GUJARAT UNIVERSITY
DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCHIENCE, AHMEDABAD-380009

Syllabus for M.A/M.Sc. Geography: 2018 - 19

COURSE CODE	COURSE TITLE	Internal Marks	External Marks	Hours & Credits to be completed	
				Hours	Credits
SEMESTER I					
GEO401	ADVANCED AND APPLIED GEOMORPHOLOGY	30	70	4	4
GEO402	ADVANCED AND APPLIED CLIMATOLOGY	30	70	4	4
GEO403	HUMAN ECOLOGY	30	70	4	4
GEO404	PRINCIPLES OF ECONOMIC GEOGRAPHY	30	70	4	4
GEO405PR	COMPUTER BASE AND DATA BASE MANAGEMENT	30	70	6	4
GEO406PR	QUANTITATIVE METHODS	30	70	6	4
TOTAL CREDITS IN SEMESTER I		**180**	**420**	**28**	**24**
SEMESTER II					
GEO407	PHILOSOPHY OF GEOGRAPHICAL THOUGHT	30	70	4	4
GEO408	PRINCIPLES AND APPLIED OCEANOGRAPHY	30	70	4	4
GEO409	POPULATION AND SETTLEMENT GEOGRAPHY	30	70	4	4
GEO410	REGIONAL GEOGRAPHY OF INDIA	30	70	4	4
GEO411PR	CARTOGRAPHIC METHODS	30	70	6	4
GEO412PR	RESEARCH METHOD AND FIELD SURVEY	30	70	6	4
TOTAL CREDITS IN SEMESTER II		**180**	**420**	**28**	**24**
SEMESTER III					
GEO501	GEOGRAPHY OF NATURAL HAZARDS AND MANAGEMENT	30	70	4	4
GEO502	GEOGRAPHY OF URBAN SYSTEMS	30	70	4	4
GEO503	SOCIAL GEOGRAPHY	30	70	4	4
GEO504	THE REGIONAL PLANINNG AND DEVELOPMENT	30	70	4	4
GEO505PR	GEOGRAPHICAL INFORMATION SYSTEMS	30	70	6	4
GEO506PR	REMOTE SENSING AND IMAGE INTERPRETATION	30	70	6	4
TOTAL CREDITS IN SEMESTER III		**180**	**420**	**28**	**24**
SEMESTER IV					
GEO507	RESEARCH PROJECT/DISSERTATION	**180**	**420**	**28**	**24**
TOTAL CREDITS IN SEMESTER IV		**180**	**420**	**28**	**24**

Semester I

Code No: GEO401 Title: Advanced & Applied Geomorphology
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Introduction to Geomorphology as a science and its brief history Fundamental concepts in geomorphology Factors controlling landform development: Endogenetic and exogenetic forces
2.	Geosynclines, Mountain building: Classification and theories Distribution of Oceans and continents; Continental drift theory and Plate tectonic theory
3.	Geomorphic processes; weathering - mass movement – transportation Concepts of geomorphic cycles and Landscape development Dynamics of landforms: fluvial, coastal, karst, glacial and aeolian cycles
4.	Applied Geomorphology: Nature and Objectives Applied Fluvial geomorphology Applied geomorphology in coastal management Terrain classification: Principles, methods and applications

References:

1 Chorley, R.J., et.al. (1984): Geomorphology, John Wiley and Sons, New York.
2 Cooke, R.V. and Doornkomp, J.C. (1974): Geomorphology in Environment Management – An Introduction, Clarendon Press, Oxford.
3 Gondie, S.A. (2004) (Eds): Encyclopedia of Geomorphology, Routledge, London.
4 Hails, J.R. (1977): Applied Geomorphology, Elsevier, Amsterdam.
5 Hart, M.G. (1986): Geomorphology, Pure and Applied, George Allen and Unwin, London.
6 Kale, V. S. and Gupta, A. (2010): Introduction to Geomorphology, Universities Press, Hyderabad
7 Mitchel, C.W (1973): Terrain Evaluation, Longman, London
8 Ollier, C. D. (1981): Tectonics and Landforms, Longman, London
9 Savindra Singh (2002): Geomorphology, Prayag Pustak Bhavan, Allahabad
10 Sparks, B.W. (1972): Geomorphology, Longman Group Ltd.
11 Steers, J.A. (1937): The Unstable Earth, Methuen and Co., Ltd, London.
12 Strahler, A.H. and Strahler (1992): Modern Physical Geography, John Wiley and Sons (Asia) Pvt. Ltd.
13 Tarbuck, E. J. and Lutgens, F. K. (2009): Earth Science, Prentice Hall, New Jersey
14 Thornbury, W.D. (1960): Principles of Geomorphology, Mathuen, London

