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UNIVERSITY OF MUMBAI


No. UG/176 of 2017-18

CIRCULAR:-

A reference is invited to the syllabi relating to the M.A. & M.Sc. Programme vide this office Circular No.UG/117 of 2016-17, dated 25th October, 2016 and the Head, University Department of Geography and the Principals of the affiliated Colleges in Arts and Science are hereby informed that the recommendation made by Board of Studies in Geography at its meeting held on 28th April, 2017 has been accepted by the Academic Council at its meeting held on 11th May, 2017 vide item No.4.241 and that in accordance therewith, the revised syllabus as per the (CBCS) of M.A. & M.Sc. Geography (Sem -III), which is available on the University's website (www.mu.ac.in) and that the same has been brought into force with effect from the academic year 2017-18, accordingly.

MUMBAI - 400 032

8th August 2017
To


(Dr. M. A. Khan)
REGISTRAR

The Head, University Department of Geography and the Principals of the affiliated Colleges in Arts and Science.

A.C/4.241/11/05/2017

No. UG/176 -A of 2017

MUMBAI-400 032

8th August 2017

Copy forwarded with Compliments for information to:-

- 1) The Co-ordinator, Faculty of Arts & Science,
- 2) The Chairman, Board of Studies in Geography,
- 3) The Offg. Director, Board of Examinations and Evaluation,
- 4) The Director, Board of Students Development,
- 5) The Professor-cum-Director, Institute of Distance and Open Learning (IDOL),
- 6) The Co-Ordinator, University Computerization Centre,


(Dr. M. A. Khan)
REGISTRAR

....PTO

UNIVERSITY OF MUMBAI



Revised Syllabus for the M.A. & M.Sc.

Program: M.A. & M.Sc.

Course: Geography

(Semester III)

(As per Choice based Credit System
with effect from the academic year 2017 2018)

Choice Based Credit System Syllabus, 2017-18

Total No. of Credits offered: 100

Electives offered in a particular academic year in each group could vary.

Semester is 15 weeks duration. Credits are defined for a semester

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M.A./ M.Sc. Geography Syllabus Based on Choice Based Credit System (CBCS)
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Semester III

Subject Code	Course Title	Credits	No. of Hours
301	Research Methodology in Geography	6	60+60+ 120
302 A- Physical Group select any one paper	1. Tropical Geomorphology 2. Fluvial Geomorphology 3. Introduction to Hydrology 4. Climatology of Tropics 5. Geography of Climate change with special reference to India 6. Theoretical and Applied Geomorphology	6	60+60+ 120
303 B Human Group select any one paper	1. Geography of South Asia with Special Reference to India 2. Population Geography 3. Geography of Transport 4. Geography of Trade 5. Geography of Services with Special reference to India 6. Geography of Tourism and Recreation 7. Geography and Crime 8. Gender Geography 9. Geography of Tribes with Special reference to India 10. Industrial Geography 11. Geopolitics and International Relations	6	60+60+ 120
304	Tools and Techniques of Spatial Analysis V	6	120
305	Tools and Techniques of Spatial Analysis-VI	6	120
Total		30	720

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w.e.f. Academic Year 2017-2018
Semester III
Paper 301: Research Methodology in Geography
No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

- 1. Introduction to Research Methodology (15 Contact Hours)**
 - 1.1. Defining research- Methods of research types, significance of geographical research, research ethics
 - 1.2. Scientific method in geographical studies, inductive and deductive, basic elements and attributes, Scale of research: Macro, Meso, Micro Problem formulation and identification.
 - 1.3. Review of Literature: Significance and sources of literature review
 - 1.4. Research Design: meaning, stages, characteristics and significance of research design

- 2. Research Hypothesis and Sampling (15 Contact Hours)**
 - 2.1. Meaning of Hypothesis, relevance and types of hypothesis
 - 2.2. Identification of problem and hypothesis: Problem identification, statement of hypothesis, testing of hypothesis, generalization
 - 2.3. Sampling: Meaning and importance, types of sampling
 - 2.4. Selection of sample and size of sample

- 3. Nature and Analysis of Geographical Data (15 Contact Hours)**
 - 3.1. Nature and type of Geographical data, significance of spatial and temporal data in geographical studies
 - 3.2. Levels of measurements: Nominal, Ordinal, Ratio and Interval
 - 3.3. Methods and sources of geographical data collection: conventional and modern; limitations of secondary data and need for data generation, collection of primary data: questionnaires and schedules, field work, sample surveys and their significance
 - 3.4. Geographic Data analysis: Qualitative, Quantitative and Advanced techniques of geographic data processing and analysis, geographical matrix and its significance in analysis of Geography data

- 4. Scientific Report Writing (15 Contact Hours)**
 - 4.1. Introduction- aim and objectives, data and methodology
 - 4.2. Data analysis, result, conclusion
 - 4.3. Referencing system, weblography and bibliography.
 - 4.4. Plagiarism, design, concept of impact factor, citation, DOI

References:

- 1) . Karlekar Shrikant and Kale Mohan (2005): Statistical analysis of Geographical data, Dimond publication
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- 6) Geoge Joseph (2003): Fundamental of Remote Sensing, Universities Press, Hyderabad.
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- 8) Kanetkar T. P. & Kulkarni S.V. (1986):. Surveying & leveling, Vidyarthi Griha Prakshan, Pune
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- 16) Norcliffe G. B. (1977): Inferential statistics for Geographers (Hutchinson, London)
- 17) P. A. Burrough and R.A. McDonnell (2000): Principle of Geographical Information System, Oxford
- 18) Richardus P., Adler Ron K (1972) : Map projections, North Holland publ. Co. Amsterdam
- 19) Robinson, A.H.et al.(1985): Elements of Cartography, Vol.VI, John Wiley and Sons, New York.
- 20) Rogerson P. A. (2001): Statistics for Geography (SAGE pub., London, New Delhi }
- 21) Shaw G and Wheller D. (1985): Statistical techniques in geographical analysis. John Wiley and sons,
- 22) Singh & Kanauja : Map work and Practical Geography.
- 23) Sumner G J (1978): Mathematics for physical geographers. Edward Arnols
- 24) Taylor, P.J.(1977): Quantitative Methods in Geography. HoughtonMifflim Company, Boston University Press.
- 25) V. Natarajan P., Adler Ron K.: Advanced Surveying, B. 1 Publ. Bombay
- 26) Watson, G. and McGraw, D.(1980): Statistical Inquiry, John Wiley and sons, New York.
- 27) Yeates, M. (1974). An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York.
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- 29) Jones, Christopher (1997): Geographical Information System and computer Cartography, Addison Wesley Longman Limited, England.
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Paper: 302 A 1 - Tropical Geomorphology

