereld Ducjworth, London, 1957
20. Nangia, Sudesh : Delhi Metrololitan Region, Rajesh Publication, Delhi, 1976
21. Richardson, H.W. : Regional Economics, Weidenfeld and Nicolson, London, 1969
22. Sundaram, K.V. (ed.): Geography and Planning, Essays in Honour of V.L.S. Prakasa

Rao, Concept Publishing Co., New Delhi, 1985

23. TarlokSingh : India's Development Experience, McMillan, New Delhi, India, 1974

24. Raza Moonis (ed.) : Regional Development, Heritage Publishers, Delhi 1988

25. Mishra, R.P. et.al : Multi - Level Planning, Heritage Publishers, Delhi, 1980

26. Sundram, K.V. (1977), Urban and Regional Planning in India, Vikas Publishig House, New Delhi.

DISCIPLINE CENTRIC CORE GCC 203 P

CARTOGRAPHY AND PROJECT /INSTRUMENTAL SURVEY OF A REPUTED INSTITUTE/ GEOGRAPHICAL TOUR

Teaching in Geography Practical shall be imparted in groups of 15 students.

Out of 100 marks assigned for geography practical, 30 marks for CA and 70 marks for EoSE . The division of EoSE marks will be as - 40 marks are reserved for Laboratory Work Test 10 marks for Project report & 05 marks for viva on project report or instrumental survey of a reputed institute or Geographical Tour (For every 15 students one teacher shall accompany the party), 10 marks for the evaluation of record book and 05 marks for viva on record book.

Syllabus contents:

Unit 1: Laboratory Test: Interpolation of contours,

Unit 2: methods of determination of intervisibility.

Unit 3: Measures of dispersion: (Quartiles mean deviation and standard deviation), Variability
Indices

Unit 4: Morphometric Analysis: Drainage density, stream length, stream orders and confluences;

Unit 5: Map Projections: Sinusoidal (Normal and Interrupted), Mollweide (Normal and Interrupted),
Choice of Projections

PROJECT REPORT /GEOGRAPHICAL TOUR

The project will be selected by candidates in consultation with the Head of the Department and the study report, duly approved by the teacher(s) concerned, is to be submitted along with the Practical Record.

The geographical tour and field study tour or execution of typical areas with particular attention to anyone of the following aspects: Structure, terrain and geomorphology; Drainage and river valley development; Vegetation forms, Agricultural Industrial land use; Communication, Regional synthesis and analysis of physical and cultural landscape

RECOMMENDED READINGS

1. Monkhouse, FJ and Wilkinson, H.R. : Maps and Diagrams, Methuen & Co., London
2. Raisze, E. : General Cartography, McGraw Hill, New york, 1960
3. Strees, J.A. : Maps Projections
4. Gregory, S : Statistical Methods and the Geographers, Methuen & Co., London, 1971
5. Singh R.L. : Elements of Practical Geography, Kalyani Publishers, new Delhi, 1979

6. Robinson, A.H. : Elements of Cartography, Chapman and Hall, London
7. Lawrence, G.R.P. : Cartographic methods, Methuen & Co., London 1971
8. Singh R. and Kanujia, L.R.S. : Map Work and Practical Geography, Allahabad
9. J. Kellaway : Map Projections

DISCIPLINE SPECIFIC ELECTIVE

GSE 204T (a)

Geography of Arid Lands

Unit 1: Meaning and causes of aridity; Indices of Aridity; Climate; Topography, Soils, Water resources and Minerals of the Arid lands of the world

Unit 2: Desertification: Extent of desertification in the world; causes of desertification: Parameters of desertification measures to control desertification,

Unit 3: Types of Deserts, Climate change and desertification

Unit 4: Detailed study of arid regions of Israel and Egypt western arid interior of the U.S.A. with reference to Physiography, Climate, Water Resources, Soil, Agriculture, Irrigation and land reclamation

Unit5 :Great Indian Desert: Origin, Physiography, Climate, Agriculture, Soils, Water Resources, Irrigation, Livestock raising and population

RECOMMENDED READINGS

1. Amiran, D.H.K. & Wilson, A.W. (ed.) : Coastal Deserts- Their Natural and Human Environments, The University of Arizona Press, Tucson, 1973
2. Arnon, I : Crop Production in Dry Regions; Vols. I & II, Leonard and Hill, London, 1972
3. Bhandari, M.M.: Flora of the Indian Desert, Scientific Publishers, Jodhpur, 1978
4. Biswas, M.R. & Biswas, A.X. : Desertification, Pergamon Press, New York, 1982
5. Chouhan, T.S. : Desertification in the World and its Control, Scientific Publishers, Jodhpur, 1997
6. Drengue, H.E. : Desertification of Arid Lands, Harwood Academic Publishers, 1983
7. Goudie, A. & J. Wilkinson: The Warm Desert Environment, Cambridge University Press, Cambridge, 1977
8. Hills, E.S.(ed.): Arid Lands, UNESCO. London, 1966
9. Hillel, D. : Negev Land, Water and Life in a Desert Environment, Praeger, N.Y. . 1982
10. Heathcote: Arid Lands- Their Uses and Abuses, Longmans, 1964
11. ICAR: Desertification and its Control, New Delhi, 1977
12. Jeans, D.N. : Australia-A Geography, Routledge and Kegan Paul, London, 1978
13. Mann, H.S. (ed.) : Arid Zone Research and Development, Scientific Publishers, Jodhpur, 1980
14. Matlook, W.G.: Realistic Planning for Arid Lands, Harwood Academic Pub. 1981
15. Mann, H.S.(ed.) Scientific Reviews on Arid Zone Research, Scientific Publishers, Jodhpur, 1981
16. Meginnies, W.G., B.J. Godman and P. Paylore : Deserts of the World University of Arizona Press, 1968
17. Ministry of Food and Agriculture: Proceedings of the symposium on the Problems of Indian Arid Zone, New Delhi, 1967

DISCIPLINE SPECIFIC ELECTIVE

GSE 204T (b)

LIVESTOCK GEOGRAPHY

Unit 1.General Introduction- Role of livestock in Indian Agriculture, Human-Animal Interdependency, Biological relationship between Soil, Plant and Animal, Mixed farming, Economics of Livestock production, Livestock Census and Animal production Statistics with special reference to Rajasthan.

Unit 2.Animal Breeds - Breeds of indigenous and exotic cattle, buffaloes, goats, sheep, pigs and poultry and their potential for milk, eggs ,meat and wool production;

Unit 3.Animal Health- Livestock improvements and healthcare facilities in Rajasthan, Animal Diseases, Artificial insemination and its role in speedy improvement of livestock.

Unit 4. Nutrition - Classification of animal feeds, Feeding Standards, Livestock Grazing and Migration Patterns, Availability of Feed and Fodder in Rajasthan, Nutrition Costing and Output, Commercial feeds, Conservation of fodder, Nutritional disorders.

Unit 5.Management Practices - Management of different Livestock (cattle, buffaloes, sheep, goat, pigs and poultry), National Livestock Mission, Traditional Livestock Management Practices, Concept of Community Resource Conservation with special reference to Oran, Gochar and Agore.

RECOMMENDED READINGS

1. Census of India (2011). Indian Census in its perspective general. New Delhi: Ministry of Home Affairs India 2011
2. Tripathi, R.K. (2000). Population Geography. Commonwealth Publishers, New Delhi.2000
3. Chandna, R.C.(2016). Geography of population, Kalyani publishers, New Delhi.
4. 20th Livestock Census-2019,All India Report, Department of Animal Husbandry &Dairying under Ministry of Fisheries,Animal Husbandry &Dairying,GOI.
5. Economic Review(2020-21),Directorate of Economics & Statistics, Govt. of Rajasthan,Jaipur.
6. Banerjee, G.C. : A Textbook of Animal Husbandry, 8th Edition Oxford Publishing Co., New Delhi, 2019 Paperback
7. Sharma, Sanjeev,Sharma, Vishnu. : Theoretical Animal Husbandry, Rajasthan Hindi Granth Academy, Jaipur, 2012
8. Kansara, N.M. : Agriculture and Animal Husbandry, Nag Publishers, 1995
9. Chauhan, JuwariRam : Livestock Geography and Economy of Haryana, RK Books, New Delhi2015

DISCIPLINE SPECIFIC ELECTIVE

GSE 204T (c)

GEOGRAPHY OF HEALTH

UNIT 1 : Geography of Health: Definition, Nature and Development. Approaches in interpreting Geography of Health. Application and challenges of Health Geography.

UNIT 2 : The Human Ecology of Disease: Population, Habitat and Behaviour. Concept of Landscape Epidemiology, Transmission and creation of Infectious diseases, Nutrition and Health, Global Environmental change and health.

UNIT 3: Health, Wellbeing and Social Environment: Factors influencing human health and wellbeing, Health and Society, Pollution syndrome; various types of pollution and their role in disease incidence, Urbanization, Poverty, malnutrition, Inequalities , Education and Development, Ageing and Health.

UNIT 4: Health Policy and Planning: Therapeutic Landscape, Health and Medical Tourism, Global Health programs and Role of WHO.

UNIT5: Health care delivery system in India, Complementary and Alternative Medicine system, Case study of major pandemics; Asian flu(H2N2 virus) , Swine flu, MERS, Ebola and Covid-19.

