Annexure-4.02
EC meeting dated 23.05.2025

INDEX DEPARTMENT OF GEOGRAPHY

UNIVERSITY OF DELHI

UNDERGRADUATE PROGRAMMESOF STUDY

STRUCTURE, COURSES & SYLLABI OF SEMESTERS– VII and VIII

LIST OF DICIPLINE SPECIFIC CORE COURSES OFFERED IN GEOGRAPHY FOR SEMESTERS VII and VIII

Note: Discipline Specific Core courses comprise courses essential to develop an understanding of the discipline and its core areas. DSC 19 will be offered in Sem VII, DSC 20 will be offered in Semester VIII

DISCIPLINE SPECIFIC CORE COURSE – TECHNIQUES OF REGIONAL PLANNING AND DEVELOPMENT (DSC 19- PRACTICAL)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
TECHNIQUES OF REGIONAL PLANNING AND DEVELOPMENT (DSC 19- PRACTICAL)	4	01	0	03	NIL	NIL

Learning Objectives: The course addresses SDG 1, 8, 9, 10 and 11

The learning objectives of this course are as follows:

- Understanding the basic concepts related to regional planning and development
- Detailed analysis about the different types of regional planning and delineation methods
- Evaluating multiple dimensions of development through use of AI and ML

Learning Outcomes:

- The course aims to provide an in depth understanding about levels of regional development occurring at different scales
- This course aims to equip students with hands-on skills and techniques for analyzing regional development patterns and planning strategies.
- Emphasis will be placed on integrating statistical tools, geospatial technologies, and policy frameworks for understanding practical applications in regional planning.

Course Outline:

Unit 1: Concept of Region, Regional Planning and Regionalization (Theory -15 hours):
Concept of Region, Type and Characteristics of Region; Objective and Principles of Regional Planning, Types of Regional

Plans and their significance; Theories and Models of Regional Planning- Myrdal, Rostow, Hirschman, and Friedmann; Concepts of Development; Underdevelopment and Inequality; Efficiency-Equity Debate; Human Development

Unit 2: Measuring Regional Development (Practical- Lab component- 30 hours) Calculating and mapping indices of HDI, GDI, PQLI at different spatial scales; Measuring regional disparity using Sopher's Disparity index; Measurement of inequality using Gini Coefficient, Lorenz Curve and Location Quotient

Unit 3: Regional Planning in Practice (Practical- Lab component- 30 hours): Delineation of formal regions by Weighted Index Technique / Weavers Technique from available data base; Delineation of functional regions by Breaking Point Analysis/ Gravity Analysis/ Transport Network Analysis from available database, GIS Techniques for demarcating planning and development regions using available GIS software.

Unit 4: Designing Development: Use of AI and ML (Practical- Lab component- 30 hours): SWOT Analysis, 3 D Regional developmentscape visualisation, Site Suitability Analysis/Nearest Neighbour Analysis using available database and software

Practical Record: Five Practical Exercises to be completed in the Practical File from units 2, 3 and 4

Readings:

Essential Readings:

1. Bhargava, G. 2001. Development of India's Urban, Rural, and Regional Planning in 21st Century: Policy Perspective, Gyan Publishing House.

2. Chand, M., Puri, V.K. 2000. Regional Planning In India, Allied Publishers Ltd. Chandana,

3. Chandna, R. C. (2000): Regional Planning: A Comprehensive Text. Kalyani Publishers., New Delhi.

4. Chaudhuri, J. R. (2001): An Introduction to Development and Regional Planning with special reference to India. Orient Longman, Hyderabad.

5. Cowen, M.P. and Shenton, R.W. (1996): Doctrines of Development, Routledge, London.

6. Doyle, T. and McEachern, D. (1998): Environment and Politics. Routledge, London.

7. Friedmann, J. (1992): Empowerment: The Politics of Alternative Development. Blackwell, Cambridge MA and Oxford.

8. Glasson, J. 2017. Contemporary Issues in Regional Planning, Routledge.

9. Gore, C. 2011. Regions in Question: Space, Development Theory, and Regional Policy, Routledge.

10. Gregory, D., Johnston, R., Pratt, G., Watts., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.

11. Hall, P., Tewdwr-Jones, M. 2010. Urban and Regional Planning, Routledge.

12. Hettne, B., Inotai, A. and Sunkel, O. (eds.) (1999 – 2000): Studies in the New Regionalism. Vol. I-V. Macmillan Press, London.