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Tropical Environment

(Contact Hours 15)

- 1.1 Tropical Region: Definition and characteristics of tropical region, nature, scope and development of tropical geomorphology, Concept of morphogenetic region.
- 1.2 Major Controls on tropical landscape: Tectonic processes, climate, anthropogenic activities.
- 1.3 Geomorphic processes in tropics: Weathering, mass wasting and exogenetic processes
- 1.4 Quaternary inheritance in tropical landscape: Effect of climate change on coasts (sea level change), mountains (Pleistocene glaciation), fluvial systems.

2. Landform Assemblages in Tropics

(Contact Hours 15)

- 2.1 Structural Landforms in Tropical areas: Precambrian shield, mountain chains, volcanos,
- 2.2 Formation and distribution of Doms, Bornhardts and Tors in tropical areas.
- 2.3 Planation surfaces: etchplain, peneplain, pediplain and inselbergs
- 2.4: Structural landforms in tropical part of India with special reference to Deccan Plateaus; planation surfaces in India.

3. Weathering and Slopes

(Contact Hours 15)

- 3.1 Weathering process and factors of deep weathering profiles; products of weathering.
- 3.2 Duricrusts and types: laterite, calcrete, silcrete processes of formation, profiles and landforms.
- 3.3 Slope processes and development in humid tropics: hill slopes, pediments and gullies
- 3.4 Mass wasting processes and types

4. Exogenic Processes and typical forms in Humid and Arid Tropics (Contact Hours 15)

- 4.1 Fluvial Processes: Nature of fluvial processes tropics, fluvial landscapes in tropics river terraces, flood plains, alluvial fans
- 4.2 Coastal Processes: Nature of coastal processes in tropics and typical coastal landforms in tropics Mangroves and Mudflats, Corals, Deltas.
- 4.3 Glacial processes in tropical highlands:
- 4.4 Aeolian Processes in tropical areas: Badland Morphogenesis,

References:

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9. Jog, S.R. (ed.) (1995): Indian Geomorphology, vols. I and II Rawat, Jaipur.
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14. Sharma, A. (1993): Ecology of Landslide Damages, Poiter, Jaipur.
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16. Thomas, M.F. (1994): Geomorphology in the Tropics: A study of weathering and denudation in low latitudes, John Wiley and Sons, Chichester.
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Semester III
Paper: 302 A 2- Fluvial Geomorphology

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Drainage Basin (Contact Hours 15)

- 1.1 Fluvial Geomorphology: Introduction, scope and nature
- 1.2 Drainage basin basic geomorphic unit, hierarchy of drainage basins; Drainage basin development theories by Glock (1932), Horton (1945)
- 1.3 Morphometric analysis of drainage network and related laws of drainage network composition
- 1.4 Drainage patterns and factors controlling the patterns

2. Hydraulics of channel flow (Contact Hours 15)

- 2.1 Types of open channel flow: Laminar-Turbulent, subcritical-supercritical, flow mechanism, Reynold and Froude numbers
- 2.2 Concept of stream carrying capacity and competence, stream power and specific energy, stream energy.
- 2.3 Flow resistance: mean velocity, Chezy equation and Manning formula; Forms of channel resistance
- 2.4 Sediment transport critical tractive force, lift concept

3. Channel forms and processes (Contact Hours 15)

- 3.1 Stream types: based on structure, time and flow duration; stream classification systems by Schumm and Rosgen
- 3.2 Channel patterns: straight, meandering (pools and riffles), braided and anastomosing
- 3.3 Hydraulic geometry: at a station and downstream; Channel cross section - flow characteristics, isovel pattern.
- 3.4 Longitudinal profile of river: concept of grade and graded profile, dynamic equilibrium, rejuvenation

4. Rivers in Past and present (Contact Hours 15)

- 4.1 Fluvial deposition and landforms examples from India
- 4.2 Fluvial erosion and landforms - examples from India
- 4.3 River metamorphosis and Quaternary fluvial systems
- 4.4 River channel management and restoration

References:

1. Bridge, J. and Demico, R. (2008): *Earth Surface Processes, Landforms and Sediment Deposits*, Cambridge University Press
2. Carbonneau, P.E. and Piegay, H. (2012): *Fluvial Remote Sensing for Science and Management*, Wiley-Blackwell, Chichester
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10. Jarvis () Network analysis
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12. Keith Richards (2004) *Rivers: Form and Process of Alluvial Channels*
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15. Miall, A. (2014): *Fluvial Depositional Systems*, Springer, Switzerland
16. Morisawa, M. (1968): *Streams: Their Dynamics and Morphology*, McGraw-Hill
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Semester III
Paper:302 A 3-Introduction to Hydrology

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Introduction (Contact Hours 15)

- 1.1 Definition, Scope and content, Importance of Hydrology, Status of India s Water Resources
- 1.2 Precipitation: Mean Rainfall Over a Drainage basin, Characteristics of Rain-storm
- 1.3 Mean rainfall over a Drainage basin-Depth Area Duration Relationship
- 1.4 Concept of return period, IDF curve

2. Hydrographs (Contact Hours 15)

- 2.1 Introduction, Factors Affecting Runoff Hydrographs, Components of a Hydrograph, Effective Rainfall
- 2.2 Unit Hydrograph: Isolated storm, Concept of S curve, Application of Unit Hydrograph, Use and Limitations of Unit Hydrograph
- 2.3 SCS Dimensionless Unit Hydrograph, PMP Curve, Distribution Graph