RECOMMENDED READINGS:

1. Anthamatten, P. and Hazen, H. 2011. An introduction to the Geography of Health, Routledge, New York.
2. Hardham T. and TannavM.,(eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.
3. Brown, T., McLafferty, S., and Moon, G. (eds.) 2010. A Companion to Health and Medical Geography, Wiley-Blackwell, Oxford.
4. May J M : Studies in Disease Ecology, Halfner Publications, New York, 1961.
5. Curtis, S. 2004. Health and Inequality: Geographical Perspectives, Sage Publications, London.
6. Freudenberg, N., Klitzman, S., and Saegert, S. (eds.) 2009. Urban Health and Society: Interdisciplinary Approaches to Health and Practice, San Francisco, CA: Jossey-Bass.
7. Gaimard, M. 2014. Population and Health in Developing Countries, Springer, New York.
8. Gatrell, A.C. and Elliott, S.J. 2015. Geographies of Health: An Introduction. 3rd edition, WileyBlackwell, Oxford.
9. McGlashan N D : Medical Geography, Methuen, London, 1972.
10. Luginaah, I., and Kerr, R.B. (eds.) 2015. Geographies of Health and Development, Burlington, VT: Ashgate.
11. Misra, R.P. 2007. Geography of Health: A Treatise on Geography of Life and Health in India, Concept Publishing Company, New Delhi.
12. Christaler George and Hristopoulos Dionissios, 1998: Spatio Temporal Environment Health Modelling , Boston Kluwer Academic Press.
13. Cliff, A.D. and Peter, H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
14. Khatri, Harish Kumar, 2019, SwasthyaBhugol, Kailash Pustak Bhawan, Bhopal.

DISCIPLINE SPECIFIC ELECTIVE

GSE 205T (a)

ENVIRONMENTAL GEOGRAPHY

Unit 1: Environmental Geography: Definition, Nature, and Scope. Major elements of environment, functioning of environmental systems.

Unit 2: Biosphere and Its Component; Concept of Ecology, Human Ecology and Ecosystem-structure, function and processes.

Unit 3: Biodiversity and its Conservation, Concept of Biomes, Sustainable Development

Unit 4: Environment Pollution (Water, Air, Noise and Soil), Environmental Problems: Green House Effect, Ozone Deflection, Global Warming and Its Management,

Unit 5: Global and local Environmental Issues: strategies for environmental conservation & Sustainability.

RECOMMENDED READINGS

1. Anderson, M.R.: Geography of Living Things
2. Clark, G.R.: The study of Soils in the field
3. Densereau, P.: Biogeography and Ecological Perspective
4. Hall, A.D. & Russel, P.J.: Social Conditions and plant Growth
5. Robinson, G.W.: Soils
6. Jones, R.L.: Biogeography-Structure, Process, Pattern and Change within the- Biosphere,
7. Hulton Educational Publication Ltd., Amersham, Bucks.
8. Chapman J.L. and Reiss, M.J. (1993): Ecology: Principles and Applications, Cambridge University Press. Chapman, D. (1994): Natural Hazards, Oxford University Press, Melbourne: 174p.
9. Choudhuri, A.B. (2007): Endangered Wetland. Elsom, D.M. (1992): Atmospheric Pollution: A Global Problem, 2nd edn, Blackwell Pub. Co., London: 422p.
10. Farmer, A. (1997): Managing Environmental Pollution, Routledge, London: 246p.
11. Marsh, W.M. and Grossa, J.M. (1996): Environmental Geography: Science, Landuse and Earth Systems, John Wiley & Sons.
12. Prabhakar, V.R. (1998): Social and Community Forestry, Indian Pub. Distrib., New Delhi: 224p.
13. Roberts, N. (editor) (1994): The Changing Global Environment, 3rd edition, Blackwell Pub. Co., London: 531 p.

DISCIPLINE SPECIFIC ELECTIVE

GSE 205T (b)

GEOGRAPHY OF LAND USE PLANNING

Unit 1 : Geography and rural development; Agricultural Geography and rural development; Agricultural location theory, Rural land use; Agricultural, pastoral and forestry, land use competition, Land use and landscape,

Unit 2 : Approaches and Theories of rural development, growth centre approach, infrastructure reformist,

Unit 3 : Rural settlement and Infrastructure, Rural Housing: Types, Problems, population and employment, rural transport, service provision, derivation, recreation, health nutrition, Hierarchies of Service centers, need for Service centers in rural area.

Unit 4 : Rural planning and land management; Land Holdings, Resource development and integrated rural development; Crop and soil management, livestock range and management; Water management, Ecological management, desertification – monitoring and control, Sustainable Land Use Planning, Rural Local Self Governance in India

Unit 5 : Rural development in Rajasthan; Major tools and techniques, Rural development schemes- Irrigation and land development schemes; Drought prone areas schemes, Desert Development programme ; integrated rural development in Rajasthan, Tribal areas development: Watershed development

RECOMMENDED READINGS

1. Baker, G.E. and others : Agriculture in Modern Life
2. Buck, J.L.: Land Utilization in Chicago, 1937
3. Bennet, N.H. : Elements of Soil Conservation, New York, 1933
4. Clarke, G.R. : A Study of Soils in Field, London, 1961

5. Duckhan, A.N. : The Fabric of Farming
6. Garham, E.H. : Natural Principles of Land Use, New York, 1944
7. Klegez, K.H.W. : Ecological Crop Geography
8. Ranta Rao, M.S.V. : Soil conservation in India, J.C.A.R. 1962
9. Mighall, R.L. and Black, J.D. : International Competition in Agriculture
10. Raychoudhuri : Soil of India, Delhi, 1963
11. Russel, J. : World Population and food Resources, London, 1954
12. Shafi, M. : Land Utilization in Eastern Uttar Pradesh, Aligarh, 1960
13. Stamp, L.D. : The Land of Britian-Its Use and Misuse London, 1960
14. Tempony, H.and Crist, D.H.: An Introduction to Tropical Agriculture
15. Thirumalia, S.: Agricultural Problems and Policies, Bombay, 1955
16. Found, W.C.: A Theoretical Approach to Rural Land Use Patterns, ArnoldLondon, 1973
17. Gautam, N.C. : Urban Land Use in Bikaner, Minaxi, 1978
18. Vink, Nick. "LAND REFORM: LAND USE AND LAND-USE REGULATION." Agrekon 30, no. 4 (December 1991): 182–84.
19. Allan J.A. ; Remote Sensing in Land use Studies, Geography 65, 1980

**DISCIPLINE SPECIFIC ELECTIVE
INTERNSHIP IN
GSE 205I (C)**

INTERNSHIP GUIDELINES MASTER OF GEOGRAPHY

Department of Geography, Jai Narain Vyas University, Jai Narain Vyas University, Jodhpur
Requirements for Internship Students who will carry out the internship must meet the following requirements:

1. Students are enrolled in the M.A./M.Sc. Geography Program of the Department of Geography, Faculty of Social Sciences, Jai Narain Vyas University Jodhpur
2. Students have been or are studying at least semester II/IV and have taken a minimum of credits.
3. Internship placement must be in accordance with the area of expertise of the student concerned
4. The requirements of government agencies or companies that can be used as an internship are:
 - I. Government Agencies (MOU and non MOU)
 - II. NGO (non-governmental organization)
 - III. Consultation company/agency
 - IV. Industries related to Geography

Internship Organization

All application of interested will be addressed to the Head, department of Geography, Jai Narain Vyas University, Jodhpur in the first week of admission in respective Semester along with prior permission letter of internship organization/institution/agency, HOD will put up all application in Departmental Council, DC will appoint one mentor/Supervisor(from the existing permanent faculty member rotationally)for one student.

Internship Report

1. The internship report follows the report format as seen in the attachment
2. Apprentices consult draft internship reports to get internship exam approval
3. Approved drafts are reproduced for examiner lecturers.
4. If the order is not carried out then students must repeat the internship course next semester.

Examples of Internship Report Formats

Report Cover Format

Internship Report

This Report Was Submitted to Meet Some of the Internship Completion Requirements Faculty of Social Sciences, Jai Narain Vyas University, Jodhpur Semester..... -

By Name

OUTLINE INTERNSHIP REPORT

(Attachment Outline the Internship Report)

CHAPTER I INTRODUCTION

1.1 Background (Agencies and theme of activities)

1.2 Goal

1.3 Forms of Activities Performed

1.4 Location

1.5 Nature of Work

CHAPTER II OVERVIEW OF THE Internship INSTITUTION

2.1 Organizational Structure of Agencies

2.2 Duties and Functions of Agencies

2.3 A Brief Overview of Activities Carried out by the Agency of Internships.

CHAPTER III DESCRIPTION OF INTERNSHIP ACTIVITIES (conducted by interns)

3.1. Duties and Roles of Interns in Agencies

3.2. Activity Description (Details Per Item and Time)

3.3. Relevance of Internship Materials to Lecture Materials

3.4. Difficulties in The Work (Related to The Completion of The Substance of Work Observed and Experienced)

CHAPTER IV RESULTS AND REFORMATION

(based on the purpose of focusing the internship conducted)

4.1. Data processing

4.2. Data analysis

CHAPTER V CONCLUSIONS AND SUGGESTIONS

Respective supervisor will collect report from Apprentice/Student along with Report of concerned agency/institution/organization

GEOGRAPHY STUDY INTERNSHIP CONSULTATION SHEET

Student Name :.....

