



GUJARAT UNIVERSITY
Syllabus for M.A/M.Sc. Geography: 2017 - 18

COURSE CODE	COURSE TITLE	CREDITS per Course	Credits to be completed	
			Course wise	Semester wise
SEMESTER I				
GEO401	ADVANCED AND APPLIED GEOMORPHOLOGY	4	4	
GEO402	ADVANCED AND APPLIED CLIMATOLOGY	4	4	
GEO403	HUMAN ECOLOGY	4	4	
GEO404	PRINCIPLES OF ECONOMIC GEOGRAPHY	4	4	
GEO405PR	COMPUTER BASE AND DATA BASE MANAGEMENT	4	4	
GEO406PR	QUANTITATIVE METHODS	4	4	
TOTAL CREDITS IN SEMESTER I		24	24	24
SEMESTER II				
GEO407	PHILOSOPHY OF GEOGRAPHICAL THOUGHT	4	4	
GEO408	PRINCIPLES AND APPLIED OCEANOGRAPHY	4	4	
GEO409	POPULATION AND SETTLEMENT GEOGRAPHY	4	4	
GEO410	REGIONAL GEOGRAPHY OF INDIA	4	4	
GEO411PR	CARTOGRAPHIC METHODS	4	4	
GEO412PR	RESEARCH METHOD AND FIELD SURVEY	4	4	
TOTAL CREDITS IN SEMESTER II		24	24	24
SEMESTER III				
GEO501	GEOGRAPHY OF TOURISM	4	4	
GEO502	GEOGRAPHY OF URBAN SYSTEMS	4	4	
GEO503	SOCIAL GEOGRAPHY	4	4	
GEO504	THE REGIONAL PLANINNG AND DEVELOPMENT	4	4	
GEO505PR	GEOGRAPHICAL INFORMATION SYSTEMS	4	4	
GEO506PR	REMOTE SENSING AND IMAGE INTERPRETATION	4	4	
TOTAL CREDITS IN SEMESTER III		24	24	24
SEMESTER IV				
GEO507	GEOGRAPHY OF NATURAL RESOURCES AND MANAGEMENT	4	4	
GEO508	GEOGRAPHY OF NATURAL HAZARDS AND MANAGEMENT	4	4	
GEO509	GEOGRAPHY OF SOCIAL WELL-BEING	4	4	
GEO510	GEOGRAPHY OF URBAN ISSUES, PLANNING AND DEVELOPMENT	4	4	
GEO511PR	LITERATURE SURVEY AND BOOK REVIEW	4	4	
GEO512PR	MINI RESEARCH PROJECT	4	4	
TOTAL CREDITS IN SEMESTER IV		24	24	24

Semester I

Code No: GEO401

Title: Advanced & Applied Geomorphology

No. of Credits: 4

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Introduction to Geomorphology as a science and its brief history	4
	Fundamental concepts in geomorphology	3
	Factors controlling landform development: Endogenetic and exogenetic forces	4
2.	Distribution of Oceans and continents; Holme's convection current theory -	6
	Theory of isostasy - Wegener's continental drift theory	
	Continental Drift Theory – Sea floor spreading - Plate tectonics	7
3.	Geomorphic processes; weathering - mass movement – transportation	3
	Concepts of geomorphic cycles and Landscape development	2
	Dynamics of landforms: fluvial, coastal and karst, Glacial processes, Aeolian processes and landforms	6
4.	Applied Geomorphology: Nature and Objectives	2
	Applied Fluvial geomorphology	2
	Applied geomorphology in coastal management	2
	Terrain classification: Principles, methods and applications	4

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	Lectures
1.	Nature and Scope of Climatology	3
	Development of modern climatology and the development of applied climatology	3
	Earth's Atmosphere: Evolution - Structure and Chemical composition.	6
2.	Solar radiation and Terrestrial radiation: Electromagnetic spectrum - Latitudinal and seasonal variation - Effect of atmosphere	7
	Temperature measurements and controls, lapse rate and inversion of temperature - Heat budget	4
3.	Temperature and pressure belts of the world	5
	Models of general circulation of the atmosphere: jet stream - air masses - frontogenesis	
	Extra tropical cyclones - tropical cyclones	6
	Koppen's, Thornthwaite's and Trewartha's classification of world climates	
4.	Global climatic change and greenhouse effect: Data sources - methods and theories.	6
	Urban climate: Commercial activities and air pollution	3
	Physical environment: Soil, and water resources - flora and fauna	2