13. Higgins, B., Savoie, D.J. 2017. Regional Development: Theories and Their Application, Routledge.

14. Hussain, Zakhir, (2014) Gender disparities in completing school educationin India: analysingregional Variations, Research Gate.
www.researchgate.net/publication/47375599

15. Isard, W. (1960): Methods of Regional Analysis. MIT Press, Cambridge, MA.

16. Leys, C. (1996): The Rise and Fall of Development Theory. Indian University Press,Bloomington, and James Curry, Oxford.

17. Sen, A. (2000): Development as freedom. Development in Practice-Oxford-, 10(2), 258-258.

Suggested Readings:

1. Mahesh Chand and Puri V K (2011), Regional Planning in India, Allied Publishers Private Limited, New Delhi.

2. Misra, R. P. (ed.) (1992): Regional Planning: Concepts, Techniques, Policies and CaseStudies. 2nd edition. Concept Publishing Company., New Delhi.

3. Misra, R.P. and Natraj, V.K. (1978): Regional Planning and National Development. Vikas, New Delhi.

4. Nath, V. 2009. Regional Development and Planning in India, Concept Publishing Company.

5. Sundaram K V 1997, Decentralised Multi level Planning – Principles and Practice, Concept Publishing Company, New Delhi

6. Kuklinski, A. R. (1972): Growth Poles and Growth Centres in Regional Planning. Mouton and Co., Paris.

7. Kuklinski, A.R. (ed.) (1975): Regional Development and Planning: International Perspective, Sijthoff-Leydor.

8. Friedmann, J. and Alonso, W. (ed.) (1973): Regional Development and Planning. The MIT Press, Mass.

DISCIPLINE SPECIFIC CORE COURSE – ADVANCED SPATIAL ANALYSIS (DSC 20 PRACTICAL)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Advanced Spatial Analysis (DSC 20 Practical)	**4**	**01**	**0**	**03**	**NIL**	**NIL**

Learning Objectives:

- To process statistical and geospatial data with different tools
- To learn thematic application of geospatial techniques
- To develop case study on a selected spatial association/ problem
- To test a spatial hypothesis of causal relationship between variables.

Learning Outcomes:

After studying this course, students will be able to:

- Handle spatial data and recognize its errors with degrees of confidence
- Analyze and display result in digital format
- Understand nature of software package related to spatio-temporal analysis of selected dataset

Course Outline:

- **Unit 1: Spatial Data: (Theory- 15 hours):** Principles of Statistical data entry into digital format, methods of coding and storage; editing and missing data analysis; understanding spatial samples

- **Unit 2: Qualitative Analysis: (Practical- Lab component- 30 hours):** Geo-visualization of virtual and interactive maps, Constructing concept map, story maps, mental maps, conducting content analysis (segmentation and classification), coding of open-ended records, types of rating scales (Thurstone, Likert, Guttman),

- **Unit 3: Quantitative Analysis (Practical- Lab component- 30 hours):** Statistical indices of inequality, Time-series analysis; nearest neighbour analysis; multiple correlation and regression with residual error analysis; hypothesis testing and its significance (t-test)

- **Unit 4: Digital Image Analysis and advanced Geospatial Analysis (Practical- Lab component- 30 hours):** Image transformation, image statistics and indices, mosaics and image fusion, 3D visualization; digital image classification accuracy assessment; Object-based Image Analysis (OBIA); change detection; Spatial interpolation; Spatial multi-criteria analysis for site selection; Spatial composites; Web-GIS based spatial query analysis; mobile mapping

Practical Record (Soft Copy):

Statistical data will be processed using any statistical software - EXCEL/R/SPSS/Stata. For visualization softwares like Google Earth/NASAWorldWind can be used. Spatial data will be analysed using any open-source software like SAGAGIS/QGIS/GRASS GIS/ILWIS and cloud based softwares like Google Earth Engine, ESRI ArcGIS Online, Bhuvan Apps can be used for Web-GIS.