Enrollment No. :.....

Internship Organisation :

Date Topics/Issues discussed

Supervisor (_____)

SUPERVISOR ASSESSMENT SHEET

Student Name:

Internship Unit: Agency/Company/SME

Name: Schedule of Activities: To... 20...

Supervisor Name (assessor):

Supervisor Position:

Scheme of Examination (CE, EoSE) will be as per NEP university examination Guidelines and ordinance.

M.A./M.Sc. Geography Syllabus 2024-25
SEMESTER III

Semester	Nature of Course	Courses Code	Course Title	Lecture-Tutorial-Practical /Week	No. of credits	Continuous Comprehensive Assessment (CCA)	End-Semester Examination (ESE) [University Examination]	Total
III	DCC	GCC 301T	Research Methodology in Geography	6-0-0	4	30	70	100
	DCC	GCC 302P	Cartography and Surveying	0-0-6	4	30	70	100
	DSC	GSE 303T (a)	Geography of Soils	6-0-0	4	30	70	100
		GSE 303T (b)	Water Resource Management	6-0-0	4	30	70	100
		GSE 303T (c)	Climate Change Vulnerability and Adaptation	6-0-0	4	30	70	100
	DSE	GSE 304T (a)	Fundamentals of Industrial Geography	6-0-0	4	30	70	100
		GSE 304T (b)	Geography of Transportation	6-0-0	4	30	70	100
		GSE 304T (c)	Geography of Tourism	6-0-0	4	30	70	100
	DSE	GSE 305T (a)	Regional Geography of south East Asia	6-0-0	4	30	70	100
		GSE 305T (b)	Regional Geography of USA	6-0-0	4	30	70	100
		GSE 305I (c)	Regional Geography of Japan	6-0-0	4	30	70	100

DISCIPLINE CENTRIC CORE
GCC 301 T
Research Methodology in Geography

Course Content

Unit 1:- Problem of Geographical Research, Identification of Problems of Regional and Systematic Geography. Nature and Source of Data to be used Hypothesis, Models, Sampling

Unit 2:- Preparation of Research Project and Report Writing,

Unit 3: Cartographic Representation of Agricultural, Transport, Marketing And Industrial Data Selected Techniques of Spatial Analysis, Methods of Measurement of Concentration and Dispersion of Economic Activities

Unit4:- Nearest Neighbor Analysis With Examples, Regional Interaction Analysis, Gravity Potential, method of delimiting of regions – resource regions, Economic, Industrial and Planning Regions

Unit5:- Regional population analysis – population projection, population migration projection, network analysis with examples, Delimiting urban and market spheres of influence. Use of various tools in SPSS

Recommended Readings:

1. David Unwin : Introductory Spatial Analysis, Methuen, London, 1981.
2. Gregory,S. : Statistical Methods And The Geographer, Langman , London 1978.
3. Mahmood.A. : Statistical Methods In Geographical Studies, Delhi, 1978.
4. MaruiceYeats : An Introduction To Quantitative Analysis In Human Geogra.Phy. Mcgraw Hill New York.
5. Peter Haggett, Andrew : Location Methods Vol.I And II Edward Arnold, London.

DISCIPLINE CENTRIC CORE
GCC 302 P
Cartography and Surveying (Practical)

Out of 100 marks assigned for geography practical, 30 marks for CA and 70 marks for EoSE . The division of EoSE marks will be as - 40 marks are reserved for Laboratory Work Test, 10 marks for the field survey/plotting and 05 marks for viva on field survey/plotting 10 marks for the evaluation of record book and 05 marks for viva on record book.

Course Content

Unit 1: Representation of geographical data by means of Graphs (Simple, Compound, Smoothed, Cumulative, Frequency and Triangular).

Unit 2: Diagrams (Bar and Pie diagrams; Proportional bars, Circles, Spheres and Cubes).

Unit 3: Interpretation and construction of Climatic Maps: Choroschematic, Choropleth and Isopleths maps, Dot maps.

Unit 4: Interpretation and construction of Climatic graphs: Rainfall distribution, variability, intensity and duration, hythergraph, Climograph, Wind direction diagram, dispersion diagrams, Accessibility.

Unit 5: Surveying: Small Geographical surveys of given areas by Theodolite (verniner scale), Plane table and Prismatic compass. Leveling; Principles and method; Contouring of small areas through Dumpy level and Clinometers (Indian pattern)

Recommended Readings:

1. Singh, R.L. (ed.) : Applied Geography, Proc. Summer School (1966), Deptt. Geog., B.H.U., N.G.S.I., Varanasi-5 1968
2. Stride, M. (ed.) : La Geographic Appique Dans Le Mondel, Applied Geography in the World, Proc Prague Meeting (1966)
3. I.G.U. : Commission on Applied Geography, Czechoslovak Academy of Science, Prague, 1969
4. Sarfalvi, B. : Research Problems in Hungarian Applied Grography, Academia Kiado, Budapest, 1969
5. Applied Science and Development (Published under the revised title Applied Geography and Development since Vol. 18(1980), Institute for Scientific Co-operation, Tubngen, Federal Republic of Germany ,
6. Bainnual Journal Beginning with Vol/ I, 1973
7. Geoforum : Journal of Physical, Human and Regional Geography, Pergamon press ltd. , Oxford.,, A quarterly journal beginning with Vol. I, 1970

DISCIPLINE SPECIFIC ELECTIVE

GSE 303 T (a)

Geography of Soils

Unit 1 :Formation of soil, inorganic, organic and geographic factors in soil formation, climate and soil formation, time factor in soil formation

Unit 2 :Process of soil formation: soil description, traditional and new soil classification and nomenclature, soil depletion

Unit 3 :Soil Groups of the world; Soils of India; conservation of soil

Unit 4 :Detailed study of the soils of Rajasthan: types, problems and conservation

Unit 5 : problems of soil erosion, with special reference to India,

RECOMMENDED READINGS

1. Bun ing. B.T. : The Geography of Soil, Hutchinson University Library, London , 1969
2. Joffe, J.S.C. : Pedology, New Brunswick, 2nd Edition, 1949
3. Moge, S. : Rajasthan Ki Mrida, Rajasthan Hindi Granth Academic, Jaipur, 1981
4. Ramann, C. : The Evolution aand Classification of Soils, Trans, C.L. Ohitlers Cambridge, 1928
5. Robinson,G.W. : soils- The Origin, Constitution and Classification, Mury, 1949
6. Lyon, T.L. and Associates : Nature and Properties of Soils, 1960
7. Jany, H : Factors of Soil Formation- A system of Quantitative Pedology, Mc Graw Hill, New York, 1941
8. Raychoudhuri : Soils of India, I.C.A.R., New Delhi, 1963 Rama Rao, H.S.V. : Soil Conservation in India, I.C.A.R. , New Delhi, 1962

DISCIPLINE SPECIFIC ELECTIVE

GSE 303 T (b)

Water Resource Management

Unit 1:Definition and scope of water resource geography, Inventory and distribution of word`s water resources,Water resources of India,

Unit 2: Groundwater, World Hydrological cycle, Demand and use of water, method of estimation – agricultural industrial and municipal uses of water.

Unit 3: Salinity, Alkalinity, over exploitation of ground water and Arsenic problem, problem of water logging, Water pollution, River water pollution, Demand and water supply in Industries, Flood management, drought and dry farming projects in India and Rajasthan.

Unit 4: Soil Conservation, Afforestation, flood forecasting, Floodplains: Land use Regulation and Insurance, Case studies of Major Floods, Droughts – Occurrence, major Droughts management with reference to Rajasthan.

Unit 5: Irrigation Method and conservation of water. Water conservation, Traditional methods of water conservation in India and Rajasthan, water Quality parameters, Integrated basin Planning, Watershed Management: International and Inter-state River water Disputes and case studies, Environmental disasters and Water crisis.

Recommended Readings:-

1. Mahnot, S.C. and Singh, P.C., 1993: Soil and Water Conservation Intercooperation Coordination Office, Jaipur
2. Dakshinamurti, C., Michael, A.M. and Mohan, S., 1972: Water Resources of India and their Utilization in Agriculture. IARI Monograph No. 3, NEW DELHI
3. Black, Magie, 2005: The No-Nonsense Guide to Water, Rawat Publications, Jaipur.
4. Rao, K.L.: India's Water Wealth, Orient Longman New Delhi
5. Athavale, R.N.: Water Harvesting and Sustainable Supply in India, Rawat Publication, Jaipur.

DISCIPLINE SPECIFIC ELECTIVE

GSE 303 T (c)

Climate Change Vulnerability and Adaptation

Course Content:

Unit 1: Climate Change: Understanding Climate Change; Greenhouse Gases and Global Warming; Global Climatic Assessment- IPCC

Unit 2: Climate Change and Vulnerability: Physical Vulnerability; Economic Vulnerability; Social Vulnerability

Unit 3: Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health

Unit 4: Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia.