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	Lectures
1.	Environmental Science: Introduction, scope, approaches to study of environment	5
	Bio-geography: scope - development – Biosphere	4
	Genesis of soils: Soil profile	2
2.	Ecology and Ecosystem: Ecological hierarchy - structure and developmental - Principle of ecology	5
	Bio-chemical cycles: nitrogen – carbon dioxide – oxygen	6
	Functioning and development of eco system	
	Zoo geographical regions of the world	
3.	Major terrestrial ecosystems of the world: agriculture – forests - grasslands and deserts	5
	Ecosystem their management and conservation; Environmental degradation - management and conservation	6
	Biodiversity and sustainable development	
4.	Man-environment relationship: Global and regional ecological changes and imbalances – bio diversity and its conservation	5
	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	7

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, MacDonal 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	Lectures
1.	Nature of economic geography	3
	Approaches to the study of economic geography	4
	World economic development: measurement and problems	4
2.	Economic concepts and principles	5
	Hypotheses of economic geography	6
	Economic Landscape and economic systems	6
	Evolution of World economy	
3.	Factors of production	5
	Rostow's model of economic development	
	Models of industrial location	6
	Economic growth and development	
4.	Modes of transport; Cost of transport.	5
	Characteristics and patterns of international trade - problems of world trade	7
	Comparative cost trade theory – Globalization	

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

Sr.No.	Topics	Practical's
1.	Morden use of computers in Geography	2
	Introduction to computer system : hardware and software	3
	Introduction to Computer Programming -Introduction to programming methodology	5
2.	Data analysis software: Application of statistical software SPSS - 'R' Programme	8
	Use of computer applications in research work: OneNote, Google doc, SodhGanga etc.	4
3.	Spread sheets / Database Maintenance through Microsoft Excel: Data input - use of formulae - calculation of sum, mean, median and mode, percentages, Growth rates	4
	Generating Bar Diagram, Pie-charts, Area – Polar - Line graphs, etc.	3
	Measures of dispersion: absolute and relative measures - Range - standard deviation – variance - coefficient of variability	3
4.	Statistical Techniques in Spatial Analysis:	5
	“F” Distribution and Analysis of Variance –“one-way” and “two-way” analysis	
	Non-parametric Tests: Chi-Square – Correlation: Rank order correlation and product moment correlation	
	Regression Analysis: linear regression, residuals from regression, and simple curvilinear regression	3
	Time series analysis : moving averages (3 and 5 unit cycles)	4
	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 Micro computer 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.

Sr.No.	Topics	Practical's
1.	Geographical data: Discrete and continuous series	3
	Scales of measurements	3
	Frequency distribution – histogram - Frequency curve and Ogive curves.	4
2.	Measures of Central tendency: Mean – Median – Mode (grouped and ungrouped data) - Skewness	5
	Measures of dispersion: Mean deviation - standard deviation(grouped and ungrouped data) - quartile deviation	7
	Measures of relative variability - coefficient of variation	
3.	Theory of probability and sampling: theoretical probability - distributions	6
	Binomial, Poisson and normal	
	Introduction to sampling theory - sampling distributions - standard error	5
4.	Correlation co-efficient - rank correlation - simple regression - trend line analysis	5
	Time series analysis	7
	Hypothesis testing: formulation, rejection rule, one and two tailed tests, significance level, degrees of freedom, type I and type II errors	
	Student <i>t</i> test	
	ANOVA : one-way, two-way (single and multiple entry)	
	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	Lectures
1.	Basic Frame and concepts: Man-Environment interaction - New Environmentalism	4
	Concepts: Space – Place – environment	3
	Time and spatial organization: Region and regional typology - culture and cultural landscape	4
2.	Geographical knowledge of the ancient world: Greek-Roman Period	4
	Contributions of explorers - Geography of medieval period: contributions by Arab geographers	5
	Contribution of modern geographers - Dichotomy and dualism	4
3.	Contemporary Trends - Qualitative paradigm - Behavioural revolution	4
	Perception and Cognition mental maps - Marxism/Radicalism and welfare approach	3
	Modernism vs post-modernism – post structuralism and post colonialism.	4
4.	Geographical knowledge of the ancient India Indian Geography	4
	Base and Trends - Impact of post-colonialism and Gandhism on Indian geography	6