3. Surface Run-off (Contact Hours 15)

- 3.1 Rainfall-Runoff Process, Factors affecting on Runoff, Evaporation Losses, Infiltration Process
- 3.2 Concepts related to runoff, Catchment characteristics, Basic concepts, Rainfall runoff Correlation, Runoff process, Runoff Coefficient
- 3.3 SCS-CN Method and Runoff Volume, Methods for estimating runoff from a Catchment, Current Status of SCS-CN method
- 3.4 Hydrological Modeling: Types, Introduction to HEC-HMS

4. Ground Water (Contact Hours 15)

- 4.1 Introduction- Definition, Occurrence of Ground water, Zones of Underground water, Types of Aquifers
- 4.2 Wells: Cavity formation in Open Wells, Types of tube wells, Recharge
- 4.3 Springs: Formation and types of springs, Well, Sea water Intrusion
- 4.4 Groundwater Resources of India: Groundwater monitoring network in India

References:

1. Bauwer H.(1978): Groundwater Hydrology , McGraw-Hill Kogakusha Tokyo,
2. Butler S.C,(1957): Engineering Hydrology , Prentice Hall Inc., USA,
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Semester III
Paper: 302 A 4 - Climatology of the Tropics

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Introduction (Contact hours15)

- 1.1. Concept of Tropical Climate and tropical boundaries.
- 1.2. Importance of tropical climate.
- 1.3. Role of tropics in the general circulation of atmosphere- driving forces-jet streams and their influence.
- 1.4. Heat budget of the tropics.

2. Atmospheric conditions of Tropics (Contact hours15)

- 2.1. Atmospheric stability and instability
- 2.2. Air masses and fronts
- 2.3. Classification and characteristics of air masses
- 2.4. Air masses over tropical region

3. Indices of climate in Tropics (Contact hours15)

- 3.1. Atmospheric and oceanic oscillations on various time scales
- 3.2. Climate variability of tropical weather systems and their relationship with different oscillations.
- 3.3. Genesis of monsoon-distributional characteristics and variability of monsoon.
- 3.4. Classification of tropical climate- Climatic types in Tropics based on schemes of Koppen Thornthwaite and Penman.

4. Tropical Disturbances (Contact hours15)

- 4.1. Cyclones, thunderstorms, tornadoes their characteristics
- 4.2. Frequencies and paths of disturbances
- 4.3. Cyclones in Bay of Bengal and Arabian Sea
- 4.4. Impacts of cyclones

References:

- 1) Garbell, M.A.(1947): Tropical and Equatorial Meteorology, Sir Lsac Pitman and Sons Ltd, U.S.
- 2) Lockwood, J.G. (1974): World Climatology, an Environmental Approach, Edward-Arnold, U.K.
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- 10) Subrahmanyam, V.P.(1983): Contributions to Indian Geography, Part III General Climatology, Heritage Publications, New Delhi
- 11) Subramaniam, A.R.(1972): Climatic Variability in India, Annals of NAGI, 12, 1-2

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Semester III
Paper: 302 A 5- Geography of Climate Change with special reference to India

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Introduction **(Contact Hours 15)**

- 1.1. Climatic change through geological time
- 1.2. Causes of climate change External causes,
- 1.3 Causes of climate change Internal causes
- 1.4. Evidences and indicators of climate change

2. Global warming **(Contact Hours 15)**

- 2.1 Meaning and historical perspective on global warming
- 2.2 Causes of global warming
- 2.3 Consequences of global warming on natural systems.
- 2.4 Consequences of global warming on anthropologic activities.

3. Issues and measures related to climate change **(Contact Hours 15)**

- 3.1 Initiatives at global level
- 3.2 Role of global players IPCC, UNFCCC Kyoto Protocol
- 3.3 Carbon credits definition, carbon markets, Clean Development Mechanism
- 3.4. Carbon footprint methods of calculating and reduction

4. India: Impacts of climate change **(Contact Hours 15)**

- 4.1. Impacts of climate change on India
- 4.2. India s approach to climate change- Global and National levels
- 4.3. Government initiatives to take climate change
- 4.4 Public participation to mitigate climate change.

References:

1. Derbyshire, E, (2010): Geomorphology and Climate, John Wiley and Sons, London
2. Khan, MZA et al. (2011): Global Climate Change: Causes and Consequences, Rawat publication, Jaipur
3. Lomborg B, (2010): Smart Solutions to Climate Change , Rawat Publication, Jaipur
4. Singh, S, and Mohan, K.S (2012): Climate Change: An Asian Perspective, Rawat publication, Jaipur
5. Glenn R. McGregor, (1998): Tropical climatology An introduction to the climates of the low latitudes, John Wily & Sons Ltd.

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Semester III
Paper: 302 A 6 - Theoretical and Applied Geomorphology
No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

- 1 Conceptual Geomorphology (Contact Hours 15)**
 - 1.1. History and development of Geomorphology Hutton to Horton, Horton to Strahler-Hack; Space and time in Geomorphology, Time cyclic, graded and steady, Spatial scale micro, meso and macro.
 - 1.2. Fundamental Concepts, theories and fieldwork (field-based experiments) in Geomorphology,
 - 1.3. Types of geomorphic systems (morphologic and cascading system); General System Theory.
 - 1.4. Concept of equilibrium, types of equilibria; complex response and geomorphic thresholds

- 2. Geologic Time and Tectonics in Geomorphology (Contact Hours 15)**
 - 2.1 Quaternary geomorphology: Quaternary period and its importance in geological time, quaternary stratigraphic sequences and their importance in earth sciences, quaternary glaciation and related changes.
 - 2.2 Tectonic geomorphology: Introduction to tectonic geomorphology, establishing time in landscape, dating methods; geomorphic and quantitative markers tectonic processes.
 - 2.3 Seismotectonics of Indian plate: Tectonics of Indian plate, characteristics of seismogenic regions of India, seismic hazard and vulnerability assessment; seismic microzonation initiatives in India.
 - 2.4 Regional geomorphology of Maharashtra: Geologic structure and geomorphic setup of Maharashtra -polycyclic landscape, drainage patterns, characteristic fluvial and coastal landscape of Maharashtra - major landforms with examples.