Unit 5: National Action Plan on Climate Change; Local Institutions (Urban Local Bodies, Panchayats)

Recommended Readings:

1. IPCC (2014): Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
2. IPCC (2007): Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.
3. OECD (2008): Climate Change Mitigation: "What do we do?" (Organisation and Economic Co-operation and Development).
4. Sen, Roy, S., and Singh, R.B., (2002): Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & IBH Pub., New Delhi. UGC DOCUMENT ON LOCF GEOGRAPHY 85

5. Singh, M., Singh, R.B., and Hassan, M.I., (Eds.) (2014): Climate change and biodiversity, Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
6. Singh, R.B., Mal, Suraj, and Huggel, Christian (2018): Climate Change, Extreme Events and Disaster Risk Reduction, Springer, Switzerland, pages 309.
7. UNEP (2007): Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.

DISCIPLINE SPECIFIC ELECTIVE

GSE 304 T (a)

Fundamentals of Industrial Geography

Unit 1 :Contents and scope of industrial geography: Locations of Industry: Factors of industrial location,

Unit 2-Theories and concepts of industrial location- the least cost school, the market area school, the marginal location school and the behavioral school

Unit 3 :The location pattern of selected industries: iron and steel, Copper Industries, cotton textile, pulp and paper industry, petroleum refining, machinery and machine tools

Unit 4 : The Locations pattern of selected industries: automobile & Vehicles industry, Furniture industries ship building industry, cement industry, aluminum industry

Unit 5 :Manufacturing in selected regions: The great lakes regions of USA, Kwanto plain, the Ural Region, the Ruhr Basin, the New England Region, Bengal Bihar Industrial Belt

RECOMMENDED READINGS

1. Jorred, A.R.: A Geography of Manufacturing, MacDonald and Evans Ltd. , London
2. Hunter, H.L. and Writght, A.J. : Factors of Industrial Location in Ohio, Columbus, 1969
3. Choudhary, M.R. : Indian Industries Development and Location, Calcutta, 197
4. Jarret, H.R. : Geography Manufacturing, MacDonald and Evans Ltd. London, 1964
5. Pounds, N.I.G. : The Geography of Iron and Steel
6. Smith W. : Geography of Location of Industry, Liverpool
7. Thoman, R.S. and Paltoh, D.H. : Focus on Geographic Activity, New York, 1964
8. Mountjoy, A.C. : Industrialization and Underdeveloped Counties, London, 1963
9. Howver, E.M. : The Location of Economic Activity, London, 1948
10. Alexander, J.W. : Economic Geography, Prentice Hall, New Jersey, 1963
11. Alexanderson, G. : Geography of Manufacturing, Prentice Hall, New Jersey, 1967
12. Bos, H.C.: Spatial Dispersion Activity, University Press, Rootterdam, 1965
13. Greenhert, M.L. : Plant Location in Theory and Practice University of North Caroline Press, Chapal Hill, 1956
14. Isard, W. : Location and Space Economy, MIT Press, Cambridge Mass, 1965
15. Losch, A. : The Economics of Location, Yale University Press, New Hevan, 1954
16. Eshail, LC.: Plant Location, American Research Council, New York, 1956
17. Estant, R.O. and Buchana, R.D. : Industrial Activity and Economic Geography Hutchinson & Co. Ltd., London, 1964
18. Ghose, B.C. : Industrial Location.
19. Britto Jh, H.H. : Regional Analysis and Economic Geography, G. Belland Sons, London,
20. Carlson, A.S.: Economic Geography of The Industrial Material, Rhid Shell Pub. Corp. New York, 1965
21. Mastin, J.S. : Greater London- An Industrial Geography, G. Bell and Sons, London

22. Sinha, B.N. : Industrial geography of India, World Press, Calcutta Weber, Alfre: theory of Location of Industries, English edition, University of Chicago, 1929
23. Aiderfer, E.B. and Midal, H.E. : Economic of American Industry, New York, 1957
24. Hunder, H.L. and Wright, A.J. : Factors of Industrial Location in Ohio, Columbus, 1969
25. Florence, P. Sargent : Industrial Investment, Location and Size of Plant, Cambridge, 1949
26. Wilber Zelinsky : “A Method of Measuring Chage in Distribution of Manufacturing Activity”
27. Economic Geography, April, 1958, pp- 94-126
28. Alexander, J.W. and Linberg, James B. : Measurement of Manufacturing: Coefficients of Correlation, Journal of Regional Science, Vol. 3 1961 Pp. 71-81
29. Thomson, Hohn, H. : A New Method of Measuring Manufacturing Annals of Association of American Geographers, Vol- 45, 1955, PP. 416-35
30. Elliot Frncis, E. : Location Factors Affecting Industrial Plant, Economic Geography, Vol, 24, 1941m pp. 283-85
31. ReleyR.C. : Industrial Geography, Charto and Winpuls, London
32. Smith, Daird, M. : Industrial Location, Wiley and Sons, New York
33. Miller, E.W. : A geography of Manufacturing Prentice Hall, New Jersey

DISCIPLINE SPECIFIC ELECTIVE

GSE 304 T (b)

Geography of Transportation

Unit 1 : Geographic study of transportation: Definition, nature of contents

Unit 2: Theory of transportation geography as spatial interaction. Evolution and recent trends in transportation geography in the world

Unit 3 : Application of geographical methods; Population –and accessibility, Physical and relative accessibility by the modern transport system-accessibility case studies

Unit 4: Flow analysis: Concepts and methods: Competition and coordination; Concept of urban and rural transportation; Economic, Political and social functions of transportation

Unit 5 : Transport and development: transport expansion in underdeveloped countries; Transportation problems and planning, transport mapping using GIS

REFERENCE READING

1. Appleton, J.H. : The Geography of Communication in Britain, London, 1962
2. Bheekmon, M. Mc. Gurie, C.B. and Winsten, C.B. ; Studies in the Economic of Tansportation, Yale University Press, 1956
3. Bingham, T. : Transportation – Principles and Problems McGraw Hill, New York, 1964
4. Hurst, Michale, Eloit : Transportation Geography; Comments and Readings. McGraw Hill Book Co., New York
5. Kuhn, T.E. : Public Enerprise, Economic and Transport problems, University of California Press, 1962
6. Ministry of Transport : Batter use of Town Roads, HMSA. London,1967
7. O’Dell, A.C. and Richards, T.S. : Railways and Geography, Hutchinson University Library, London, 1971
8. Rodrigue, J.-P., Comtois, C., & Slack, B. (2016). The geography of transport systems (4th ed.). Routledge
9. Sealv, K.R. : The Geography of Air Transport, Hutchinson University Library, London, 1957

10. Thomas, B.E. : Methods and Objective in Transportation Geography, Professional Geographer, Vol. 8, 1956
11. Ullman, E.L. : American Geography: Inventory and Prospects, James and C.F. Jones (editors),

DISCIPLINE SPECIFIC ELECTIVE
GSE 304 T (c)
Geography of Tourism

Unit 1: Tourism: Growth of travel through the ages, growth and development of modern tourism
 International organizations and tourism

Unit 2: Elements of Tourism: Economic and social significance of tourism, Domestic and Foreign
 Tourism, Tourism transport and accommodation

Unit 3 : Tourism in India : A land for all seasons; places of tourist interest, Cultural
 tourism, Problems and facilities, Role of Indian Tourism Development Corporation

Unit 4 :Tourism in Rajasthan : Salient Features of desert and wild life of Rajasthan, Survey of the
 places of tourist interest;

Unit 5 :Cultural Heritage of Rajasthan, Fairs and Festivals, A study of internal and foreign tourist
 influx

RECOMMENDED READINGS

1. Robinson, J.H. : A Geography of Tourism, Macdonald and Evans Ltd.
2. Bhatia, A.K. : Tourism Development: Principles and Practices, Sterling Publishers, New Delhi(1982)
3. Nagi, J.N. : Tourism and Hostelling: A worldwide Industry, Gitanjali Publishing House, New Dehli
4. Robinson, H. : Geography and Tourism, Macdonald and Evans, New York(1976)
5. Bhatia, A.K. : Tourism in India-History and Development, Sterling Publishers, New Delhi
6. Ram Acharya : Tourism in India, National Publishers, New Delhi
7. Dass Manoj : India- A Tourist Paradise, Sterling Publishers, New Delhi
8. Crowthor, Geoff Raj Prakash and Wheeler Tony : India- A Travel- Survival Kit Lonely Plant Publications, Australia
9. Dharampal :Idia- The Land People, National Book Trust, New Delhi
10. Rathore, G.S. :Marwar Ki SanskraticDharohar, Sudha Prakashan, Jodhpur
11. Seth, D.N. : Successful Tourism Management, Sterling Pub. Pvt. Ltd., New Delhi

DISCIPLINE SPECIFIC ELECTIVE
GEC 305 T (a)
Geography of South-east Asia

Course Content

Unit 1 : Southeast Asia: An Historical and Contemporary Perspective- An Overview of the Region,
 Physical Bases - Landforms and their human impact, Climatic Patterns, Rivers of Southeast Asia,
 Resources: Forests, Energy and Minerals

Unit 2 : Cultural-Social Patterns- The Diffusion and Impact of Religion, Legacies of Colonialism, The Role of Minorities: Chinese and Indian Populations, Language Mosaics,