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	Lectures
1.	Nature and Scope of Oceanography	4
	Major features of Ocean basins	4
	Continental margin and deep ocean basins	
	Bottom relief of Indian, Atlantic and Pacific Oceans	4
2.	Physical and chemical properties of sea water	5
	Sources and factors affecting the distribution of temperature and salinity.	6
3.	Circulation patterns in the ocean: Ocean currents: Origin and distribution	3
	Water masses - Oceanic waves and tsunamis	4
	Tides: types and theories	4
4.	Marine biological environment – bio zones: Plankton, Nekton and Benthos	3
	Ocean deposits and coral reef -Coral Bleaching - Climatic and eustatic changes	4
	Laws of the sea - development and pollution - EEZ and resource utilization	4

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 and Settlement Geography

No. of Credits: 4

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Nature, Scope, approaches and subject matter of population and settlement geography - nature and sources of data - units of settlements	7
	Basic models in Population and Settlement Geography	3
	Sustainable development of cities	2
2.	Population distribution: Density and growth	2
	Population composition;	7
	Biological: Race – age – sex	
	Economic: Occupation - industrial classification	
	Socio-cultural: marital status – family – household – literacy – education – language – religion - caste and tribe	
	Rural-urban composition and gender issues	2
3.	Population Dynamics: Fertility – Mortality and Morbidity processes and patterns of urbanization	5
	Causes and consequences of migration processes	3
	Rural - urban fringe and rural-urban continuum	3
4.	Theories of evolution of settlements - Physical structure of settlement	3
	Functional classification of cities	3
	Functional Environmental issues in rural settlements	
	Landuse: principles and theories of landuse in urban and rural setting	5
	Concept of Hierarchy - central place theory	

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	Lectures
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 Soil-water resources, forest types, distribution and utilization.	4 5 2 2
2.	Agriculture: Salient features of agriculture Major crops, problems and prospects Agricultural regions – agro climatic zones Green revolution and its impact - white, blue and yellow revolutions	2 5 3
3.	Industries: Salient features of Indian industry - Industrial complexes and regions Major industries - industrial policies Problems and prospects of transport networks Globalization and liberalization - Special Economic Zones	5 4 2
4.	Population structure and composition: Size - distribution – density Biological, economic and socio-cultural characteristics Dynamics of population – Migration and urbanization -population policy Dynamic, prospective and problem regions of India	4 3 4

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.

Sr.No.	Topics	Practical's
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	7 5 4
2.	Climatic map analysis of Indian daily weather reports Preparation of climatic maps and diagrams: Climograph – Hythergraph – Polarograph - Composite wind rose - Isohyet - Isotherm maps - Cyclone track	5 7
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.	6 5
4.	Indices of transport network analysis; Detour Index - Beta and Gamma Index	6

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.

Sr.No.	Topics	Practical's
1.	Framework of Research: Concept and significance of research in geography	5
	Research approaches, choices and types: Empiricism, Positivism, Behaviourism, Inductive and Deductive approaches	7
2.	Planning the research and Data generation: Primary data and secondary data	3
	Data collection and classification - Research design	4
	Participatory research planning and framing pilot/research project	
	Survey-questionnaire making of form and design	4
	Study visit, village and household survey and reporting	
3.	Theories and Techniques: Model making; Application of system theory	4
	Use of GPS	
	Application and relevance of statistical and cartographic techniques	4
	Application of computer and GIS - Scientific journals (impact factor, citation)	3
4.	Analysis, writing and Dissemination - Production and arrangement of data and maps - Quantitative and Qualitative interpretations	5
	Use of writing Manuals (arranging themes, maintaining coherence, cross-comparison, concluding, referencing noting)	4
	Report writing: a case study of study visit or education tour	2

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 Tourism

No. of Credits: 4

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Nature and scope of Tourism	4
	History of tourism - factors affecting tourism	3
	Types of tourism - Relation between geography and tourism	5
2.	Infrastructure and support system for tourism	5
	Evaluation of tourism potential	3
	Development and planning for tourism	3
3.	Economic – social - physical and cultural impact of tourism	5
	Evaluation of tourism potential	3
	Tourism development in Gujarat and India	3
4.	Environmental laws and tourism	3
	Globalization and tourism	3
	Case studies of tourist centres : Religious centres - Historical centres - Resort - Dams - Sanctuaries and National Parks	5