- 3. Applied Geomorphology (Resource geomorphology) (Contact Hours 15)**
 - 3.1 Nature, Scope and Definition of Applied Geomorphology, relationship with Resource Geomorphology
 - 3.2 Landform evolution by geomorphological agencies, namely fluvial and glacier
 - 3.3 Soil evolution, form, and sustainable development of soil and water resources of India
 - 3.4 Remote sensing and GIS application on Applied Geomorphology

- 4. Applied Geomorphology(Geomorphology of Hazards) (Contact Hours 15)**
 - 4.1 Landform evolution by mass movement processes, classification, slope failures
 - 4.2 Definition, causes and management of Hazards on the landscape
 - 4.3 Geomorphic hazards-Landslides, Floods and Tsunami
 - 4.4 Geomorphology and its application in hazard management in agriculture, urbanization and mineral exploration.

References:

1. Brunson, D. and Thornes, J.B. (1979): Landscape sensitivity and change, Transaction, Institute of British Geographers, 4:463-484.
2. Burbank, D.W. and Anderson, R. S. (2011): Tectonic Geomorphology (2nd Edition), Wiley-Blackwell publication.
3. Chorley, R.J. (1962): Geomorphology and General System Theory, U.S. Professional Paper 500 B.
4. Chorley, R.J., Schumm, S.A., Sugden, D.E. (1984): Geomorphology, Methuen, London.
5. Goudie, A.S. (2000) (Eds.) Encyclopedia of Geomorphology, Routledge, London.
6. Hails, J.R. (1977): Applied Geomorphology. Elsevier, Amsterdam.
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Semester III

Paper: 303 B 1- Geography of South Asia with special reference to India

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Physiography of South Asia **(Contact Hours 15)**

- 1.1 Geological Evolution-Relief , topographic characteristic features
- 1.2 Drainage - major river systems spatial pattern of water distribution
- 1.3 Climate factors and processes responsible for shaping climate - pattern and regional variations
- 1.4 Soil and Vegetation interrelation and regional variations

2. Historical Context- Organisation of Society **(Contact Hours 15)**

- 2.1 Pre-colonial societies and cultural evolution - Historical Background of Colonisation Impact on social, cultural and political organisation of society
- 2.2 Partition and emergence of independent nation state- Consequences, conflicts and identity politics - Regional Dynamics- Differences and Shared Characteristics
- 2.3 Demographic characteristics language, religion, race - Patterns of Migration assimilation and segregation -contestations and cultural politics
- 2.5 Social, cultural and political institutions their role in shaping identities of people and national identities

3. Organisation of Economy **(Contact Hours 15)**

- 3.1 Agricultural development in South Asia- Colonial and post-colonial trends- Globalisation and status of agriculture status of small and marginal farmers - issues of corporatisation
- 3.2 Industrialization- Genesis and trends New economic policy- Globalisation - Role of the MNCs - Growth of services and finance New economic activities and transformation of economic base
- 3.3 Urbanisation and economic growth- Contemporary urban systems- Globalising cities- Global capital regions and the urban crisis
- 3.4 Trade relations intra-regional patterns and associations SAPTA success and failure

4. Geo-politics, intra-regional relations and Development **(Contact Hours 15)**

- 4.1 The Challenge of regionalism Intra and Inter-regional interaction conflicting Frontiers and border states - Geopolitics of resources like water , land and maritime resources Issues of Terrorism
- 4.2 Regional cooperation - SAARC prospects and challenges Critical assessment of role of India
- 4.3 new inter-regional coalitions and its impact on South Asian Intra-regional interaction AIDB / CPEC / BRICS
- 4.4 Politics of development and resources - Status of development - contemporary modes of governance - Quality of life and index of socio-economic well-being Regional variations

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Semester III

Paper: 303 B 2- Population Geography

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Geographical context of Population (Contact Hours 15)

- 1.1 Population in environment, economy and society- People as players- Acts of knowledge- Positions.
- 1.2 Changing approaches to Population Geography- - Contemporary trends
- 1.3 Population- Demographic characteristics- reproduction, health, and education challenges for developed and developing countries.
- 1.4 Critical review of population growth theories and models demographic transition and demographic divided critic.

2. Space, environment and place interrelations (Contact Hours 15)

- 2.1. Concentration of people in space Density variations and impact Rural and urban dimensions
- 2.2. Population- resource relations Capitalist mode of production
- 2.3 Livelihood responses- Role of technology- nature of economy and environmental aspects.
- 2.4 Issues of degradation displacement placelessness- Indian examples.

3. Population and Social Relations (Contact Hours 15)

- 3.1 People, society and culture - Early migration and evolution of cultural hearths
- 3.2. People as social groups- Ethnicity, race, caste, religion and language identity issue
- 3.3 Dimension of gender and related aspects Relevant examples.
- 3.4. People and economy- Population as a resource- Economic and occupational characteristics Spatial patterns- Changing status of labour -Recent trends.

4. Migration and mobility (Contact Hours 15)

- 4.1 Factors, processes and typology Contemporary trends in developed and developing countries Rural and urban dimensions
- 4.2 Population, Social organization and governance people as communities and citizens people s rights and protection in contemporary societies
- 4.3 Population dynamics and development processes Population as social capital Status of developed and developing countries.
- 4.4 Study of any of the community space in Mumbai Socio-cultural , Economic and Political context

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Semester III

Paper: 303 B 3- Geography of Transport

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Spatial Context of Transport

(Contact Hours 15)

- 1.1 Interdependence and social production of mobility conditions nodes, networks and flows as spatially constituted and space forming structures- Typologies and Characteristics- Role of Distance.
- 1.2 Evolution of contemporary transport systems and transport modes technological advances and modernisation Global trends in colonial and post-colonial periods.
- 1.3 Globalisation and dynamics of spaces of production and consumption- Time and space convergence and uneven geography of transport, accessibility and mobilization.
- 1.4 Emerging Themes and Approaches to Geography of Transportation
Relevance of transport geography in planning and development.