Unit 3 : Population Structure and Pattern- Spatial Distribution, Structure: Age and Gender, Growth and Family Planning, Nutrition, Disease and Infant-Child Mortality, Migration Streams and Mobility, Refugee Movements and Displaced Population

Unit 4 : Perspectives on Agriculture and Rural Development, The Nature of Agriculture: Commercial and Subsistence, Land Tenure Issues and Reform, The Impact of the Green Revolution, Rural Development: Malaysia's FELDA and Indonesia's Transmigration Program, Vietnam's 'doi moi'

Unit 5 : Urbanization - Levels and Patterns of Urbanization, The Mega-Cities of Southeast Asia Problems of Rapid Growth: Informal Sector, Employment, Transport in the Southeast Asian City, Southeast Asia in the Global Economy: Industry, Tourism and Trade, The Post-Financial Crisis Economies, Trends in Industrialization, MNCs and Trade, The Enabling Mechanisms: Transport and Communications, The Role of Tourism

Recommended Readings:

1. Barlow, Colin (ed) Institutions and Economic Change in Southeast Asia: The Context of Development from the 1960s to the 1990s. Edward Elgar, 1999
2. Brown, David. The State and Ethnic Politics in Southeast Asia. London and New York: Routledge, 1994
3. Burling, Robbins. Hill Farms and Padi Fields: Life in Mainland Southeast Asia Englewood Cliffs, N.J.: Prentice-Hall, 1965
4. Chia Lin Sien (ed.) Southeast Asia Transformed: A Geography of Change. Singapore: Institute of Southeast Asian Studies, 2003.
5. Dick, Howard and Peter Rimmer. Cities, Transport, and Communications: The Integration of Southeast Asia Since 1850. New York: Palgrave Macmillan, 2003.
6. Dixon, Chris. South East Asia in the World-Economy: A Regional Geography Cambridge: Cambridge University Press, 1991
7. Dwyer, D.J. (ed.). South East Asian Development: Geographical Perspectives New York: Longman Scientific & Technical, 1990
8. Fisher, Charles. Southeast Asia: A Social, Economic and Political Geography London: Methuen, 1964 or 1966, 2nd ed. (The classic work on the geography of Southeast Asia)
9. Fryer, Donald. Emerging Southeast Asia: A Study in Growth and Stagnation New York: Wiley-Halsted, 1980, 2nd ed.
10. Geertz, Clifford. Agricultural Involvement: The Process of Ecological Change in Indonesia. Berkeley, California: University of California Press, 1963.
11. Gupta, Avijit. The Physical Geography of Southeast Asia. Oxford : University Press, 2005 GB 295 .P49 2005
12. Leinbach, Thomas R. The Indonesian Rural Economy: Work, Mobility and Enterprise, Seattle: University of Washington Press, 2004.
(<http://www.uky.edu/AS/Geography/research/leinbach2003.htm>)
13. Leinbach, Thomas R. and Richard Ulack (eds.). Southeast Asia: Diversity and Development. Upper Saddle River, NJ: Prentice Hall, 2000.
14. Leinbach, Thomas R and Chia Lin Sien. Southeast Asian Transport: Issues in Development. Singapore: Oxford University Press, 1989
15. McGee, T. G. The Southeast Asia City: A Social Geography of the Primate Cities of Southeast Asia New York: Praeger, 1967
16. McGee, T. G. and Ira M. Robinson. The Mega-Urban Regions of Southeast Asia Vancouver: University of British Columbia Press, 1995

17. Reid, Anthony. Southeast Asia in the Age of Commerce. 2 volumes. New Haven : Yale University Press, 1988.
18. Rigg, Jonathan. Southeast Asia: A Region in Transition London: Unwin Hyman, 1991.
19. Rigg, Jonathan. Southeast Asia: The Human Landscape of Modernization and Development. London and New York: Routledge, 2003, 2nd edition.
20. Rimmer, Peter. Pacific Rim Development : integration and globalization in the Asia-Pacific region. 1997.
21. Dick, Howard and Peter Rimmer. Cities, transport, and communications : the integration of Southeast Asia. Palgrave, 2003.
22. Suryadinata, Leo (ed.). Ethnic Chinese as Southeast Asians. (New York: St. Martin's Press, 1997.
23. Ulack, Richard and GyulaPauer. Atlas of Southeast Asia. New York: MacMillan, 1989.
24. Tirtha, Ranjit, GEOGRAPHY OF ASIA, Rawat Publication
25. पांथरी, शैलेन्द्रपरसाद, दनिण- पूवयएनशया, नवश्वनवद्यालयपरकशि, वाराणसी.

DISCIPLINE SPECIFIC ELECTIVE

GEC 305 T (b)

Advanced Systematic and Regional Geography of U.S.A

Course Content

Unit I : Physiographic regions, Soil , Natural Vegetation

Unit II: Agriculture Crops: Corn, Cotton, Wheat, Agriculture Belts;

Unit III: Minerals: Iron Ore and Atomic Minerals, Power resources: Coal, Petroleum and Hydroelectricity

Unit IV:, Location and distribution of Industries: Iron and Steel, Cotton Textile, Automobile; Transport: Inland Waterways

Unit V : A detailed study of Major Geographical Regions

Recommended Readings:

1. Atwood,E(ed.): The Physiographic Provinces of North America
2. Fenneman, N.M.: Physiography of Wstern United States
3. Green, C.M. : American Agriculture
4. Loomix, F.B.: Physiography of the United States
5. Monkhouse, FJ & H.R. Cair, North America, Longman
6. Peterson, J.H.: North America, London
7. White, C.L. and Foscue, F.J.: Regional Geography of Anglo-America Watson, W.: North America, Methuen, London University Library, London, 1957
8. Ullman, E.L. : American Geography: Inventory and Prospects, James and C.F. Jones (editors),
9. Kuhn, T.E. : Public Enerprise, Economic and Transport problems, University of California Press, 1962
10. Ministry of Transport : Batter use of Town Roads, HMSA. London,1967
11. Bingham, T. : Transportation – Principles and Problems McGraw Hill, New York

DISCIPLINE SPECIFIC ELECTIVE
GEC 305 T (c)
Advanced Systematic and Regional Geography of Japan

Course Content

Unit 1 : Physiographic regions, Soil , Natural Vegetation

Unit 2: Agriculture Crops: Corn, Cotton, Wheat, Agriculture Belts;

Unit 3: Minerals: Iron Ore, and Power resources: Coal, Petroleum and Hydroelectricity, Atomic Minerals

Unit 4: Location and distribution of Industries: Iron and Steel, Cotton Textile, Automobile; Transport: Inland Waterways

Unit 5 : A detailed study of Major Geographical Regions .

Recommended Readings:

1. Association of Japanese Geography (Ed) (1980): Geography of Japan. Teikoku Shoin
2. Dempster Prue (1967) Japan Advances, A Geographical Studies, Mathuen and Co. Ltd.
3. Woronoff (1993): Japanese Management Mystique, Reality behind the Myth. Neo Pub.
4. Press. New Delhi
5. Kunio Yoshihara (1972) Japanese Economic Development : A short Introduction, Methuen
6. Co., London
7. Reischauer E.D (1946): Japan Past and Present. Alfred A Knoph, New York
8. Trewartha Glenn T. (1965): Japan – A physical Cultural and Regional Geography. Muthuen
9. Co., London
10. Hall R.B (1970): Japan. Industrial Power of Asia, Pall Mall Press, London
11. Trewartha Glenn T. (1965) Japan – A physical Cultural and Regional Geography. Muthuen
12. Co., London.

M.A./M.Sc. Geography Syllabus 2024-25
SEMESTER IV

Semester	Nature of Course	Courses Code	Course Title	Lecture-Tutorial-Practical /Week	No. of credits	Continuous Comprehensive Assessment (CCA)	End-Semester Examination (ESE) [University Examination]	Total
IV	DCC	GCC 401T	Geography of Population	6-0-0	4	30	70	100
	DCC	GCC 402P	Cartography & Socio-Economic Survey of a village	0-0-6	4	30	70	100
	DSE	GSE 403T (a)	Applied Geomorphology	6-0-0	4	30	70	100
		GSE 403T (b)	Advanced Climatology	6-0-0	4	30	70	100
		GSE 403T (c)	Advanced Oceanography	6-0-0	4	30	70	100
	DSE	GSE 404T (a)	Quantitative Techniques in Geography	6-0-0	4	30	70	100
		GSE 404T (b)	Geoinformatics	6-0-0	4	30	70	100
		GSE 404T (c)	Geography of Rural Development	6-0-0	4	30	70	100
	DSE	GSE 405T (a)	Disaster Management	6-0-0	4	30	70	100
		GSE 405I (b)	Internship	6-0-0	4	30	70	100
		GSE 405D (c)	Dissertation	6-0-0	4	30	70	100

DISCIPLINE CENTRIC CORE
GCC 401T
Geography of Population

Unit 1: Nature and Scope of population geography; World population growth, distribution and density; Major population theories

Unit 2 : Components of population growth, Trends and factor affecting fertility, mortality and migration in the world; Laws of Migration and Theories

Unit 3 : Population structure of India and its characteristics; Sex and age structure, fertility and mortality; distribution, density and growth of population in India;