Code No: GEO402 Title: Principles and Applied Climatology
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Nature and scope of climatology Development of modern climatology and the development of applied climatology Earth's Atmosphere: origin and evolution - structure and chemical composition
2.	Insolation: solar radiation and terrestrial radiation; electromagnetic spectrum - latitudinal and seasonal variation - effect of atmosphere Temperature: distribution - measurements and controls and inversion of temperature Atmospheric moisture and lapse rate Heat budget of the earth
3.	Atmospheric pressure and models of general circulation of the atmospheric winds, monsoons and jet stream Stability and instability of the atmosphere: airmasses - fronts - temperate and tropical cyclones Types and distribution of precipitation
4.	Classification of the world climates: Koppen's and Thornthwaite's schemes Hydrological Cycle Global climate change: air pollution, greenhouse effect, ozone depletion and global warming

References:

1 Critchfield, H. J. (1998): General Climatology, Prentice Hall, Englewood Cliffs
2 Lal, D.S. (1998): 'Climatology', Chaitanya Publishing House, Allahabad.
3 Lutgens, F. K., Tarbuck, E. J. and Tasa, D. G. (2012): The Atmosphere: An Introduction to Meteorology, Prentice Hall, New Jersey
4 Mather, J.R. (1974): 'Climatology: Fundamentals and Applications', McGraw-Hill, New York.
5 Oliver, John E. (1973): 'Climate and Mans Environment: An Introduction to Applied Climatology', John Wiley & Sons, New York, London.
6 Sarindra Singh (2005): 'Climatology', Prayag Pustak Bhavan, Allahabad.
7 Thompson, R.D. and Allen, P. (1997): 'Applied Climatology: Principles and Practice', Routledge, London and New York.

Code No: GEO403 Title: Human Ecology (Environmental and Biogeography)
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Environmental Science: Introduction, scope, approaches to study of environment Bio-geography: scope - development – Biosphere Genesis of soils: Soil profile
2.	Ecology and Ecosystem: Ecological hierarchy - structure and developmental - Principle of ecology Bio-chemical cycles: nitrogen – carbon dioxide – oxygen Functioning and development of eco system Zoo geographical regions of the world
3.	Major terrestrial ecosystems of the world: agriculture – forests - grasslands and deserts Ecosystem their management and conservation; Environmental degradation - management and conservation Biodiversity and sustainable development
4.	Man-environment relationship: Global and regional ecological changes and imbalances – bio diversity and its conservation Environmental legislation: the Stockholm Conference - the Earth Summit, environmental laws in India – The Wild Life Act, Forest Act - Environment Protection Act - National Environment Tribunal Act

References:

1 Chandra, R.C. (1998): Environmental Awareness, Kalyani Publishers, New Delhi.
2 Eyre S.R. and Jones G.R.J. (1966) (Eds.): Geography as Human Ecology, Edward Arnold, London.
3 Mathur, H. S. (2003): Essentials of Biogeography, Pointer Publishers, Jaipur
4 Nobel and Wright (1996): Environmental Science, Prentice Hall, New York.
5 Robinson, H.: Biogeography, MacDonald and Evans, London.
6 Russworm, L.H. and Sommerville, E. (Eds.) (1985): Man's Natural Environment – A Systems approach, Duxbury, Massachussetts.
7 Savindra Singh (2000): 'Environmental Geography', Prayag Pustak Bhavan, Allahabad.
8 Smith, R.L. (1992): Man and his environment: An Ecosystem Approach, Harper & Row, London.
9 Tusk, Jonathan (1985): Introduction to Environmental Studies, Sanders, College Publishing, Tokyo.
10 Wright, R.T. and Nebel, B.J. (2004): 'Environmental Science: Toward a sustainable future, Prentice Hall of India, New Delhi.

Code No: GEO404 Title: Principles of Economic Geography
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Nature of economic geography Location of economic activities and spatial organization of economies World economic development: measurement and problems
2.	Economic concepts and principles, Classification of economics Economic Landscape and economic systems, Evolution of World economy Measurement of agriculture productivity and efficiency, Von Thunen's Model
3.	Factors of production, Rostow's model of economic development Classification of industries: Weber's and Losch's approaches Models of industrial location, Economic growth and development
4.	Liberalization, Privatization and Globalisation, World Tarde Organisation Impact of Economic Activities on Environment

References:

1 Berry, B. J. (1976): Geography of Economic Systems, Prentice Hall, Englewood Cliff
2 Boyce, R. D. (1974): Bases of Economic Geography, Holt, Rinehart and Winston, New York
3 Estall R.C. and Buchanan, R.O. (1970): Industrial Activity and Economic Geography, Hutchinson & Co., Ltd, London.
4 Hartshorne, T. A. and Alexander, J. W. (2010): Economic Geography, PHI Learning, New Delhi
5 Knox, P., Agnew, J. and McCarthy, L. (2008): The Geography of the World Economy, Hodder Arnold, London
6 Lloyd, P. and B. Dicken (1972): Location in Space – A theoretical approach to economic geography, Harper & Row, New York.
7 Siddhartha, K. (2000): Economic Geography: Theories, Process and Patterns, Kisalaya Publications, New Delhi
8 Smith, D. M. (1971): Industrial Location: An Economic Geographical Analysis, John Wiley and Sons, New York
9 Thornbury, W.D. (1960): Principles of Geomorphology, Mathuen, London