2. Transport cost as a variable in locational theory

(Contact Hours 15)

- 2.1 Factors influencing transport cost- Comparative cost structures major modes and systems of transportation - Role of public and private sectors - State policies and institutional regulations
- 2.2 Location of routes and efficiency of networks- Structuring of nodal hierarchy- Competition and complementarity between modes of transportation and networks- Examples from developed and developing countries.
- 2.3 Critical review of locational theory and role of transport cost - Structural properties of transport networks - Relevance and applicability of graph theory measures Relevance of Evolutionary models
- 2.4 Spatial interaction and gravity models- Agglomeration-urbanisation and transport development- Growth of transportation and diffusion process Hagerstrand's model
A critical review.

3. Contemporary Dynamics of International and Regional Transportation

(Contact Hours 15)

- 3.1 New International Division of Labour- MNCs and Changing patterns of International Trade
Commodity flows and multi-modal transport chains
- 3.2 Commodity Chains and freight transportation flexibility and structuring of freight distribution systems - typologies of the network strategies
- 3.3 Rapid Urbanisation in the Global South Changing urban economic base, land use and urban structures consequent dynamics of uneven transport development.
- 3.4 Transport and environmental impact - Intermodal and intra-modal patterns and levels of energy consumption- adoption of alternative fuels environmental impact assessment sustainable transport systems

4. Geography of Transport in India

(Contact Hours 15)

- 4.1 The colonial transport systems and regional patterns metropolitan dominance and the core-periphery imbalance - broad patterns of rail, road, water and air transportation

- 4.2 Institutional transport regimes and transport planning Privatisation and liberalization- Changed policy perspective- Role of Global players - Implications of JNNURM in Indian cities.
- 4.3 Development of private motorized road transport Construction of flyovers and free-ways The Industrial corridors and issues of flouting of scale and bypassing development
- 4.4 Issues of Transport Development in Mumbai and MMR.

Reference Books:

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2. Black, W.(2003): Transportation: A Geographical Analysis, New York, Guilford.
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- 11 Chapman, K.(1980): People, Pattern and Processes, Arnold Hememann, New Delhi.
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Semester III

Paper: 303 B 4 - Geography of Trade

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Geographical bases of trade (Contact Hours 15)

- 1.1 Social production of spaces and flows of exchange -
Geographical division of labour and dynamics of interdependence.
- 1.2 Origins and forms of exchange in simpler societies - Indian trade in colonial period.
- 1.3 Comparative cost advantages and doctrine of free trade- Classical, neo-
Classical theories of international trade- A critical review.
- 1.4 Trade barriers and terms of trade- Bi-lateral and multi-lateral trade relations -
Typology and significance of trade integrations.

2. Spatial dynamics of International trade (Contact Hours 15)

- 2.1 Expansion of capital and trade in post-industrial revolution periods- structuring of spaces of
unequal exchange and dependency.
- 2.2 Fordist regime and international trade - post-war trends Bretton Woods System and Role of
IMF, World Bank, UNCTAD and GATT- Terms of trade of the third world countries.
- 2.3 Policies of import substitution and export promotion Structuring of world economy as core and
periphery- Placing India.
- 2.4 Flexible accumulation and globalization- Restructuring of production spaces- role of MNCs -
Changing patterns and composition of international trade flows.

3. Globalisation and Restructuration of International Trade (Contact Hours 15)

- 3.1 WTO Regime Strategies of TRIPS, TRIMs and the trade issues of the Global South.
- 3.2 Globalisation and Neo-liberal regime of trade- Impact on environment and livelihood resources
in India- Global food chains.
- 3.3 Finance capitalism and international trade in services Out sourcing and service exports growth
in the semi-periphery and periphery India s competitive advantage.
- 3.4 Cultural turn of global economy, production of spaces and flows of consumption- Growth of
trade in experiences World Tourism, recreation and leisure, tourism as well as culinary
products and services.

4. Contemporary Trade Integrations and India s Trade relations: (Contact Hours 15)

- 4.1 SAFTA and India s trade relations with neighbouring SAARC countries.
- 4.2 One Belt-One Road (OBOR), North-South Transport Corridor, India-China Trade relations
- 4.3 Trans-Pacific Partnership and India-US trade relations.
- 4.4 EU-India Free Trade Agreement (FTA), BREXIT and its impact on Indian Economy.

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Hall Englewood Cliffs.
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Regionalism in the World Economy, Chichester, Wiley.
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Semester III

Paper: 303 B 5- Geography of Services with special reference to India

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Introduction to Geography of Services (Contact Hours 15)

- 1.1. Evolution of Contemporary World Economy Globalisation of Production Systems- Growth of Service Industry Uneven development.
- 1.2. Definition and Typology of Services Interrelation with production and consumption- Time and Space Convergence- Compression
- 1.3. Theories and Conceptualisation- A Critical Review: Fischer-Clark hypothesis; Fuchs model of inter-sectoral shift in employment, Gemmell's extension of Fuchs' model, Howell's notion on service encapsulation
- 1.4. National and global stimuli to growth of services; Service outsourcing- benefits and drawbacks Limits to service export growth in periphery.

2. Trends and patterns of Geography of Services (Contact Hours 15)

- 2.1. International trade in services- Transnational Investment Patterns- agglomeration and new business service concentration- Research and Development
- 2.2. Internationalisation of Services Networks- Flows and Spatial structures- Sectoral Trends in Retailing, Tourism, Finance and Banking
- 2.3. Internationalisation of services- Sectoral trends in transport, telecommunication and media.
- 2.4. Internationalisation of services- Sectoral trends in Social and Community services- Health, Education and Culture

3. Outsourcing of Services in the Global South (Contact Hours 15)

- 3.1. Spatial dynamics of Business Processing Outsourcing in the Global South- corporate structures, specialization and locations Patterns in Latin America, Asia and Africa.
- 3.2. Growth of India's service industry sectoral trends, product composition and regional pattern, Globalisation of services.
- 3.3. IT sector and Business Process outsourcing in India India's Competitive advantage and growth trends, Corporate Structure and flexible mode of production- Role of unorganized sector- gender dimensions.
- 3.4. Spatial Dynamics of the IT sector De-industrialisation- Growth of Mega city, InfoTech Parks and Real Estate Sector- Interrelations- Growth in the Peri-urban regions.