Unit 4 : Population Geography of Rajasthan: Distribution and density of population; Sex-ratio; Rural and Urban population; Study of Scheduled Castes and Scheduled Tribes population of Rajasthan with Special reference to their distribution,

Unit 5: Population problems and policies, literacy and welfare programmers,

Recommended Readings:

1. Asha, A. Bhide and Mrs. Tara Kimitkar, : Principles of Population Studies; Himalaya Publishing House, Girgaon, Bombay
2. Ashish Bose & D. Gupta : Population Studies in India, Vikas Publishing House, Ansari Road, New Delhi
3. Agarwal, S.N. : India's Population Problems, Tata McGraw Hill, New Delhi
4. Chandra Shekar : Infant Mortality, Population Growth and Family Planning in India, London
5. Mamoria, C.B. : India's Population Problems, KtabMahal, Allahabad
6. Mehta, B.C. : Regional Population Growth : A Case Study of Rajasthan, Research Books, Tilak Nagar, Jaipur
7. Lal, S.K. & Nahar, U.R. : Higher Education of SC & ST in Rajasthan, Jain Sons, Publication, New Delhi
8. Purohit B.D. & S.D. Hand Book of reservation for SC & ST, jain sons publication, New Delhi
9. Singh, munshihardaya: the castes of manivar, census report of 1891, book treasure, Sojati gate Jodhpur

DISCIPLINE CENTRIC CORE
GCC 402P

Cartography & Socio-Economic Survey of A Village

Course contents

Unit 1: Graphs showing pressure and relative humidity conditions, interpretation of air photos: Simple photo-interpretation with the help of pocket and mirror stereoscope as applied in identification and analysis of feature of landforms; geographic units, settlements, communication, vegetation and land use

Unit 2: Numerical exercises pertaining to the aerial photographs; Calculation of flying height, number of strips of aerial photographs in given area, Fundamentals of digital image processing.

Unit 3: Geographic information systems (GIS); Applications of remote sensing in Geography, Digital cartography, mapping organizations and services- survey of India, NATMO, NRSA ,state organizations.

Unit 4: Statistical Techniques: correlation, Spearman's rank correlation and Karl Parsons product

moment correlation, Simple linear, regression, residual from regression, Chi-square test and student 't' Test

Uni t5: Socio-Economic Survey of A Village- Particular focus will be on population density, distribution, Caste Structure, Literacy Rate, and Creed work force, Land holding ratio, occupation structure, income gap, poverty analysis etc. (For every 15 students one teacher shall accompany the group).

TEXT BOOKS

1. Monkhouse, F.J. & Wilkerson, H.R. : Maps and Diagrams, Methuen and Co. London
2. Raisz, E. : General Cartography, McGraw, 1977
3. Gregory, S. : Statistical Methods and the Geographers, Methuen and Co., 1971
4. Kanetkar, T.P. : Surveying and Leveling, Parts I and II
5. RECOMMENDED READINGS
6. Robinson, A.H. : Elements of Cartography, Chapman and Hall, London
7. Dickinson, G.C. : Statistical Mapping and the Presentation of Statistics, Edward and Arnold, 1973
8. Lawrence, G. RY. : Cartographic Methods, Methuen, 1971
9. Brich, T.W. : Maps Topographical and Statistical
10. Faith, EA. : Surveying- Theory and Practice
11. Higgins, A.L. : Elementary Survey
12. Hinks, A. : Maps and Surveying
13. Low, J.R.: Plane Table Mapping
14. Threlfair, H : A Text books of Surveying and Leveling
15. Lewis, P. : Maps and Statistics, Methuen, 1977
16. King, L.J. : Statistical Analysis in Geography, Prentice Hall, N.J.
17. LaederD.R. : Aerial Photographic Interpretation
18. Sharma, J.P. :PrayogicBhoogol, Rastogi& Co. Meerut, 1983
19. Unwin, D.J. and J.A. Dawson : Computer Programming for Geographers, Longman, 1986
20. ZuylenLVan : Computer Assistant Cartography, N.Y. , 1985

DISCIPLINE SPECIFIC ELECTIVE

GEC 403T (a)

Applied Geomorphology

Course Contents

Unit 1: Earth as a member of the solar system; main theories regarding the origin of the Earth, distribution of land and sea; Isostasy and its bearing on surface configuration,

Unit 2: Materials of the earth's crust: Minerals and rocks, classification of fold, Geographical time scale: Basis of division, standard time scale and the Indian equivalence

Unit 3: Geological structure: Dip, Strike, Folds, formation of the earth's crust, joints, faults, tensional and compression forces and topographic effects

Unit 4: Landforms: Classification into first, second and third order, Constructional and destruction land forms and Geomorphic process : Weathering, rivers, groundwater, wind, glacier, waves, currents

Unit 5: Cycle concept in geography- development of the fluvial cycle in young, mature and old Stages, interruptions of the fluvial cycle and their consequences, Division and Walter Peck System; Geomorphic cycle in deserts, limestone area, glaciated lands, volcanic plains and Plateaus, domes and mountains

RECOMMENDED READINGS

1. Thornbury, W. D. (Rep.2011): Principles of Geomorphology, John Wiley and Sons, New York.
2. Chorley, R. J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology, Methuen, London.
3. Kale, V. S. and Gupta, A. (Rep.2011): Introduction to Geomorphology, Orient Longman, Calcutta.
4. Savindra Singh (Rep. 2011): Geomorphology, Prayag Pustak Bhawan, Allahabad
5. Spark B. W. (1972): Geomorphology, Longman, New York
6. Steers, A. (1958). The Unstable Earth, Methuen, London
7. Ollier, C. D. (1981) Tectonics and Landforms, Longman , London
8. Strahler A. H and Strahler, A. N. (1992) : Modern Physical Geography, John Wiley, New York
9. Wooldridge and Morgan: Geomorphology
10. Holmes: Physical Geology
11. Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

DISCIPLINE SPECIFIC ELECTIVE

GEC 403T (b)

Advanced Climatology

Course Contents

- Unit 1: Construction and use of chief meteorological instruments, physical process of atmosphere, radiation and heat balance
- Unit 2: condensation, stability and instability Origin, Characteristics and transformation of air masses, fronts and cyclones, general circulation of atmosphere,
- Unit 3: weather forecasting, classification of climates
- Unit 4: Modification of atmosphere by surface features; evidence of climatic changes during geological and historical times and critical assessment of such evidences
- Unit 5: Reaction of man to climatic environment, modification of terrestrial climates by human agency

Recommended Readings

1. Benstead, C.R. : The Weather Eye
2. Conard, V. and Plok, L.W. : Methods in Climatology
3. Finch. V.C., Trewartha, G.T., Shearer and Candler: Elementary Meteorology
4. Geiger, H. : The Climate Near the Ground
5. Haynes, B.G. : Techniques of Observing the Weather
6. Hole, P.X. : The Restless Atmosphere
7. Kendrew, W.G. : Climatology
8. Middleton, W.G. : Meteorological Instruments
9. Miller, A.A. : Climatology
10. Petterson, S. : Introduction to Meteorology
11. Petterson, S. : Weather Analysis and Forecasting
12. Richi, H. : Tropical Meteorology
13. Saucier , M.J. : Principles of Meteorological Analysis
14. Sutton, O.G. : Micrometeorology
15. Tannehill, I.R. : Hurricanes

16. Trewartha, G.T.: An Introduction to Weather and Climate
17. Trewartha, G.T.: The Earth's Problem Climate, 1962
18. Walths, J.E.S. : Equatorial Air
19. Willett H.C. & Sandars, F. : Descriptive meteorology
20. Crowe, P.R. : Concepts in Climatology, Longmans, London, 1971
21. McBoyle, G.(ed.) : Climate in Review, Houghton Mifflin Comp. Boston, 1973

DISCIPLINE SPECIFIC ELECTIVE
GEC 403 T (c)
Advanced Oceanography

Course Contents

UNIT – I: Nature and scope of Oceanography; Distribution of land and water; Major features of ocean basins; Marine sediments. Physical and chemical properties of sea water.

UNIT – II: Interlink between atmospheric circulation and circulation pattern in the oceans, surface currents, Thermohaline, waves and tides.

UNIT– III: Marine-biological environment: Bio-geochemical cycle in the ocean. Bio-zones, types of organisms; plankton, nekton and benthos, food and mineral resources of the sea.

UNIT IV: Major marine environments; coastal , estuary, deltas, barrier island, rocky coast, reefs, continental shelf, continental slope and deep. Pelagic environment and floor of the ocean basins.

UNIT – V: Impact of Humans on the marine environment. Law of the sea; exclusive economic zone; marine deposits and formation of coral-reefs.

Recommended Readings:

1. Davis RecharJ.A. : "Oceanography-An Introduction to the Marine Environment". Wm. C. Brown Iowa, 1986.
2. Duxbury, C.A. and Duxbury B. : An Introduction to the world's Oceans-C. Brown. Iowa 2nd ed., 1986.
3. Garrison, T. : "Oceanography - An Introduction to Marine Science" Books/Cole, Pacific Grove, USA, 2001.
4. Gross, M. Grant : Oceanography, a View of the earth, prantice-Hall inc, New Delhi, 1987.
5. King C.A.M. Oceanography for Geographers 1962.
6. Sharma, R. C. "The Oceans" Rajesh N. Delhi, 1985.
7. Urnmerkutty, A.N.P. Science of the Eceans and Human life, NBT, New Delhi, 1985.
8. Ornmany, F.D. : The Ocean.
9. Sharma, R. C. & M. Vital : Oceanography : A Brief Introduction kislaya Pub. New Delhi.
10. Siddartha, K.. : Oceanography : A Brief Introduction, Kislya Pub. New Delhi.