References:

- 1 Bhatia, A.K. (1991): International Tourism – Fundamentals and Practices, Sterling Publisher Ltd., New Delhi.
- 2 Bhatia, A.K. (1996): Tourism Development: Principles and Practices, Sterling Publisher Ltd., New Delhi.
- 3 Inskeep E. (1991): Tourism Planning: An Integrated and sustainable Development Approach, Van Nostrand and Reinhold, New York.
- 4 Lew, A. A., Hall, C. M. and Williams, A. M. (ed) (2014): Tourism, Wiley-Blackwell, Hoboken
- 5 Manert Kumar: Tourism Today: An Indian Perspective.
Manoj Das (1999): India: A Tourist Paradise.
- 6 Mathieson A and Wall: Tourism: Economic, Physical and Social Impact
- 7 Pearce D.G. (1987): Tourism Today: A Geographical Analysis, Harlow, Longman.
- 8 Robinson, H. (1996): A Geography of Tourism, Macdonald and Evans, London.
- 9 Sharma J.K. (Ed.) (2000): Tourism Planning and Development – A new perspective, Kanishka Publishers, New Delhi.
- 10 Smith, L. J. S. (2010): Tourism Analysis: A Handbook, Halstead Press, Sydney

Code No: GEO502

Title: Geography of Urban Systems

No. of Credits: 4

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Urbanisation and Development; Demographic, economic and social aspects of urbanization – capitalism – industrialization - urbanization and urban development	11
2.	Urban system; Evolution - growth and organization Primacy - hierarchy and balance Globalisation and world city system Urban system in the periphery – global and local	3 3 5
3.	Urban economic base – concept of dualism Intersection of global processes and flexibilised urban economy Global city and changing urban functions Colonial and post-colonial structure	3 3 5
4.	Organisation of urban space Urban morphology and landuse – contemporary urban frontiers Urban renewal - spatial order Crisis in urban space - emerging issues Suburbanization and urban sprawl	4 3 5

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 Minnesota Press.
- 8 Pacione, M. (2009): Urban Geography, Routledge, New York
- 9 Ramchandran, R. (1997): Urbanization and Urban Systems in India, Oxford University Press, 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	Lectures
1.	Social Geography: definition – nature – scope – significance and approaches	6
	Relationship with social sciences	3
	Nature and problem of data	2
2.	Geographic basis of social interaction and relations	5
	Formations of social groups - community and society	3
	Concept of social space – space and society - socio-cultural region	3
3.	The role of race – ethnicity – religion - caste and language in the evolution of social regions	6
	Aspects of unity in diversity in Indian society	5
	Social transformation – sanskritisation - role of rural-urban interaction	
4.	Processes of industrialization – urbanization - modernization and globalization and their impact on Indian society	6
	Family structure - Disparity level of living and values	3
	Contribution of social geography to social theory – power relation and space	2

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	Lectures
1.	Fundamentals: Concept - nature and scope of regional planning Methods of regional planning, Different approaches to regional planning - planning regions - concept and types Methods of delimitation - planning regions of India - regional policies in India	6 4 3
2.	Conceptual Outlook: Regional planning and national development Economic development and regional development Regional disparity and regional diversity - production processes and cycles Regional economic complexes Inter-regional and intra-regional functional interactions - regional disparities in India	4 5 3
3.	Approaches: Approaches to integrate regional planning at different levels Local regional and national - multi-level planning in India State – District - Block level planning Planning for tribal – agricultural - industrial and urban (metropolitan) regions	7 4
4.	Development perspective: Service and market centres planning Growth centre and regional development with reference to India and France Regional Development and Planning Strategies – Case studies from developed and developing countries	6 4

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.