4. Tertiariation and its implications (Contact Hours 15)

- 4.1. Process of Tertiariation in India, Deindustrialisation and shifting cities, Urban redevelopment and slums
- 4.2. New forms of consumption and production of social spaces in Indian cities, Rise of Middle class, Gated cities, Malls.
- 4.3. Service Industry and spatio-social restructuring in the urban and peri-urban regions of the mega cities, Special reference to MMR

- 4.4. Informal services in Mumbai: Space- place interface and socio-economic placement A case study of any one: a) Sales persons in malls, b) Domestic helps c) Street Hawkers and Vendors d) Barbers and Cobblers on the street.

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Semester III

Paper: 303 B 6- Geography of Tourism and Recreation

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Introduction (Contact Hours 15)

- 1.1. **Importance of tourism:** Definition, scope and contents of Geography of Tourism
- 1.2. **Types and Forms of Tourism:** Nature, characteristic. Components of tourism and its characteristics.
- 1.3. **Regions of tourism and tourism growth :** Flow of tourists- domestic and international, growth pattern of tourism
- 1.4. **International Organizations and Tourism:** Role of International tourism organizations in promoting international movement (UNWTO , WTTC, TAAI, IATO, IATA, ITC)

2. Tourism Products: (Contact Hours 15)

- 2.1. **Definition,** Concept and classification and types of tourism products.
- 2.2. **Natural Resources:** Wildlife Sanctuaries, National Parks and Natural Reserves in India; Hill Stations, Beaches and Islands,
- 2.3. **Heritage Tourism:** Meaning, types, Management and Organizations, (Museum, Art Galleries and Libraries)
- 2.4. **Pilgrimage Destinations:** Meaning, types, Management and Organizations World and India in particular- locational attributes- flow of pilgrims

3. Tourism impact analysis and sustainable measures: (carrying capacity and strategic measures) (Contact Hours 15)

- 3.1. **Environmental impacts:** Natural features - Caves, lakes, wildlife, Islands & beaches, hills & mountains, bird sanctuaries.
- 3.2. **Economic impacts:** types of impact at Global, national and regional level and measures undertaken
- 3.3. **Social cultural impacts:** Host and Guest relationship, interaction and societal changes- measures, Unification of culture.
- 3.4. **Political impacts:** Strategic planning and control measures and International, National and regional levels.

4. Research Approach and Methodology in Tourism Geography (Contact Hours 15)

- 4.1. **Importance of tourism research:** Approaches, Methodology and Techniques of Analyses in Geography of Tourism
- 4.2. **Map Reading:** Location absolute and relative; date and time - International Date Line, time zones and calculation of time and time differences.
- 4.4. **Tourism Information System (TIS):** Basic Information - Matrix of Tourism - Tourist Places, Accessibility, Nature of Tourism, Tourism Services and Products
- 4.4. **Spatial Perspectives of Tourism Development:** Conceptual Framework of Models and perspectives of spatial Analysis

References:

1. Cooper, Fletcher (1993): Tourism, Principles and practices, Pitman
2. Burkart and Medlik (1981) :Tourism, Past, Present and Future , Heinemann, ELBS.
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Semester III
Paper:303 B 7- Geography and Crime

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

- 1. Introduction** **(Contact Hours 15)**
 - 1.1. Concept, Definition and typologies of crimes
 - 1.2. Theological Bases: Dynamics of value system, ethics and institutional regulations to prevent crime.
 - 1.3. Dynamics and spatial dimensions of crime.
 - 1.4. Theories of crime and space- Anomie, Cultural transmission, crowding; labeling and conflict theory.

- 2. Areas of Crime / Crime Areas** **(Contact Hours 15)**
 - 2.1. Locales of crime open, built and deserted environment.
 - 2.2. Nature of Crime, place of crime, crime target and criminal
 - 2.3. Patterns of crime in world and India.
 - 2.4. Gender and crime nature of crime, target group

- 3. Crime and Regulations** **(Contact Hours 15)**
 - 3.1. Crime and Role of International organizations
 - 3.2. Crime, Justice and the State
 - 3.3. Crime and Societal regulations
 - 3.4. Spatial gaps in regulation of crimes

- 4. Crime in Mumbai** **(Contact Hours 15)**
 - 4.1. Nature of Crimes in Mumbai- factors responsible
 - 4.2. Spatial distribution and location of crimes
 - 4.3. Role of administration in crime detection and control
 - 4.4. Spatial gaps in regulation of crimes and preventive measures

References:

1. Pain Rachel, Barke Michael, Fuller Duncan, et. al., (2001), *Introducing Social Geographies*, London, Arnold.

2. Clinard Marshall B. and Abbott, D. J. (1973), *Crime in Developing Countries: A Comparative Perspective*, Wiley International, 1973.
3. Herbert, D. (1982): *The Geography of Urban Crime*, Longman, London.
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Semester III

Paper: 303 B 8- Gender Geography

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Positioning of gender in Geography (Contact Hours 15)

- 1.1 Gender as a socio-spatial construct- Sex-gender system- role of patriarchy - Femininities and masculinities spatial and temporal dimensions evolution of gender space in India
- 1.2 Production of gendered spaces and differentiation - Complexities of race, caste, religion and class - Capitalist system and gender division of labour
- 1.3 Gender theories- Radical, Marxist, Poststructural - Cultural turn and Feminist politics.
- 1.4 Review of Feminist geographies diverse trends - Analysis of gender in subfields of Geography