Code No: GEO405PR Title: Computer Base and Data Base Management
No. of Credits: 4 No. of Practicals:45

Sr.No.	Topics
1.	Morden use of computers in Geography Introduction to computer system: hardware and software Introduction to Computer Programming and its methodology
2.	Application of statistical software SPSS: Data input, Recoding data calculation of maximum, minimum, charts, analysis etc. Use of computer applications in research work: OneNote, Google doc, Google forms, Shodhganga etc.
3.	Spreadsheets / Database Maintenance through Microsoft Excel: Data input - use of formulae - calculation of sum, mean, median and mode, percentages, growth rates Generating Bar Diagram, Pie-charts, Area – Polar - Line graphs, etc. Measures of dispersion: absolute and relative measures, Range, standard deviation, variance, coefficient of variability
4.	Statistical Techniques in Spatial Analysis: Non-parametric Tests: Chi-Square, Correlation, 'F' and 'T' test Regression Analysis: linear regression, residuals from regression, and simple curvilinear regression Time series analysis: moving averages (3 and 5 unit cycles) Histograms - Frequency Tables- frequency distribution and graphical representation - Cross Tabulations

References:

1 Burrough, P.A. (1986): Principles of Geographical Information Systems for Land Resources Assessment, Clarendon Press, Oxford.

2 Chien Chad C. (1991): Introduction to the Microcomputer and its applications, Galgotia Publications Pvt Ltd., New Delhi.

3 Heywood Ian, et.al. (2003): An Introduction to Geographical Information Systems, Pearson Education (Singapore) Pvt.Ltd. Delhi.

4 Lo C-P., Albert K.W. Yeung (2004): Concepts and Techniques of Geographic Information Systems, Prentice Hall of India Pvt. Ltd, New Delhi.

Code No: GEO406PR Title: Quantitative Methods
No. of Credits: 4 **No. of Practicals:45**

Sr.No.	Topics
1.	Geographical data: Discrete and continuous series Scales of measurements Frequency distribution – histogram - Frequency curve and Ogive curves.
2.	Measures of Central tendency: Mean – Median – Mode (grouped and ungrouped data) - Skewness Measures of dispersion: Mean deviation - standard deviation (grouped and ungrouped data) - quartile deviation Measures of relative variability - coefficient of variation
3.	Theory of probability and sampling: theoretical probability - distributions Binomial, Poisson and normal Introduction to sampling theory - sampling distributions - standard error
4.	Correlation co-efficient - rank correlation - simple regression - trend line analysis, time series analysis, Hypothesis testing: formulation, rejection rule, one and two tailed tests, significance level, degrees of freedom, type I and type II errors Chi-square test: one-way and two-way

References:

1 Bart James E and Gerld M.Barber, 1996: Elementary Statistics for Geographers, The Guieford Press, London.
2 Borradaile, G. (2003): Statistics of Earth Science Data, Springer, New York
3 Ebdon, D (1977): Statistics in Geography, Basil Blackwell.
4 Frank, H. and Althoen, S.C. (1994): Statistics: Concepts and Applications, Cambridge University Press.
5 Gregory, S., 1978: Statistical Methods and the Geographer (4th Edition), Longman, London.
6 Hammond, R.and McCullagh P. (1991): Quantitative Techniques in Geography, Clarendon Press, Oxford.
7 Khan Najma.,1998: Quantitative Methods in Geographical Research, Concept Publishing Company, New Delhi
8 Mann, P. S. (2007): Introductory Statistics, John Wiley and Sons, New Delhi
9 Pal, S.K., 1998: Statistics for Geoscientists: Techniques and Applications, Concept Publishing Company, New Delhi
10 Rogerson, P. A. (2010): Statistical Methods for Geography, Sage Publications, London
11 Rogerson, P. A. (2010): Statistical Methods for Geography, Sage Publications, London
12 Yeates, Mauris, 1974: An Introduction to Quantitative Analysis in Human Geography, Mc Grawhill, New York.

Semester II

Code No: GEO407 Title: Philosophy of Geographical Thought
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Geographical knowledge of the ancient world: Greek-Roman Period Contributions of explorers - Geography of medieval period: contributions by Arab geographers Contribution of modern geographers - Contribution of German, French, British and American School
2.	Foundation of modern geography Dualism and Dichotomies in Geography: physical vs human, systematic vs regional, nomothetic vs idiographic, historical vs contemporary and determinism vs possibilism
3.	Contemporary Trends - Quantitative paradigm - Behavioural revolution - Perception and Cognition mental maps Marxism/Radicalism and welfare approach Modernism vs post-modernism – post structuralism and post colonialism.
4.	Geographical knowledge of the ancient India Indian Geography Base and Trends - Impact of post-colonialism and Gandhism on Indian geography

References:

1 Adams, Paul, Steven Holescher and Karel Till (eds.) (2001): Texture of Place. Exploring Humanistic Geographies. University of Minnesota Press, Minneapolis.
2 Arild Holf-Hensen (1999): Geography History and Concepts, Sage Publications, London.
3 Barnes, Trevor and Gregory, Derek (eds.) (1997): Reading Human Geography Poetics and Politics of Human Geography, Arnold, London.
4 Dear Michael J. and Flusty, S. (2002): The Spaces of post-modernity: Readings in Human Geography, Blackwell Publication, Oxford.
5 Dikshit, R.D. (2001): Geographical Thought – A Contextual History of Ideas, Prentice Hall of India, New Delhi.
6 Goudie, A. (Ed) (2004): Encyclopedia of Geomorphology, Routledge, London
7 Harvey, David (1969): Explanations in Geography, Arnold, London.
8 Hussain, M. (1984): Evolution of Geographical Thought, Rawat Publications, Jaipur
9 Johnston R.J. (2000): Geography and Geographers 4th ed. Edward Arnold, London.
10 Kapur Anu (ed.)(2001): Indian Geography – Voice of Concern Concept Publishing Company, New Delhi.
11 Peet, Richard (1998): Modern Geographical Thought, Blackwell, Oxford.
12 Suja Edward (1989): Post-modern Geographies verso, London Reprinted 1997: Rawat Publication, Jaipur and New Delhi.
13 Warf, B. (Ed) (2006): Encyclopedia of Human Geography, SAGE Publications, NewDelhi

Code No: GEO408 Title: Principles and Applied Oceanography
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Nature and Scope of Oceanography Major features of Ocean basins Continental margin and deep ocean basins Bottom relief of Indian, Atlantic and Pacific Oceans
2.	Physical and chemical properties of sea water Sources and factors affecting the distribution of temperature and salinity. Density of sea water
3.	Circulation patterns in the ocean: Ocean currents: Origin and distribution Water masses - Oceanic waves and tsunamis Tides: types and theories
4.	Marine biological environment – Bio zones: Plankton, Nekton and Benthos Ocean deposits, Theories related to the origin of coral reefs and coral bleaching - Climatic and eustatic changes Laws of the sea - EEZ and resource utilization

References:

1 David Ross (1973): Introduction to Oceanography.
2 Davis Richard, J.A. (1986): Oceanography – An Introduction to Marine Environment, wm. C.Brown, Iowa.
3 Duxbury, C.A. and Duxbury, B. (1996): An Introduction to World's Oceans, C.Brown Iowa (2nd Ed.).
4 Garrison, T. (1993): Oceanography – An Invitation to Marine Science, WadsworthPublication Co., California
5 Garrison, T. (2001): Oceanography – An Introduction to Marine Science, Books/Cole, Pacific Grove, USA.
6 Gross M.Grant (1987): Oceanography – A view of the Earth, Prentice Hall Inc. New Jersey.
7 Joseph, W. S. and Parish, H. I. (1974): Introductory Oceanography, McGraw Hill, Tokyo
8 Pinet, P. R. (2009): Invitation to Oceanography, Jones and Bartlett Publishers, Boston
9 Singh Savindra (2010): Oceanography, Allahabad.

Code No: GEO409 Title: Population Geography
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Nature, Scope, approaches and subject matter of population and settlement geography - nature and sources of data Patterns of world population distribution: Density and growth, theories of Malthus and Marx
2.	Population composition: Biological; Race – age – sex pyramid, Economic; Occupation, Socio-cultural; marital status – household – literacy – education – language – religion and tribe
3.	Population Dynamics: Fertility – Mortality and Morbidity, Patterns and processes of migration Demographic transition, Population-resource regions
4.	Indian Census: History of Indian census, Method of enumeration, Population composition with reference to India Contemporary issues with reference to India: demographic dividend and demographic deficit

References:

1 Ambrose, Peter (1970): Concepts in Geography Vol.I: Settlement Pattern, Longman.
2 Bhende, A. A. and Kanitkar, T. (2008): Principles of Population Studies, Himalaya Publishing House, Mumbai
3 Chandana, R. C. and Sidhu, M. S. (1980): Introduction to Population Geography, Kalyani, New Delhi
4 Chandna R.C. (1986): Geography of Population – Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi.
5 Chisholm, M. (1962): Rural Settlements and Landuse, Hutchinson, London.
6 Clarke J.J. (1984): Geography and Population – Approaches and Applications, Progress Press, Oxford.
7 Herbert David & C.J. Thomas (1982): Urban Geography – A First Approach, John Wiley & Sons, Binghamton, N.Y.
8 Hudson, R.S. (1970): A Geography of settlements, McDonald and Sons, London.
9 Hussain, M. (1999): Human Geography, Rawat Publication, Jaipur
10 Sawant, S. B. (1994): Population Geography, Mehta Publishing House, Pune
11 Short, John. R. (1984): An Introduction to Urban Geography, Routledge and Regan Paul, London.