1. Students will create a dataset in digital format on any given area and selected topic.
2. All statistical and spatial analysis will be done on the above dataset, selected satellite images of the same area will be used for geospatial analysis.
3. The practical file will be submitted in a digital format.

Readings:

- Acevedo, M.F. (2013). Data Analysis and Statistics for Geography, Environmental Science, and Engineering (1st ed.). CRC Press. Available at: https://doi.org/10.1201/b13675
- Albert, D.P., Gesler, W.M., & Levergood, B. (Eds.). (2000). Spatial Analysis, GIS and Remote Sensing: Applications in the Health Sciences (1st ed.).CRCPress.Boca Raton. Pp 240.eBook ISBN: 9780429219931.Available at: https://doi.org/10.1201/b12416
- Bhattacherjee, A.(2012), Social Science Research: Principles, Methods, and Practices. Textbooks Collection. Book 3. http://scholarcommons.usf.edu/oa_textbooks/3
- Blaschke, T., Lang, S., & Hay, G. (2008). Object-Based Image Analysis. Springer Science & Business Media.
- Bluman, A. G. (2023). Elementary Statistics: A Step-by-Step Approach, 11th Edition. Publisher: McGraw-Hill Education. Pp. 892. ISBN10: 1260360652 | ISBN13: 9781260360653
- Conrad, O., Bechtel, B., Bock, M., Dietrich, H., Fischer, E., Gerlitz, L., Wehberg, J., Wichmann, V., and Böhner, J. (2015). System for Automated Geoscientific Analyses (SAGA) v. 2.1.4, Geosci. Model Dev., 8, 1991–2007, Available at: https://doi.org/10.5194/gmd-8-1991-2015

- Creswell, J. W. (2009). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (3rd ed.). Thousand Oaks, CA: Sage Publications. ISBN: 9781506386690
- Fotheringham, S., Brunsdon, C., & Charlton, M. (2000). Quantitative Geography: Perspectives on Spatial Data Analysis. Sage Pub. Ltd. London. ISBN-10 : 0761959483 ISBN-13 : 978-0761959489
- Graser, A. (2016). Learning QGIS - Third Edition: Create great maps and perform geoprocessing tasks with ease. Packt Publishing Limited; 3rd edition. Pp. 210. ISBN-10 : 1785880330 ISBN-13 : 978-1785880339
- Lang, S. (2008). Object-based image analysis for remote sensing applications: modeling reality – dealing with complexity. In: Blaschke, T., Lang, S., Hay, G.J. (eds) Object-Based Image Analysis. Lecture Notes in Geoinformation and Cartography. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-77058-9_1
- Mather, P.M. and Koch, M. (2010). Computer Processing of Remotely-Sensed Images: An Introduction, Fourth Edition. Available at: https://doi.org/10.1002/9780470666517.
- Montello, D. R. (2006). An Introduction to Scientific Research Methods in Geography. SAGE Publications.
- Nussbaum, S., & Menz, G. (2008). Object-based image analysis and treaty verification: new approaches in remote sensing - applied to nuclear facilities in Iran. Springer. ISBN: 978-1-4020-6960-4 e-ISBN: 978-1-4020-6961-1
- Schowengerdt, Robert. A. (2006). Remote sensing: Models and methods for image processing. Academic Press; 3rd edition (September 11, 2006). Pp. 560. ISBN-13 : 978-0123694072
- Solari, O. M., Demirci, A., & Schee, J. A. v. d. (2015). Geospatial technologies and geography education in a changing world: Geospatial practices and lessons learned. Springer. Available at: https://doi.org/10.1007/978-4-431-55519-3
- Tiwari, A. and Jain, K. (eds.). (2017) Concepts and Applications of Web GIS. Hauppauge, New York: Nova Science Publisher's, Inc., 2017. ISBN 9781536127805 (ebook)
- Triola, M. F. (2017). Elementary Statistics Using Excel Plus New Mystatlab with Pearson Etext. Pearson College Div. ISBN 13: 9780134506623 ISBN 10: 0134506626
- Walford, N. (2011). Practical Statistics for Geographers and Earth Scientists. John Wiley & Sons. Pp. 440. ISBN: 978-0-470-84914-9