2 Gender and Development in Space and Society (Contact Hours 15)

- 2.1 Colonial and Neo-colonial context- Transnationalism postcoloniality and the politics of representation - Gender and Globalisation Gender dimensions of development - the contemporary global patterns
- 2.2 Demographic variables Spatial dynamics of age and sex-ratio, fertility, mortality, reproductive health and poverty
- 2.3 Social and cultural aspects- Female literacy, education, health and social wellbeing- Regional patterns in India
- 2.4 Differential access and control over resources- Environment, technology, livelihood - Regional context of gender in India

3. Gender and Development in Space and Economy (Contact Hours 15)

- 3.1 Evolution of world economy and new international division of labour - Women workers in Global South feminisation of labour- trends and implications Urban and rural context
- 3.2 Spatio-sectoral dynamics of women workforce in India Colonial and neo-colonial context.
- 3.3 Gender and globalisation gender of globalisation - feminist political engagements
- 3.4 Critical geographies and the uses of sexuality - Sex tourism, flesh trade and political economy of growth

4. Political Economy of Gender: Planning, Women s rights and Equality

(Contact Hours 15)

- 4.1 Gender budgeting and planning strategies- Role of the State, global institutions and NGO sector- strategies of gender advocacy
- 4.2 Globalisation and politics of women s movements South Asian Context
- 4.3 Gender empowerment through Five Year Plans in India- Regional imbalances- Women s Rights and feminist movements in India
- 4.4 Gender development and empowerment- Regional trends, spatio-social gaps in India politics of women empowerment - microfinance and micro-credits critical assessment women empowerment, violence and backlash

Reference Books:

1. McDowell Linda, (1999): Gender, Identity and Place, Polity Press, U.K.
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12. Momsen Janet, (2004) (2010, 2nd edn.), *Gender and Development*, Routledge.
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Semester III

Paper: 303 B 9- Geography of Tribes with special reference to India

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60= Total hours 120

- 1. Introduction (Contact Hours 15)**
 - 1.1. Tribes and tribal communities - a historical perspective
 - 1.2. Contemporary global distribution of tribes
 - 1.3. Geographical environment of tribal settlements
 - 1.4. Tribal society, culture and economy

- 2. Tribes of India (Contact Hours 15)**
 - 2.1. Origin and Historical perspective of Tribes in India
 - 2.2. Demography of Indian Tribes
 - 2.3. Tribal Ethnicity in India
 - 2.4. Development of socio-politico- economy of tribes in India

- 3. Spatial distribution, concentration and economy of tribes in India (Contact Hours 15)**
 - 3.1. Tribes of Himalayan region
 - 3.2. Tribes of Central India
 - 3.3. Tribes of Western India
 - 3.4. Tribes of Southern India
 - 3.5. Tribes of Indian islands

- 4. Tribal Development Programmes in India (Contact Hours 15)**
 - 4.1. Need for Tribal Development Programmes in India
 - 4.2. Study of scheduled and non scheduled tribes of India
 - 4.3. Tribal Development Programmes in India
 - 4.4. Impact of Tribal Development Programmes in India

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14. Mittal A.C. and Sharma J.B., (1997): .Tribal Education and Development, Vol. I, Radha Publication, New Delhi, 1998.
15. Dr.Pichad Nalini, Adivasinche Shikshan (Marathi).University of Pune, Pune,
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17. Chitnis Suma (1978): Education of the Scheduled Castes And Scheduled Tribes in Maharashtra, Allied Publishers, New Delhi.

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Semester III

Paper: 303 B 10- Industrial Geography

No. of Credits: 4 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Industrialisation- Space and Geography (Contact Hours 15)

- 1.1. Meaning, Nature and Scope of Industrial Geography
- 1.2. Factors and processes in industrial location Fordist and Post- Fordist Form
- 1.3. Technological changes and their impact on the factors - A temporal Review.
- 1.4. International division of labour and Changing perspectives in industrial location.

2. Industrial Location Theories - (Contact Hours 15)

- 2.1 Theories and models of industrial location and growth
- 2.2 Critique of industrial location theories.
- 2.3 Industrial linkages and industrial regions - Growth and decline of industrial regions and industries
- 2.4 Nature of industries and territorial division of labour - Patterns in national space.

3. Industrial structure and organization (Contact Hours 15)

- 3.1 Models of growth of firms - Characteristics of industrial development in various political systems
- 3.2 Patterns in international space - Mobility of capital and restructuring of world Industrial space
- 3.3 Models of corporate growth - Vertical and horizontal integration
- 3.4 Transnational corporations, industrial development and the new international division of labour.

4. Industrialisation in India (Contact Hours 15)

- 4.1 Historical review of Indian industrialisation since 1947 Evolution of industrial regions in India Select Case Study
- 4.2 Inter-industry linkage -Role of small scale and cottage industries.
- 4.3 Multinational corporations and India's industrial scenario -Impact on economy, society and environment.
- 4.4 Problems of industrial development - Contemporary scenario - Inter-regional disparities - Issue of dispersal and regional development - Role of MNCs - Role of State

References:

1. Pacione, M. (1985): Progress in Industrial Geography, Groom Helm
2. Bale, J. (1981): The Location of Manufacturing Industry, Oliver and Boyde, (2nd ed.)
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Semester III

Paper: 303 B 11- Geopolitics and International Relations

No. of Credits: 4 Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Introduction to Political Geography (Contact hours 15)

- 1.1 Relevance of Space in political Geography Concept of Territoriality claims over land, water and air as territories - contestations
- 1.2 Sovereignty - State as geographical and political unit theories of state formation - Concept of nation-states Territorial state and international Relations
- 1.3 Region as a base of international politics characterisation of regionalism Trends in Post World War II Period
- 1.4 Understanding the concepts of Geopolitics Geo-political structure and Geostrategy

2. Theories of Geopolitics application and critique (Contact hours 15)

- 2.1 Heartland Theory (Halford J. Mackinder), Sea Power (Alfred Thayer Mahan), Rimland Theory (Nicholas J. Spykman), Theory of Air Power Supremacy (Alexander Seversky),
- 2.2 German Geopolitik, Functional Approach to Political Geography (Richard Hartshorne), Stephen B. Jones (Unified Field Theory)
- 2.3 Critical Geopolitics - modern Geopolitics - Post-Modern Geopolitics -
- 2.4 Geography of Power and Conflict traditional praxis of power nation-states to non-nation-state praxis role and influence of multinational Corporations and other non-state agencies in policy