DISCIPLINE SPECIFIC ELECTIVE
GEC 404 T (a)
Quantitative Techniques in Geography

Course Contents

- Unit 1: Use of quantitative methods in Geography, Classification and tabulation of statistical data; Frequency distribution and graphs; Lorenz curve
- Unit 2: Simple and multiple Correlations: Linear and non-linear regression; Residuals from regression, Significance tests; Chi-square test; students't' test
- Unit 3: Sampling and its objective; Sampling techniques and their application to geographical Problems;
- Unit 4: Measures of central tendency and measures of dispersion and Measures of Skewness.
- Unit 5: Multivariate analysis: Principal component analysis; Theory of probability, Permutations and Combinations, and normal frequency distribution

RECOMMENDED READINGS

1. Bunge, W. : Theoretical Geography and Studies in Geography, Ser, C. General and Mathematical Geography, No. 1, Department of Geography, University of Lund, C.W.K. Gleerup, Lund, 1973
2. Cole, J.P. and Kin, C.A.M. : Quantitative Geography, Wiley, 1968
3. Dalton, R. and others: Correlation Techniques in Geography, George Phillip & Sons Ltd. London, 1972
4. Dixon, C. and B. Lech: sampling Methods for Geographical Research, CAMOG 17, Geo Abstracts, University of East Angila, Norwich, U.K., 1978
5. Duncan, O.D. : Statistical Geography- Problems in Analysing Areal Data. 1961
6. Elhance, D.N. : fundamentals of Statistics, KitabMahal, Allahabad, 1962
7. Fesguon, R. : Linear Regression in Geography, CATMOG, 15, Geo Abstract University of East Angila, 1981`
8. Gregory, S. : Statistical Methods and the Geographers, Longman, London, 1978
9. King, L.J. : statistical Analysis n Geography, Prentice Hall, 1960
10. Monkhouse, F.J. and Wilkson, H.R. : Maps and Diagrams, B.I. Publication, Bombay, 1980
11. Toyne, P. and Peter, T. Newby: Techniques in Human Geography, Macmillan, London, 1976
12. Yeastes, M. : An Introduction to Quantitative Anlysis in Human Geography, MacGraw hill Book Company , New York, 1974
14. Mohammed, A. : Statistical Methods in Geography, Rajesh Publications, New Delhi, 1977
15. David Ebon: Statistics in Geogrpahy- A Practical Approach, 1980

DISCIPLINE SPECIFIC ELECTIVE
GEC 404 T (b)
GEOINFORMATICS

Course contents

- Unit1: Remote sensing techniques: meaning, scope and development; Atmospheric window, Spectral Signature, Types of orbits, Sensor Resolutions, types of imagery
- Unit 2: Elements of image interpretation; Development of air photo interpretation techniques, Identification and mapping of natural and cultural landscape, Digital cartography, Photogrammetry ;Digital elevation Model
- Unit 3 : Fundamental of aerial photography system: Aerial photos: types, scale, resolution; Geometric properties of aerial photos; Stereoscopy; types of Stereoscopes; coverage and vision;

geometry of aerial photographs, photographic Resolution, parallax equation, flight planning, stereoscopic parallax

Unit 4: Fundamental of digital image processing; Data structure, raster and vector models

Unit 5: Geographic Information System- Definition and Components; Application of remote sensing in geography

RECOMMENDED READINGS

1. American Society of Photogrammetry, 1983
2. **Bhatta, B. (2010), Remote Sensing and GIS, Oxford University Press, New Delhi.**
3. Burrough; P.A. : Principles of Geographical Information Systems for Land Resources Assessment, Oxford University, Clarendon Press, 1986
4. Chouhan, T.S. and K.N. Joshi : Applied Remote Sensing and Photo-Interpretation, Vigyan
5. Colwell, Robert, N. : Manual of Remote Sensing, I & II editions, Vol. I & II,
6. Gautam, N.C. : SPGU Technology of Geography, NRSA, Hyderabad, 1994
7. Jensen, J.R. : Introductory Digital Image Precessing : A Remote Sensing Perspective, Prentice Hall, new Jersey, 1986
8. Karani, P.J. : Remote Sensing, ELBS. London, 1985
9. Lillesand, T.M. and Kiefer, R.W. : Remote Sensing and Image Interpretation, II edition, John Wiley and sons, 1987
10. Martin, D. (1996): Geographic Information Systems: Socio-economic Implications. Routledge, London.
11. Nag, P. (ed.) 1992: Thematic Cartography and Remote Sensing, Concept, New Delhi.
12. Prakashan, Jodhpur, 1955
13. Reddy, M.A. (2001): Textbook of Remote Sensing and Geographic Information Systems. B. S. Publications., Hyderabad.
14. Siddiqui, M.A. (2005): Introduction to Geographical Information Systems, ShardaPustakBhawan, Allahabad. (in Hindi)
15. Singh. S. : Remote Sensing Technology, Scientific Publishers, Jodhpur, 1996
16. Singh. S. : Remote Sensing Technology, Scientific Publishers, Jodhpur, 1996
17. Survey of India: Photogrammetry : Chapter Twelve, S.O.I., Dehradun, 1972
18. Wolf, Paul, K. : Elements of Photogrammetry(with air photo-interpretation an remote sensing) McGraw Hill Book co., 1974
19. Wolf, Paul, K. : Elements of Photogrammetry(with air photo-interpretation an remote sensing) McGraw Hill Book co., 1974
20. Worboys, M.F. (1995): GIS: A Computing Perspective. Taylor & Francis, London.

DISCIPLINE SPECIFIC ELECTIVE

GEC 404 T (c)

Geography of Rural Development

Unit 1 :Geography and rural development; Agricultural Geography and rural development; Agricultural location theory, Approaches and Theories to rural development, growth centre approach, infrastructure reformist

Unit 2 :Rural settlement and Infrastructure, Rural Housing: Types, Problems,

Unit 3: population and employment, rural transport, service provision, derivation, recreation, health nutrition, Hierarchies of Service centers need for Service centers in rural area.

Unit 4 :Resource development and integrated rural development; Crop and soil management, livestock range and management; Water management, Ecological management, desertification – monitoring and control, Rural Local Self Governance in India

Unit 5 :Rural development in Rajasthan; Major tools and techniques, Rural development schemes- Irrigation and land development schemes; Drought prone areas schemes, Desert Development programme ; integrated rural development in Rajasthan, Tribal areas development: Watershed development

REFERENCE READING

1. Giig, A. W. : An Introduction to Rural Geography, Edward Arnold, 1985 Association of country Councils: Rural Deprivation London, Acc, 1979
2. Allan J.A. ; Remote Sensing in Land use Studies, Geography 65, 1980
3. Tiwari, A.K. : (ed.) : Desertification : Monitoring and Control, Scientific Pubs., Jodhpur, 1988
4. Anderson, J.R.L.J. :Hardarkar: Agricultural Decision Analysis, Ames: Iowa State University Press, 1977
5. Andrease, B. Farming Development and Space – World Agricultural Geography, New York: Water Gryter, 1981
6. Morgan, W.B. and R.J.G. Munom : Agricultural Geography, Methuen, London, 1971
7. Pacione, M.: Rural Geography, Parpur Clarks, (Ed.) and Row 1984- Register of Research in Rural Geography, Licester : Rural Geography Study Group, 1981
8. Bowier, I.R. : Agricultural Geography – Profess in Human Geography-8, 1987
9. Newbury, P.A.R.P. : Geography of Agriculture Machonald and Evans, Plymouth, 1980
10. Grigg, D.B. : The Agricultural Systems of the World, Cambridge university Press, 1974
11. Grigg, D.B. : An Introduction of Agricultural Geography, Hutchinson, London, 1984
12. Jones, A : Rural Housing – The Agricultural Tied College, Bell, London, 1975
13. Lassey, W.R. : Planning in Rural Environment, Mc Graw hill, New York, 1973
14. Lavety, P. (ed.) ; Recreational Geography, David and Charles, Newton Abbot, 1974
15. Leasdale, R. Settlement Systems in Sparsely Populate
16. Regions and Homes (ed.), Oxford, Pergamon, 1981
17. Menab, A. : Integrated Rural Development, Gloucester Collage of Arts, 1984

DISCIPLINE SPECIFIC ELECTIVE

GEC 405 T (a)

Disaster Management

Course Contents

UNIT-1: Basic Concept : Hazards, Vulnerability, Risk and Disaster; Classification/Types of Hazards/Disasters; Evolution of Disaster Studies and its Current Status

UNIT-2: Geo-Physical/Tectonic Disasters: Earthquake, Landslide and Avalanche

UNIT-3: Hydrological Disasters: Flood, Cloud burst, Drought and desertification, Cyclone; Human Made Disasters: Chemical Disaster, Nuclear Disaster