LIST OF DICIPLINE SPECIFIC ELECTIVES OFFERED IN GEOGRAPHY FOR SEMESTERS VII AND VIII

Note: Discipline Specific Electives (DSE) represent specialized subfields in emergent and important areas of the discipline. DSE 11, 12, 13 and 14 to be offered in Sem VII, DSE 15, 16, 17 and 18 to be offered in Sem VIII

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHICAL DIMENSIONS OF LAND USE PLANNING AND POLICY (DSE 11)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
GEOGRAPHICAL DIMENSIONS OF LAND USE PLANNING AND POLICY (DSE 11)	4	3	1	0	Class 12th	NIL

Learning Objectives: The course addresses SDG 10 Reduced inequalities and SDG 11 Sustainable cities and communities.

The learning objectives of this course are as follows:

- To understand the basic geographical principles of land use planning and policy
- To explain the spatial issues and challenges of land use planning
- To discuss sustainable land use policies in different parts of the world
- To analyse the land use regulations and policy in India

Learning Outcomes:

The Learning Outcomes of this course are as follows:

- The students would be able to comprehend the concept of land use planning and need of sustainable land use policy
- The students would be able to understand the land use planning processes in different levels with their physical and socio-economic challenges
- The students would elaborate the land use policies in different parts of the world in general and land use policy of India in particular

Course Outline:

Unit 1: Introduction to Land Use Planning and Policy (15 hours)

Concept and Principles of LUP, Rationale or Need for Land Use Planning, UNCCD -Types of Land Use Planning, Land Use Planning at Different Planning Levels (National, Regional, District, Local), Steps in Land Use Planning)

Unit 2: Geographical Dimensions of Land Use Planning: Issues and Challenges (15 hours)
Land Use Planning and Sustainability: Social, Economic and Environmental Concerns, Rural and Urban Land Use Planning Challenges: Examples from Developed and Developing Countries

Unit 3: Global Land Use Policies and Strategies (15 hours)

Strategies of Urban Land Use Policy: Zoning, Urban Growth Boundaries, Smart Growth;
Strategies of Rural Land Use Policy: Agricultural Land Preservation, Rural Zoning, Watershed Management

Unit 4: Land Use Planning and Policies in India (15 hours)
National Land Use Policy: Challenges and Regulations; Urban Land Use Planning: Master Plan, Smart Growth and Smart Cities; Rural Land Use Planning: Smart Villages

Readings:

- Wehrmann, B. (2011) Land Use Planning: Concept, Tools and Applications, Division of Agriculture, Fisheries and Food, Eschborn.
- Matthaei, E. (2018) The Rurban Concept Spatial Planning Beyond Boundaries: The case of the GIZ Land Use Planning and Management Project in India, GIZ, Bonn.
- Cloko, P. (2013)ed. Rural Land Use Planning in Developed Nations, Routledge.
- Deal, B. (2008) Sustainable Land Use Planning: The Integration of Process and Technology, VDM Verlag Dr. Mueller e.k.
- Metlernicht, G. (2017) Land Use Planning: Global Land Outlook Working Paper, United Nations convention to Combat Desertification.
- Mishra, R. K. et. al. eds.(2022) Smart Cities for Sustainable Development. Springer.
- Laxmanan, V.I. et. al. eds. (2022) Smart Village: Bridging the Global Urban-Rural Divide, Springer.
- Shankar, K. and A. Kumar (2017)Perspectives on Smart City vs Smart Village, New Delhi Publishers, New Delhi.
- FAO of United Nations (1996) Guidelins for Land Use Planning, FAO Development Series1, Rome.
- Department of Land Resources (2013) National Land Utilization Policy: Framework for land use planning and management, Ministry of Rural Development, Government of India. (Draft)
- OECD (2017)The Governance of Land Use in OECD countries: Policy analysis and recommendations, OECD Puublishing, Paris.