Code No: GEO410 Title: Regional Geography of India
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Physical aspects and Resources: Making of India through geological times, structure and relief Physiographic divisions - drainage systems – watersheds Climate characteristics, mechanism of the Indian monsoon Vegetation types and vegetation regions – Major soil types - Water resources - Irrigation
2.	Agriculture: Salient features of agriculture Major crops, problems and prospects Agricultural regions – Agroclimatic zones Green revolution and its impact - white, blue and yellow revolutions
3.	Industries: Salient features of Indian industry, Industrial complexes and regions, Major industries Problems and prospects of transport networks Liberalization - Special Economic Zones
4.	Population structure and composition: Size - growth - distribution – density Biological, economic and socio-cultural characteristics Dynamics of population: Migration, urbanization and population policy Dynamic, prospective and problem regions of India

References:

1 Deshpande, C.D. (1992): India: A Regional Interpretation, ICSSR & Northern Book Centre, New Delhi.
2 Dutt, Ashok K. (Ed.)(1972): Indian – Resources, Potentialities and Planning, Kendall/Hunt Publishing Company, Dubuque.
3 Gautam, A. (2006): Advance Geography of India, Sharda Pustak Bhawan, Allahabad.
4 Government of India (2007): National School Atlas, NATMO, Kolkatta.
5 Khullar D.R. (2005): India-A comprehensive geography, Kalyani Publishers, Ludhiana.
6 Nagi P. and Smita Sen Gupta (1993): Geography of India, Concept Publishing Company, New Delhi.
7 Ramesh A. (Ed.) (1981): Resource Geography, Heritage Publishers, New Delhi.
8 Tiwari, R.C. (2006): Geography of India, Prayag Pustak Bhavan, Allahabad.
9 Wadia, D.N. ( ): Minerals of India, National Book Trust, New Delhi.

Code No: GEO411PR Title: Cartographic Methods
No. of Credits: 4 **No. of Practicals:45**

Sr.No.	Topics
1.	Introduction to SOI topographical maps: numbering, scales, grid reference, signs and symbols, colour system Study and interpretation of SOI maps Relief and climatic diagrams: Cross profiles – superimposed - projected and composite profile Long profile - Altimetric curve – 3 D models
2.	Climatic map analysis of Indian daily weather reports Preparation of climatic maps and diagrams: Climograph – Hythergraph – Polargraph - Composite wind rose - Ishohyet - Isotherm maps - Cyclone track
3.	Cartograms: Use of socio-economic data; Circle and sphere methods - square and block methods - Choropleth maps Flow diagrams - triangular graph - Lorenz curve and Gini's concentration Index.
4.	Indices of transport network analysis; Detour Index - Beta and Gamma Index

References:

1 Goudie, A. S. (2004): (Eds.), Encyclopedia of Geomorphology, Routledge, London
2 Gupta, A. (2011): Tropical Geomorphology, Cambridge University Press, London
3 Monkhouse, F.J. (1967): Maps and Diagrams, Mathuen and company, London.
4 Raisz Erwin (1962): Principles of Cartography, McGraw Hill, New York.
5 Ramesh, A. and Misra R.P. (1999): Fundamentals of Cartography Concept publishing co. New Delhi.
6 Robinson, A.H. et.al(2002): Elements of Cartography, 6th ed., John Wiley and Sons, New York.
7 Singh, R.L. and Singh Rana (1993): Elements of Practical Geography, Kalyani Publishers, Ludhiana, New Delhi.

Code No: GEO412PR Title: Research Methods and Field Survey
No. of Credits: 4 **No. of Practicals:45**

Sr.No.	Topics
1.	Meaning of Research, Types of Research, Research approaches: Approaches to geographical study and research: Landscape, Ecological, Regional, Locational, Geometric, qualitative, quantitative, Inductive and Deductive approaches Stages of Research Process
2.	Sampling Techniques Types of Data Sources: Primary and secondary data Primary data collection Research Techniques: survey sethods such as schedule, questionnaire, observation, PRA, RRA Step of Schedule/Questionnaire construction, Study Visit/Survey
3.	Broad Idea of Models, Laws, Hypothesis, Theories and Systems in Geography. Paradigm and Paradigm shift.
4.	Writing Report/Paper: style and format of the report/paper, writing skill, time factor Writing References and Citation

References:

1 Denzin, N.K. and Lincoln, Y.S. (eds.) (2000): Handbook of Qualitative Research, Sage Publications, Thousand Oaks, CA.
2 Fisher, Peter & Unwin David (eds.) (2002): Virtual Reality in Geography, Taylor & Francis, London.
3 Flowerdew, R. and Martin, D. (eds) (1997): Methods in Human Geography – A Guide for students doing a Research Project, Longman, Harlow.
4 Gomez, B. and Jones, J. P. III (2010): Research Methods in Geography: A Critical Introduction, John Wiley and Sons
5 Gregory, D., Johnston, R., Pratt, G., Watts, M. and Whatmore, S. (2009): The Dictionary of Human Geography, Wiley-Blackwell, Singapore
6 Hay, I. (ed.)(2000): Qualitative Research Methods in Human Geography, Oxford University Press, New York.
7 Kitchin, Rob and Tate Nicholas (2001): Conducting Research into Human Geography. Theory, Methodology and Practice, Prentice Hall, London.
8 Limb, Mclanie (2001): Qualitative Methodologies for Geographers, Issue and Debates, Arnold, London.
9 Montello, D. and Sutton, P. (2013): An Introduction to Scientific Research Methods in Geography and Environmental Studies, SAGE Publications
10 Peet, Richard (ed.)(2002): New Models in Geography (2 Vols.) Rawat Publications, Jaipur.
11 Warf, B. (Ed)(2006): Encyclopedia of Human Geography, SAGE Publications, London

Semester III

Code No: GEO501 Title: Geography of Natural Hazards and Management
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Natural hazards and disasters: definition and areas Concepts in hazard management Natural hazards: Meteorological; cyclones – typhoons - hurricanes and droughts - forest fires - causes, assessment, effects and control measures
2.	Natural hazards: Geological; earthquakes – volcanoes - causes, effects and control measures
3.	Natural hazards: Geomorphic; landslides - soil - erosion and gullying - coastal erosion - causes, assessment, effects and control measures
4.	Natural hazards: Hydrological; floods (river and seawater) - failure of natural dams – Tsunamis – Salinisation - causes, assessment, effects and control measures Concept of vulnerability – mitigation – preservation – preparedness –response and recovery

References:

1 Goudie, A. (1990): Geomorphological Techniques, Unwin Hyman, London
2 Hart, M. G. (1986): Geomorphology: Pure and Applied, George Allen and Unwin, London.
3 Morisawa, M. (Ed.) (1994): Geomorphology and Natural Hazards, Elsevier, Amsterdam.
4 Singh, S. (2000): Environmental Geography, Prayag Pustak Bhavan, Allahabad
5 Singh, S. and Singh, J. (2013): Disaster Management, Pravalika Publications, Allahabad
6 Turk, J. (1985): Introduction to Environmental Studies, Saunders College Pub., Japan
7 Valdiya, K.S. (1987): Environmental Geology, Tata McGraw Hill, New Delhi.

Code No: GEO502 Title: Geography of Urban Systems
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Definition and nature of urbanization, history of urbanisation Demographic, economic and social aspects of urbanization Urbanisation and industrialization
2.	Urban system: site and situation, urban hierarchy, Rank-Size rule Law of primate city, Sphere of urban influence Suburbanization and urban sprawl, Satellite towns
3.	Urban land use – theories regarding internal structure of the city Urban morphology, Rural urban fringe Global city and changing urban functions, Concept of green belt
4.	Christelle's central place theory, August Losch's theory of market centres Urban planning, Urban plans, Urban renewal and urban redevelopment, Issues related urbanisation Urban slums, Urban transportation and environment degradation

References:

1 Bose, A. (1980): India's Urbanisation, Tata McGraw Hill, New Delhi
2 Carter, H. (1979): The Study of Urban Geography, Arnold Heinemann, London
3 Hall, P. (1996): Cities of Tomorrow, Basil Blackwell
4 Hall, T. (2006): Urban Geography, Routledge, London
5 Knox, P.L. and Taylor (P.J. (1995): World cities in world system, Cambridge University Press, U.K.
6 Marcuse, P. and Kempern, R.V. (eds.) (2000): Globalizing Cities: A New Spatial Order, Blackwell
7 Markusen, A.R. et.al. (1990): Second Tier Cities: Rapid Growth Beyond the Metropolis, University of Minnessota Press
8 Pacione, M. (2009): Urban Geography, Routledge, New York
9 Ramchandran, R. (1997): Urbanization and Urban Systems in India, Oxford UniversityPress, New Delhi
10 Sassen, S. (1991): The Global City, Princeton University Press.
11 Siddharth, K. and Mukherjee, S. (2013): Cities, Urbanization and Urban System, Kisalaya Publishing, New Delhi
12 Vaidya, B. C. (1997): Agricultural Land use in India, Manak Publications, New Delhi
13 Watson, S. & Gibson, K. (1995): Post Modern Cities and Spaces, Basil & Blackwell

Code No: GEO503 Title: Social Geography
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Social Geography: definition – nature – scope – significance and approaches Relationship with social sciences Nature and problem of data
2.	Geographic basis of social interaction and relations Formations of social groups - community and society Concept of social space – space and society - socio-cultural region
3.	The role of race – ethnicity – religion - caste and language in the evolution of social regions Aspects of unity in diversity in Indian society Social transformation – sanskritisation - role of rural-urban interaction
4.	Processes of industrialization – urbanization - modernization and globalization and their impact on Indian society Family structure - Disparity level of living and values Contribution of social geography to social theory – power relation and space