Sr.No.	Topics	Practical's
1.	Fundamentals of GIS: Concepts and definitions - component elements of GIS	4
	Tasks of GIS - Functional and Logical relationships among geographic features and their attributes - types of attributes	5
	Data quality and sources of errors	2
2.	Map elements: scale – projection - coordinate systems	3
	Data inputs scanning/acquiring data - Georeferencing of maps	8
	Digitization and attribution - Topology: error detection and correction	
	Data visualization - map layout design and symbology	3
3.	Conceptual models of spatial information - raster data model - vector data model comparative overview	5
	Spatial data analysis: vector based - Spatial data analysis: raster based	5
	Manual method for point - line and area entities	2
4.	Conceptual models of non-spatial information	3
	Hierarchical data base structure - network structure - relational model	5
	Structuring of spatial data	

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

Sr.No.	Topics	Practical's
1.	Spectral Characteristics of common natural objects	4
	Atmospheric effects on remote sensing data	
	Spectral signatures and special response patterns - resolutions of remote sensing data	3
	Fundamentals of aerial photography - Geometric characteristics of aerial photographs - Image displacement, parallax and stereoscopy	5
	Introduction to digital photogrammetry	
2.	Basics of satellite remote sensing: definition, principle, stages and types	4
	Characteristics of Remote Sensing platforms and sensors	4
	Indian Remote sensing satellites and sensors	
	Micro-wave remote sensing data – characteristics - interpretation and application	4
3.	Preparation of keys from satellite imageries	3
	Thematic mapping through satellite imageries for geomorphology	3
	Land-use/land cover - ground water potential zones - lithology and structure - soil and forest types	4
4.	Digital image processing (DIP) techniques: Image enhancement	4
	Image classification: Supervised and unsupervised- Satellite image interpretation in terrain and resource evaluation - environmental monitoring	4
	Land use/land cover mapping - water and forest - Lithology and structure - Remote Sensing and GIS	3

References:

- 1 Campbell, James, B. (2003): Introduction to Remote Sensing 4th Ed. Taylor & Francis, London.
- 2 Cracknell, A. et.al.(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

Semester IV

Code No: GEO507

Title: Geography of Natural Resources and Management

No. of Credits: 4

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Resources: Concept - Resource creating process - need for study	4
	Functional operational theory	7
	Principals of resource adequacy and resource scarcity	
	Classification of resources and resource appraisal	
2.	Distribution of resources: water – soil – forest - mineral and energy in India and world	12
3.	Utilization and conservation of natural resources in the context of environment, population and development	11
4.	Degradation of resources: water – land - air and forests	6
	Causes and consequences	
	Resource development and management: National policies – plans – programmes Processes and patterns of resource development	5
	Eco friendly technology and sustainable development	

References:

- 1 Mitchell, B. (1989): Geography and resource analysis (2nd Edition), Longman Scientific and Technical, U.K.
- 2 Negi, B.S. (1997): Geography of Resources.
- 3 Ramesh, A. (Ed.): Contribution to Indian Geography – Resource Geography, Heritage Publishing, New Delhi.
- 4 Roy, P. (2000): Resource Studies, Central Educational Enterprises, Kolkata.
- 5 Adam, M.G.(2000): Kumasi Natural Resources Management, Final Technical Report, Natural Resources Institute, University of Greenwich-UK

Code No: GEO508
No. of Credits: 4

Title: Geography of Natural Hazards and Management

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Natural hazards and disasters: definition and areas Concepts in hazard management	4
	Natural hazards: Meteorological; cyclones – typhoons - hurricanes and droughts - forest fires - causes, assessment, effects and control measures	9
2.	Natural hazards: Geological; earthquakes – volcanoes - causes, effects and control measures	9
3.	Natural hazards: Geomorphic; landslides - soil - erosion and gullying - coastal erosion - causes, assessment, effects and control measures	10
4.	Natural hazards: Hydrological; floods (river and seawater) - failure of natural dams – Tsunamis – Salinisation - causes, assessment, effects and control measures	9
	Concept of vulnerability – mitigation – preservation – preparedness –response and recovery	4

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: GEO509

Title: Geography of Social Well-being

No. of Credits: 4

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Geography and Human welfare and well being	4
	Definition, concept, environment, space and ecology	3
	Concept of space – patterns, and processes; scope of spatial welfare analysis well-being as the disciplinary focus	4
2.	Theoretical perspectives: Human being; needs and wants - 'quality of life' criteria	6
	Level of well-being and state of well-being - consumption approach	7
	Utility and welfare, distribution consumption and welfare in geographical space Utility of welfare theory.	
3.	Fair Society: Concepts and measurement – social justice and a fair society	3
	Integrated approaches to social well being - choice of components and indicators - methods of measurement Patterns and levels of well being - social monitoring	
4.	Geography and inequality, injustice and deprivation	2
	Patterns of inequality; income, health and housing, social contrasts and distributive justice, equity in distribution growth, development and welfare	2