Digital Reading Materials:
https://urban-regeneration.worldbank.org/node/39 , https://www.oecd-ilibrary.org/sites/208beaaa- en/index.html?itemId=/content/component/208beaaa-en, https://mohua.gov.in/upload/whatsnew/59a4070e85256Transit_Oriented_Developoment_Policy. pdf

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHY OF WATER RESOURCE MANAGEMENT (DSE 12)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Water Resource Management (DSE 12)	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Course Objectives: The course addresses SDG 6 (Clean water and sanitation) and SDG 10 (Reduced inequalities)

- To understand the basics of hydrological regime
- To understand the spatial issues and problems related to water resources in India
- To explain the integrated concept of water resource management

Learning Outcomes: After studying this course, students will be able to:

- Understand the basic components of hydrological cycle and learn best practices of integrated watershed management,
- Explain various components of water balance and management of river basins,
- Highlight the geographical aspects of water related issues, problems and strategies for their solution.

Course Outline:

Unit 1: Hydrological Cycle (15 hours): Components of hydrological cycle: precipitation, interception, evaporation, evapo-transpiration, infiltration, percolation, groundwater, run-off and over land flow; Human impact on hydrological cycle

Unit 2: Surface Water Resources (15 hours): Sources of stream flow; Inter-relationships between components of water balance: water balance equation, soil moisture storage, water deficit and water surplus, Characteristics of river basins: basin parameters, river network, water flow with the help of case study

Unit 3: Ground Water Resources (10 hours): Ground water-table, base-flow, flow of water in aquifers; Status of groundwater levels in India

Unit 4: **Water Resource Issues and Management (20 hours)**: water disputes: nature of dispute, water sharing principles, river linkages, Water pollution- Water quality parameters, water quality standards and major pollutants; Integrated water resource management-conjunctive use of surface and ground-water, watershed management strategies with case study; Rain water harvesting, artificial recharge of ground-water; National Water Policy

Tutorial Exercises:

Tutorial exercises will include discussion of unit specific readings, presentations on case studies of river water disputes and sharing (Cauvery Water Dispute, Narmada Water Dispute), watershed management (case study of Rajsamadhiyala watershed, Uttaranchal Decentralized Watershed Development Project)

Reading List:

- AISLUS. (1990). *Watershed Atlas of India, All India Soil and Land Use Survey*, Dept. of Agriculture and Cooperation, Ministry of Agriculture. Government of India.
- Andrew. D. Ward and Stanley, Trimble (2004). *Environmental Hydrology*, 2nd edition, Lewis Publishers, CRC Press.
- Fetter, C.W. (2005). *Applied Hydrogeology*. New Delhi, India. CBS Publishers & Distributors.
- Jain, S. K., Agarwal, P. K., & Singh, V. P. (2007). Runoff and Streamflow. In *Hydrology and Water Resources of India. Water Science and Technology Library*, *57*, 193–234. Springer. https://doi.org/10.1007/1-4020-5180-8_5
- Karanth,K. R. (1988). *Ground Water: Exploration, Assessment and Development*. McGraw-Hill. New Delhi.
- Lyon, J. G. (2003). *GIS For Water Resource and Watershed Management*. Taylor & Francis.
- N.S. Grigg. (2016). *Integrated Water Resource Management.*Palgrave Macmillan London.
- Rao, K. L. (1982). *India's Water Wealth* (2nd ed). Orient Longman.
- Reddy, K. Ramamohan, Venkateswara Rao,B, Sarala, C. (2014). *Hydrology and Watershed Management*. Allied Publishers.
- Singh, V. P. (1995). *Environmental Hydrology*. Kluwar Academic Publications.
- SLUSI. (2012). *Watershed Atlas of India*, All India Soil and Land Use Survey, Dept. Of Agriculture and Cooperation, Ministry of Agriculture. Government of India.
- Sustainable Surface Water Management (2016). A Handbook for SuDS. In S. M. Charlesworth (ed.), *Colin A. Booth.* John Wiley & Sons, Ltd.
- Tideman, E.M. (1999). *Watershed Management - Guidelines for Indian Conditions*. Delhi, India. Omega Scientific Publishers.
- Todd, D.K. (1959). *Ground Water Hydrology*. New Delhi, India. Wiley India Edition.