UNIT-4: Regional Dimension of Hazards/Disasters in India. Earthquakes in India, Landslides in India, Drought in India; Disasters in Himachal Pradesh,

UNIT 5: Disaster Management: Pre-disaster phase, Emergency phase and Post-disaster phase;

Recommended Readings:

1. Alexander, D. E.: Natural Disasters. London: University College London Press and; Dordrecht and Boston: Kluwer Academic Publishers, 1993.
 2. Alexander, D. E.: Confronting Catastrophe: New Perspectives on Natural Disasters. Harpenden, U.K: Terra Publishing, 2000.
 3. Allan, S., Adam, B. and Carter, C. (eds): Environmental Risks and the Media, Routledge, London, 2000.
 4. Ahmed, ShaikIftikhar: Disaster Management in the Wake of a Flood, Twenty First Century Publications, Patiala, 2008.
 5. Blaikie, P. and Others: At Risk: Natural Hazards, People's Vulnerability, and Disasters, Routledge, London, 1994.
 6. Birkmann, J.: Measuring Vulnerability to Natural Hazards: Towards Disaster Resilient Societies. US: United Nations University Press, 2006.
 7. Hyndman, D. and D. Hyndman.: Natural Hazards and Disasters. 2nd edition. USA, Belmont: Brooks/Cole, 2009.
 8. Burton, I., Kates, R.W. and White, G.F.: Environment as Hazard, 2nd edition, Guilford Press, New York, 1993.
- 38 M.A. GEOGRAPHY (SEMESTER SYSTEM)
9. Hewitt, K.: Regions of Risk: A Geographical Introduction to Disasters, Longman, London, 1997.
 10. Kasperson, J.X., Kasperson, R.E. and Turner, B. L.: Regions at Risk: Comparisons of Threatened Environments, United Nation University Press, Tokyo, 1995.

**DISCIPLINE SPECIFIC ELECTIVE
GEC 405 I (b)
INTERNSHIP**

Internship Guidelines Master Of Geography

Department of Geography, Jai Narain Vyas University, Jai Narain Vyas University, Jodhpur

Requirements for Internship Students who will carry out the internship must meet the following requirements:

1. Students are enrolled in the M.A./M.Sc. Geography Program of the Department of Geography, Faculty of Social Sciences, Jai Narain Vyas University Jodhpur
2. Students have been or are studying at least semester II/IV and have taken a minimum of credits.
3. Internship placement must be in accordance with the area of expertise of the student concerned
4. The requirements of government agencies or companies that can be used as an internship are:
 - V. Government Agencies (MOU and non MOU)
 - VI. NGO (non-governmental organization)
 - VII. Consultation company/agency
 - VIII. Industries related to Geography

Internship Organization

All application of interested will be addressed to the Head, department of Geography, Jai Narain Vyas University, Jodhpur in the first week of admission in respective Semester along with prior permission letter of internship organization/institution/agency, HOD will put up all application in

Departmental Council, DC will appoint one mentor/Supervisor(from the existing permanent faculty member rotationally)for one student.

Internship Report

5. The internship report follows the report format as seen in the attachment
6. Apprentices consult draft internship reports to get internship exam approval
7. Approved drafts are reproduced for examiner lecturers.
8. If the order is not carried out then students must repeat the internship course next semester.

Examples of Internship Report Formats

Report Cover Format

Internship Report

This Report Was Submitted to Meet Some of the Internship Completion Requirements Faculty of Social Sciences, Jai Narain Vyas University, Jodhpur Semester..... -

By Name

OUTLINE INTERNSHIP REPORT

(Attachment Outline the Internship Report)

CHAPTER I INTRODUCTION

1.1 Background (Agencies and theme of activities)

1.2 Goal

1.3 Forms of Activities Performed

1.4 Location

1.5 Nature of Work

CHAPTER II OVERVIEW OF THE Internship INSTITUTION

2.1 Organizational Structure of Agencies

2.2 Duties and Functions of Agencies

2.3 A Brief Overview of Activities Carried out by the Agency of Internships.

CHAPTER III DESCRIPTION OF INTERNSHIP ACTIVITIES (conducted by interns)

3.1. Duties and Roles of Interns in Agencies

3.2. Activity Description (Details Per Item and Time)

3.3. Relevance of Internship Materials to Lecture Materials

3.4. Difficulties in The Work (Related to The Completion of The Substance of Work Observed and Experienced)

CHAPTER IV RESULTS AND REFORMATION

(based on the purpose of focusing the internship conducted)

4.1. Data processing

4.2. Data analysis

CHAPTER V CONCLUSIONS AND SUGGESTIONS

Respective supervisor will collect report from Apprentice/Student along with Report of concerned agency/institution/organization

GEOGRAPHY STUDY INTERNSHIP CONSULTATION SHEET

Student Name :.....

Enrollment No. :.....

Internship Organisation :

Date Topics/Issues discussed

Supervisor (_____)
SUPERVISOR ASSESSMENT SHEET

Student Name:

Internship Unit: Agency/Company/SME

Name: Schedule of Activities: To... 20...

Supervisor Name (assessor):

Supervisor Position:

Scheme of Examination (CE, EoSE) will be as per NEP university examination Guidelines and ordinance.

DISCIPLINE SPECIFIC ELECTIVE

GEC 405 D (c)

Dissertation

DISSERTATION PREPARATION AND SUBMISSION GUIDELINES MASTER OF GEOGRAPHY

Department of Geography, Jai Narain Vyas University, Jai Narain Vyas University, Jodhpur

All application of interested student for dissertation will be addressed to the Head, department of Geography, Jai Narain Vyas University, Jodhpur in the first week of admission in respective Semester. HOD will put up all application in Departmental Council, DC will appoint one Supervisor (from the existing permanent faculty member rotationally) for one student.

While utmost attention must be paid to the content of the Dissertation/Report (hereinafter called the 'DissertationThesis'), which is being submitted in partial fulfillment of the requirements of the respective degree, a standard format must be prescribed. The same format shall also be followed in the preparation of the final soft copies to be submitted to the Library in the future. Dissertation/Report must be based on Research work/Industry/Project-based research only.

DISSERTATION PREPARATION GUIDELINES

This Dissertation shall be presented in a number of chapters, starting with an Introduction and ending with a Summary and Conclusions. Each of the other chapters will have a precise title reflecting the contents of the chapter. A chapter can be subdivided into sections, subsections, and subsubsection so as to present the content discretely and with due emphasis.

1.1. Introduction The title of Chapter 1 shall be Introduction. It shall justify and highlight the problem posed, define the topic and explain the aim and scope of the work presented in the Dissertation. It may also highlight the significant contributions from the investigation.

1.2. Related Work/Literature Survey This shall normally form Chapter 2 and shall present a critical appraisal of the previous work published in the literature pertaining to the topic of the investigation. The extent and emphasis of the chapter shall depend on the nature of the investigation.

1.3. The Proposed Model The reporting on the investigation shall be presented in one or more chapters with appropriate chapter titles.

- Due importance shall be given to experimental setups, procedures adopted, techniques developed, methodologies developed and adopted.

- While important derivations/formulae should normally be presented in the text of these chapters, extensive and long treatments, copious details, and tedious information, detailed results in tabular and graphical forms may be presented in Appendices. Representative data in tables and figures may, however, be included in appropriate chapters.
- Figures and tables should be presented immediately following their first mention in the text. Short tables and figures (say, less than half the writing area of the page) should be presented within the text, while large tables and figures may be presented on separate pages.
- Equations should form separate lines with appropriate paragraph separation above and below the equation line, with equation numbers flushed to the right.

1.4. Results and Analysis

This shall form the penultimate chapter of the thesis and shall include a thorough evaluation of the investigation carried out and bring out the contributions from the study. The discussion shall logically lead to inferences and conclusions as well as scope for possible further future work.

1.5. Summary and Conclusion

This will be the final chapter of the dissertation/thesis. A brief report of the work carried out shall form the first part of the Chapter. Conclusions derived from the logical analysis presented in the Results and Discussions Chapter shall be presented and clearly enumerated, each point stated separately. Scope for future work should be stated lucidly in the last part of the chapter.

1.6. Appendix

Detailed information, lengthy derivations, raw experimental observations, etc. are to be presented in the separate appendices, which shall be numbered in Roman Capitals, Since reference can be drawn to published/unpublished literature in the appendices these should precede the “Literature Cited” section.

1.7. References/Bibliography

This should follow the Appendices, if any, otherwise the Summary and Conclusions chapter. The candidates shall follow the style of citation and style of listing in one of the standard journals in the subject area consistently throughout his/herthesis. However, the names of all the authors along with their initials and the full title of the article/monogram/book, etc. have to be given in addition to the journals/publishers, volume, number, pages(s), and year of publication. Citation from websites should include the names(s) of the author(s) (including the initials), the full title of the article, website reference, and when last accessed. Reference to personal communications, similarly, shall include the author, title of the communication (if any), and date of receipt.

1.8. Acknowledgments

The acknowledgments by the candidate shall follow the citation of literature, signed by him/her, with the date.

Scheme of Examination (CE, EoSE) will be as per NEP university examination Guidelines and ordinance.