References:

1 Ahmad, A. (2012): Social Geography of India, Concept Publishing Company, New Delhi
2 Aijazuddin Ahmeda (1999): Social Geography, Rawat Publications, New Delhi.
3 Hammett, Chris (eds.)(1996): Social Geography: A Reader, Arnold, London.
4 Jones Emrys and Eyles John (1977): An Introduction to social geography, Oxford University Press.
5 Knowles R., Wareling J. (1998): Economic and social geography, Rupa and Co., New Delhi.
6 Panelli, R. (2004): Social Geographies: From Difference to Action, Sage Publications, London
7 Rachel, Pain. Et.al. (2001): Introducing social geographies, Arnold hodder group, London & Oxford University Press, Oxford.
8 Smith David (1977): Geography – A Welfare Approach, Edward Arnolds.

Code No: GEO504 Title: Regional Planning and Development
No. of Credits: 4 No. of Lectures:45

Sr.No.	Topics
1.	Fundamentals: Concept and Definition of Region, Types of Region- Regional Planning Concept as multidisciplinary subject, Goal and Aim of regional Planning, Objectives of regional planning, Process of Regional Planning, Methods for Delineation of Region, principles of regionalization and approaches to regional planning
2.	Theoretical outlook – Theories of Albert Hirschman and Gunnar Myrdal model circular and cumulative Causation, Core and periphery model by John Friedmann, Growth pole model by Francois Perroux, Growth Centre and Growth Foci Approach by R P Misra
3.	Disparity and Diversity – Regional disparities in India, Measurement of Regional Disparity: Indicators and Indices– Criteria, scale and Technique such as Ranking, Quartile Index, Z score, deprivation Index, Sopher's index and Gorard Index, Disparity in terms of Development perspective: Growth and Development, Inequality and Imbalances in Regional Development, Indicators of Development, Sustainable Development, Human Development, Regional Development in developed and developing countries
4.	Planning regions, regional development and planning strategies with reference to Five Year Plans, multi-level planning in India State – District - Block level planning and role of Panchayati Raj. Planning for tribal – agricultural - industrial and urban (metropolitan) regions Planning for problem regions (hill, desert and tribal regions)

References:

1 Chand, M. and Puri, V. K. (2003): Regional Planning in India, Allied Publishers Pvt.Ltd., New Delhi
2 Chandra, R.C. (2000): Regional Planning – A comprehensive text, Kalyani Publishers, Ludhiana.
3 Friedman, J., Alanso. W. (1967): Regional Development and Planning – A Reader, MIT Press, Mass.
4 Glasson, J. and Marshall, T. (2007): Regional Planning, Routledge, New York
5 Mishra, H. N. (2005): Regional Planning, Rawat Publication, Jaipur
Book (2014): Publication Division, New Delhi
6 Mishra, R. P. (2002): Regional Planning in India- Concept Publication, New Delhi
7 Misra, R.P. (ed.) (1992): Regional Planning, Concepts, Techniques, Policies and Case Studies, Concept Pub. New Delhi.
8 Sundaram, K.V. (1997): Decentralised Multi-level Planning: Principles and Practices (Asian and African Experiences) Concept Publishing Co., New Delhi.

Code No: GEO505PR Title: Geographical Information Systems
No. of Credits: 4 No. of Practicals:45

Sr.No.	Topics
1.	Fundamentals of GIS: Concepts and definitions - component elements of GIS Tasks of GIS - Functional and Logical relationships among geographic features and their attributes - types of attributes, Data quality and sources of errors *Ex 1: Getting familiar with QGIS interface* *Ex 2: Adding Vector and Raster data layers to QGIS map Canvas*
2.	Map elements: scale, datum line, UTM projection, coordinate systems *Ex 3: To get familiar with the projecting and reprojecting the vector and raster data sets by using Quantum GIS* *Ex 4: To georeference a map by using graticule intersections in a known coordinate system and datum,* Error detection (RMSE)
3.	Conceptual models of spatial information - raster data model - vector data model comparative overview, GPS data input *Ex 5: To digitize (point, line Polygon: Vectorization) a toposheet using Quantum GIS.* *Data visualization - map layout design and symbology* *Ex 6: To present given data in the form of a comprehensive map and to learn how to edit layer symbology in QGIS.*
4.	Conceptual models of non-spatial information *Ex 7: To import the Indian census data of districts into a shapefile by using joining method.* *Ex 8: To get familiar with constructing attribute queries in Quantum GIS and presenting the results in the form of map for visualization and analysis purpose.*

References:

1 Bernhardsen, Tor (1999): Geographic Information Systems: An Introduction, John Wiley and Sons.
2 Burrough, P. A. and McDonnell, R. A. (1998): Principles of Geographical Information Systems, Oxford University press Inc., New York
3 Chang, K. T. (2008): Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York
4 Clarke, Keith C. (1999): Getting started with Geographic Information Systems, Prentice Hall.
5 Demers, Michael, N. (2000): Fundamentals of Geographic Information Systems, John Wiley.
6 Environmental Systems Research Institute (1993): Understanding GIS: The Arc Info Method.
7 Haywood, Ian (2000): Geographical Information Systems, Longman.
8 Quantum GIS User Guide, http://docs.qgis.org/1.8/pdf/QGIS-1.8-UserGuide-en.pdf
9 Thiede, R., Sutton, T., Duster, H. and Sutton, M. (2013): The Quantum GIS Training Manual, Locate Press LLC, USA

Code No: GEO506PR Title: Remote Sensing and Image Interpretation
No. of Credits: 4 No. of Practicals:45

Sr.No.	Topics
1.	Basics of satellite remote sensing: definition, principle, stages and types, characteristics of remote sensing platforms and sensors. Indian Remote sensing satellites and sensors, Spectral Characteristics of common natural objects, Spectral signatures and special response patterns - resolutions of remote sensing data, Atmospheric effects on remote sensing data *Exercise 1: To get familiar with SAGA GIS interface and view and explore raster data in it.* *Exercise 2: To understand basic characteristics of a satellite image. Spectral Characteristics of common natural objects.*
2.	Fundamentals of aerial photography: Geometric characteristics of aerial photographs, Image displacement, parallax and stereoscopy Introduction to digital photogrammetry Preparation of keys from satellite imageries *Exercise 3: To identify features and extract the useful information from the remotely sensed images based on the visual interpretation techniques.* *Exercise 4: To georeference a toposheet by using graticule ticks/intersections in a known coordinate system and datum by using SAGA GIS*
3.	Thematic mapping through satellite imageries for geomorphology Land-use/land cover: ground water potential zones - lithology and structure - soil and forest types
4.	Digital image processing (DIP) techniques: Image enhancement Raster Data Download - Layer Stacking - Mosaicking, Atmospheric and Radiometric corrections. *Exercise 5: To mosaic two satellite images and then subset it is using SAGA.* *Exercise 6: To learn about the construction and use of image filters* Image classification: Supervised and unsupervised- Satellite image interpretation *Exercise 7: To create a land use and land cover map of a region by the unsupervised classification method using* *Exercise 8: To create a land use and land cover map of a region by the Supervised classification method using SAGA.* *Exercise 9: To detect and analyse the changes in land use and land cover of a region using post classified images from different time periods.*

References:

1 Campbell, James, B. (2003): Introduction to Remote Sensing 4th Ed. Taylor & Francis, London.
2 Cracknell, A. et Hayes. (1990): Remote Sensing Year Book, Taylor and Francis, London.
3 Jensen, J.R. (2004): Remote sensing of the environment: An Earth Resource Perspective, Prentice Hall, Englewood Cliffs, N.J.
4 Joseph, G. (2003): Fundamentals of Remote Sensing, University Press,

Hyderabad
6 Lillesand, T. M., Kiefer, R. W. and Chipman, J. W. (2008): Remote Sensing and Image Interpretation, John Wiley and Sons, Wiley India Pvt. Ltd., New Delhi
7 Navalgund, R. R. and Ray, S. S. (2011): Hyperspectral Data, Analysis Techniques and Applications, Indian Society of Remote Sensing, Dehradun
8 Sabins, F. F. (1996): Remote Sensing: Principles and Interpretation, Freeman and Company, San Francisco
9 Schowengerdt, R. A. (2006): Remote Sensing: Models and Methods for Image Processing Academic Press, Boston

Code No: GEO507 Title: Research Project/Dissertation

No. of Credits: 24

Sr.No.	Topics	Credit
1.	Mini Research Project/Dissertation • Introduction to the problem and study area - literature review • Objectives of the study – Variable of the study – Hypotheses or study question • Methodology: Population and sample – tools for data collection – treatment of data • Result • Conclusions • References	20
2.	Study Tour / Field Work • There shall be one geographical study tour / field work during fourth or any semester of P.G. study. • Student must prepare a field report related to study tour part of the practical journal work as part of the curriculum. College or institution must take budgetary allocation for such field studies. • It will pertain to different geographical / environmental / related to urban, rural & tribal society and industrial even outside Gujarat State.	2
3.	Seminar / Assignment • At least two seminars or assignment should be delivered during fourth semester.	2

References:

1 Flowerdew, R. and Martin, D. (2005): Methods in Human Geography: A Guide for Students Doing a Research Project, Prentice Hall, Harlow

2 Gomez, B. and Jones, J. P. (eds) (2010): Research Methods in Geography: A Critical Introduction, Wiley-Blackwell, Chichester

3 Hay, I. (2012): Communicating in Geography and the Environmental Sciences, Oxford

4 Montello, D. R. and Sutton, P. C. (2013): An Introduction to Scientific Research Methods in Geography and Environmental Studies, SAGE, London

5 Parsons, A. J. and Knight, P. G. (2005): How to Do Your Dissertation in Geographyand Related Disciplines, Routledge, Abingdon