3. Geopolitics and Spatial Approach (Contact hours 15)

- 3.1. Contemporary trends in geopolitics - Integration treaties and alliance patterns Significance of North-North North- South and South-South treaties in political and economic integration Critical assessment of EEC, OECD, etc. - beyond EEC BREXIT and aftermath
- 3.2 Geopolitics of war - World tension zones
- 3.3 Geography of international terrorism - Contemporary examples.
- 3.4 Politics of the environment global environmental issues Claims and counterclaims Global North and Global South - water as a disputed territory

4. Contemporary International Relations (Contact hours 15)

- 4.1 Post-1990s transitions in World Economy and International Relations
- 4.2 Global North versus Global South - Emergence of Global South as a pressure group in International politics Role of China - BRICS, BIMSETC
- 4.3 Recent changes in international political economy globalisation and neoliberalism impact on international relations
- 4.4 Clashing Civilisation or Cultural hybridisation - religion, ethnicity and identity politics the future

References:

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2. Kasperson. R E. and Minghi, J.V. (1969):The Structure of Political Geography, University of London Press.
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Semester III

Practical Paper 304: Tools and techniques of Spatial Analysis- V
No. of Credits: 6 Teaching Hours 60 + Notional Hours 60 = Total Hours 120

1. **Quantitative Techniques for Spatial Analysis using SPSS** (Contact Hours 20)
 - 1.1. **Inferential statistics:** Introduction; Hypothesis Testing - Chi square test, T-test applications; Analysis of variance (ANOVA).
 - 1.2. **Time Series Analysis-** growth and decline- index numbers- logarithmic scale- trend line by least square method

2. **Quantitative Techniques for Spatial Analysis using SPSS** (Contact Hours 20)
 - 2.1. **Correlation:** Types of correlation; Methods of correlation- Spearman s rank correlation and Karl Pearson s coefficient of correlation; Partial Correlation.
 - 2.2. **Regression:** Introduction; Dependent and independent variables; scatter-gram- regression lines and residuals; construction of regression lines; least square method, Regression residuals: mapping and interpretation.

3. **Environmental Indicators** (Contact Hours 15)
 - 3.1. **Noise Pollution:** Introduction; Use of sound measuring device; temporal and spatial variation mapping based on primary data.
 - 3.2. **Water Pollution:** Introduction; identification, techniques used, temporal and spatial variation mapping based on primary data.

4. **Study Tour, Field Survey and Field Report.** (Contact Hours 5)

References:

1. Hilton, P. et.al (2012): SPSS Explained, Rutledge, London.
2. Berry, B.J.L. and Marble, D.F. (1968): Spatial Analysis A Reader in Statistical Geography, Prentice Hall, Englewood Cliffs, New Jersey.
3. Levin, J. (1973): Elementary Statistics in Social Research, Harper and Row, New York
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32. Crang, M. and Cook, I.(2007): Doing Ethographies, Sage
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Semester III

Practical Paper 305: Tools and techniques of Spatial Analysis- VI

No. of Credits: 6 Teaching Hours 60 + Notional Hours 60 = Total Hours 120

1. S.O.I. Topographical maps **(Contact hours 25)**

1.1. Introduction Index to sheet- Scales- Conventional signs and symbols

1.2. Study and interpretation of topographical maps with reference to:

- i) Glacial; Fluvial, Aeolian and Coastal landforms
- ii) Drainage pattern
- iii) Land-use
- iv) Settlement
- v) Transport and Communication

1.3. Study and interpretation of O.S sheets and USGS maps and Land-use.

2. Thematic Maps **(Contact Hours 15)**

2.1. Thematic maps: Physical - Interpretation of NATMO thematic maps.

2.2. Thematic maps: Socio-Cultural - Interpretation of NATMO thematic maps.

2.3. Thematic maps: Economic - Interpretation of NATMO thematic maps.

3. Spatial Analysis in Development Studies **(Contact Hours 20)**

3.1. Measuring Development- Choice and relevance of indicators

3.2. Methods of measurement- Rank, Quartile and Z score methods.

3.3. Identification of levels of Development- Mapping and interpretation of Levels of development.

References:

1. Mitra, A.(1961):Levels of Regional Development, Census of India 1961
2. Kundu, A.(1975): Construction of Composite Indices for Regionalisation: An enquiry into the Methods of Analysis, Geographical Review of India, Vol. 37, No.1, March 1975
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14. Ramamurthy, K. (1982): Map Interpretation: Indian Landscapes through S.O.I. Topographical Maps, Madras
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Annexure I

Department of Geography

University of Mumbai

Two Year Degree Course of M. A./M.Sc. in Geography

**As per Choice Based Credit System (CBCS)
(With effect from the academic year 2017-2018)**

Examination pattern for Semester III

Semester III:

- a) **Theory Paper:** 100 marks for each paper (Total theory papers 3)
 - i) **Internal examination:** Total marks 40 (in each theory paper)
 - ii) **External examination:** Total marks 60 (in each theory paper) Duration: 2 ^{1/2} Hours
- 1) Total number of questions to be framed for theory paper in external examination is 6 of 15 marks each.
- 2) Out of total 6 questions, students are required to attempt **any four** questions.

- b) **Practical Paper:** 100 marks for each paper (Total 2 practical)
 - 1) Out of total 100 marks in each practical, 80 marks for practical examination, 10 marks for journal writing and 10 marks for viva.
 - 2) No of questions would correspond with number of major modules in the respective practical Course syllabus.

- c) **Marking system:**
 - i) Total marks for theory: 300 (6 Credits *3 theory papers =18 credits)
 - ii) Total marks for practical: 200 (6 credits *2 practical = 12 credits)
 - iii) **Grand Total for Semester III= 500 marks : 30 credits**