References:

- 1 Coates, B.E., Johnson, R.J. and Knox, P.C. (1977): Geography and Inequality, Oxford University Press, Oxford.
- 2 Herbert David T. and Smith David M. (1983): Social Problems, and the city – Geographical perspective, Oxford University Press, Oxford.
- 3 Jones, Emrys and John Eyles (1977): An Introduction to social geography, Oxford University Press, Oxford.
- 4 Knox, P.L. (1975): Social well-being: A spatial perspective, Oxford University Press, London.
- 5 Kulkarni, K.M. (1990): Geographical Patterns of Social well-being (with special reference to Gujarat), Concept Publishing Company, New Delhi.
- 6 Smith, David M. (1973): The Geography of Social Well-being in the USA, McGraw Hill, New York.
- 7 Smith, David M. (1977): Human Geography: A Welfare Approach, Edward Arnold, London.
- 8 Smith, David M. (1979): Where the Grass is Greener, Geographical Perspectives on Inequality, Croom Helm, London.

Code No: GEO510
No. of Credits: 4

Title: Geography of Urban Issues, Planning and Development

No. of Lectures:45

Sr.No.	Topics	Lectures
1.	Meaning, concept and scope of urban planning	4
	Urban planning: methods and techniques	3
	Urban issues: Land-use, physical and infrastructure, Housing transport, social security, natural and man-made hazards and urban environment and quality of living	5
2.	Urban built environment: Land-use - models and planning - concept of neighbourhood - community living - concept of green belt – structure - design density - quality and cost of housing; their ecological economic and cultural suitability - urban land-use and housing plans	11
3.	Transport as physical infrastructure: Selection of appropriate means of mass transport - Tram service - Rapid bus transport - suburban railway - metro rail - tube rail Mode of transport: Expressways – Highways - Rapid ways – subways – flyovers – ferryways Associated problems: air pollution - noise pollution and health hazards - urban transportation planning	4 3 4
4.	Urban renewal and redevelopment of towns - archaeological and heritage sites - monuments and protection Optimum city size, new and satellite towns Concept of Growth Focs - Growth centre and planned township City planning and development in India: principles and approaches – Indian case studies	4 4 3

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, Peter (1992): Urban and Regional Planning, Routledge, London.
- 4 Marcuse, P. and Kempen, R.V. (eds.) (2000): Globalising cities: A New Spatial order, Blackwell.
- 5 Misra, R.P. & Misra, K. (eds.)(1998): Million Cities of India, Sustainable development, Fd. New Delhi.
- 6 Pacione, M. (2009): Urban Geography, Routledge, New York
- 7 Racine, Jean (ed.) (1990): Calcutta 1981: The City, its crisis, and the debate on urban planning and development, Concept Publishing Co., New Delhi.
- 8 Ramchandran, R. (1997): Urbanization and Urban Systems in India, Oxford University
- 9 Siddharth, K. and Mukherjee, S. (2013): Cities, Urbanization and Urban System, Kisalaya Publishing, New Delhi
- 10 Sundaram, K.V. (1977): Urban and Regional Planning in India, Vikas, New Delhi.
- 11 Watson, S. & Gibson, K. (1995): Post-modern Cities and Spaces, Basil and Blackwell.

Code No: GEO511PR Title: Literature Survey and Book Review
No. of Credits: 4

Sr.No.	Topics
1.	Individual students are assigned the topic for carrying out the survey of literature on the concerned topic or given a particular book for review purpose.

Code No: GEO512PR Title: Mini Research Project
No. of Credits: 4

Sr.No.	Topics to be covered
1.	Introduction to the problem and study area - literature review
2.	Objectives of the study – Variable of the study – Hypotheses or study question
3.	Methodology : Population and sample – tools for data collection – treatment of data
4.	Result
5.	Conclusions
6.	References

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 Geography and Related Disciplines, Routledge, Abingdon