Digital reading list:

- http://slusi.dacnet.nic.in/index_English.html
- *https://jalshakti-dowr.gov.in/sites/default/files/nwp20025617515534_1.pdf*

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHY OF TOURISM (DSE 13)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography Tourism (DSE 13)	4	3	1	0	Class 12th	NIL

Course Objectives: The Course addresses SDG 12 _Responsible consumption and production, with respect to tourism

- To understand the various concepts of Geography of Tourism.
- To understand the factors affecting the growth and development of tourism.
- To make the students aware about the effects of tourism (its positive and negative impacts).
- To learn the contemporary forms of tourism and the need for sustainable tourism.

Learning Outcome:

After studying, students will be:

- Equipped with a basic understanding of nature and scope of geography of tourism and various types of tourists and tourism.
- Able to understand the geographical, environmental, and socio-cultural aspects of tourism.
- Apply the principles of sustainable tourism and analyse the prospects and problems associated with unsustainable tourism activities.

Course Outline:

Unit 1: Geography of Tourism (20 hours): Introduction and Definition (UNWTO); Concept, Nature, and Scope; Leiper's Model of Tourism System; type of Tourists (Cohen and Smith); Geographical Factors affecting Tourism; Infrastructural, political factors influencing tourism

Unit 2: Types of Tourism (15 hours): Nature tourism, Cultural tourism, Religious, Medical, VFR (Visiting Friends and Relatives), Heritage and Adventure; Contemporary tourism (Ocean, Space, Theme- Amusement parks, MICE, Virtual, Dark)

Unit 3 Transformative impacts of Tourism (10 hours): Economic, Socio-cultural, and Environmental impacts, selected case studies (any one case study from India- Goa, Mahabalipuram, Jaisalmer and any one international case study -rural tourism in Grua, Serbia, Western Thailand, Mombasa Kenya)

Unit 4: Sustainable Tourism (15 hours): Carrying capacity – Physical, Environmental, Perceptual and Social; Sustainable Tourism Initiatives – Climate Change Mitigation and sustainable use of resources; Sustainable Tourists – Codes of conduct.

Tutorial Exercises: Tutorial exercises will in Responsible consumption and production (SDG 12)clude discussion of specific readings, presentations on case studies of river water disputes and sharing (Cauvery Water Dispute, Narmada Water Dispute), watershed management (case study of Rajsamadhiyala watershed, Uttaranchal Decentralized Watershed Development Project)

Readings:

- Anshu, et.al, Geography of Tourism and recreation in Bihar, 2017, Research India Publication, 9351710912, ISBN-13 : 978-9351710912
- Alan A. Lew and Stephen Williams (2014) Tourism Geography: Critical Understandings of Place, Space, and Experience. Routledge 3rd Edition
- Brian Boniface, Chris Cooper, R. Cooper., Worldwide Destinations: The Geography of Travel and Tourism (8th edition, 2020)
- Fletcher, John Edward Fyall, Alan Gilbert, David Wanhill, Stephen (2018) Tourism principles and practice. Pearson. Edition 6th
- Hazel Andrews, Takamitsu Jimura, Laura Dixon (2019) Tourism Ethnographies Ethics, Methods, Application and Reflexivity. Routledge. Edition 3rd.
- Maria Giaoutzi., (2017) Tourism and Regional Development - New pathways (economic geography series). Routledge
- Mark Anthony Camilleri,(2019) Tourism Planning and Destination Marketing, Emerald Publishing Limited. Edition 1st.
- Sampada Kumar Swain, Jitendra Mohan Mishra (2019)Tourism Principles and Practices. Oxford. Edition 6th.
- Stephen Hall, C. Michael and J.Page., (2014) The Geography of Tourism and Recreation: Environment, Place and Space. 4th edition. Routledge
- Stephen Schweinsberg and Stephen Wearing (2018) Ecotourism: Transitioning to the 22nd Century. Routledge. Edition 3rd
- Velvet Nelson., (2021) An Introduction to the Geography of Tourism, 3rd edition, Rowman and Littlefield, Maryland.
- Chaturbhuj Mamoria and Komal Singh, (2018) Geography of Travel and Tourism (Hindi edition) 2018, SBPD publications ISBN- 10 9386908891
- Kapoor, B.K. (2008) Paryatan Bhugol, Vishwa Bharti Publication, Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHY OF HEALTH (DSE 14)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Health (DSE 14)	4	3	1	0	Class 12th	NIL

Learning Objectives: The course addresses SDG 3 Good health and well-being. Specific objectives are:

- To understand the concept, nature and scope of geographies of health
- To understand the geographical determinants of health
- To relate exposure and health risk to human activities in the anthropocene
- To understand the spatial pattern and epidemiological transition of diseases in India
- To identify global and national health agencies, policies and Programmes

Learning Outcomes:

- Basic concept of geographies of health-
- Various geographical, socio-economic and other determinants of health
- Health exposure and risk to various human activities
- Distribution of communicable and non communicable diseases in India
- Develop understanding of policy, programmes and schemes for health at global and national level

Course Outline:

- **Unit 1: Geography of Health (10 hours)**: Definitions, concept, nature and scope; Concept of Food and Nutrition in relation to health; concept and significance of mental health
- **Unit 2: Determinants of Health (15 hours):** Genetic factors, Geographical factors, Demographic factors, Economic factors, Socio-cultural factors, Environmental factors, Others (Urbanization and climate change)
- **Unit 3: Health Exposure, Risks and contemporary issues (20 hours):** Health risks associated with Agriculture, Manufacturing Industries, Household, Work places, Communicable and

lifestyle diseases in India, Regional pattern of diseases, and Epidemiological transition in India

- **Unit 4: Health Programmes and Policy (15 hours):** Health Care agencies at India and global level; India's National health policy, state programmes and local initiatives.

Tutorial Exercises:

Tutorial exercises will include discussion of specific readings, presentations on regional profiles of tuberculosis, Malaria and cardiovascular disease in India

Readings:

- Michael Emch, Elisabeth Dowling Root, Margaret Carrel 2017, Health and Medical Geography
- Helen Hazen, Peter Anthamatten, 2020, An Introduction to the Geography of Health, Routledge
- Anthony C. Gatrell, Susan J. Elliott, 2014, Geographies of Health, Wiley Pub
- Paul.L.Knox, 1975, Social Well-being: A Spatial Perspective (Theory & Practice in Geography), Oxford University Press
- Akhtar Rais (Ed.), 1990: Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi
- Phillips, D.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
- E. Banister, 1987,Contemporary Health Issues (Health Sciences), Jones and Bartlett Publishers

Suggestive Readings:

- IPCC Report on "Climate Change 2022, Impacts, Adaptation and Vulnerability" Summary for policy makers [Available at https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf]
- National health Policy-India (2017) [Available at https://www.nhp.gov.in/nhpfiles/national_health_policy_2017.pdf]
- https://nhm.gov.in/images/pdf/National_Health_Mental_Policy.pdf
- Mahajan and Gupta (fourth edition) 2013, Text book of preventive and social medicine, Jaypee Brothers Medical Publishers (P) Ltd.
- https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
- https://www.cdc.gov/climateandhealth/effects/default.htmhttps://health2016.globalchang e.gov/

Hindi Readings:

हरीशकुमारखत्री, ा◌ा◌ भूगोल, कैलाशपु◌ुकसदन, भोपाल, 9788189900731(available as e book)
https://www.downtoearth.org.in/hindistory/health/child-health/climate-change-is-having-a-bad- impact-on-children-s-health-80576

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHY OF BEHAVIOUR AND EMOTIONS (DSE 15)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Behaviour and Emotion (DSE 15)	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

This course teaches the fundamentals of Behviour and Emotional Geography. The content of the syllabus would help the student to understand the concept of Behavioural and emotional geography; the subject's nature and evolution. The syllabus also helps to understand significance of behaviour and emotions in different spaces and social economic structure. It explores the role of emotions in developmental dilemma and environmental practices.

Course Objectives:

- To understand spatial dimensions of Behaviour and Emotions.
- To look at the evolution of Geography of Behaviour and Emotions.
- To understand the factors affecting emotional topographies.
- To identify emotions linked to dilemma of developmental activities
- To realize and understand the significance of behaviour and emotions in socio-economic structures.

Learning Outcome:

- Detailed exposure to the subfield of behavioural and emotional geography.
- In-depth knowledge of emotional topographies at different spatial scales
- Dilemma of development and environment though case studies
- Behaviour and emotions in social and economic structure.
- Project based approach to understand behavioural and emotional geographies in real world.

Course Outline:

Unit 1: Behavioural Geography and Emotional Geography (15 hours): Nature, Concept and Evolution, mental maps, notional maps.

Unit 2: Space, Place and Emotion (15 hours): Understanding affect and Emotion, in place and out of Place, Topophilia and Topophobia

Unit 3: Emotional topographies and Spatiality of Happiness and Distress (15 hours): Geographies of belongingness and alienation- multiscalar ; Geographies of nostalgia, Development and displacement, environmental challenges, conservation practices (case study based)

Unit 4: Placemaking practices (15 hours): concept of placemaking, Case study of Nagpur, Gurgaon and Bengaluru

Tutorial Exercise:

Tutorial exercises will include discussion of specific readings. For unit 2 refer to theorizations by Yi fu Tuan (1976), Relph(1976), Marc Auge (1996) and for unit 4 case studies refer to:

- Sangani, Priya, and Ar Sayon Pramanik. "Understanding Local Culture as an Attribute for Placemaking in India." (2024).
- Joshi, Rucha, and Vibhore Bakshi. "Deciphering the Significance of Placemaking in Urban Quality of Life: Case Study of Nagpur, India." In Sustainability and Urban Quality of Life, pp. 52-70. Routledge India, 2025.
- Goldstein, S. R. (2016). Planning the Millennium City: The politics of place-making in Gurgaon, India. International Area Studies Review, 19(1), 12-27. https://doi.org/10.1177/2233865916628798 (Original work published 2016)
- Sen, Amrita, and Harini Nagendra. "Local community engagement, environmental placemaking and stewardship by migrants: A case study of lake conservation in Bengaluru, India." Landscape and Urban Planning 204 (2020): 103933.

Readings:

- Bolles, R. (1979). The functional significance of behavior. *Behavioral and Brain Sciences, 2*(1), 29-30. doi:10.1017/S0140525X00060465
- Hastrup, Kirsten. "8. Emotional Topographies: The Sense of Place in the Far North". *Emotions in the Field: The Psychology and Anthropology of Fieldwork Experience*, edited by James Davies and Dimitrina Spencer, Redwood City: Stanford University Press, 2010, pp. 191-211. https://doi.org/10.1515/9780804774260-011
- https://rgs-ibg.onlinelibrary.wiley.com/doi/pdf/10.1111/1475-5661.00002 "Editorial: Emotional Geography", Transactions of the Institute of British Geographers - Wiley Online Library
- Jessica K. Graybill, 2013, Mapping an emotional topography of an ecological homeland: The case of Sakhalin Island, Russia, in Emotion, Space and Society, Volume 8, Pages 39-50, ISSN 1755-4586, https://doi.org/10.1016/j.emospa.2012.09.005. https://www.sciencedirect.com/science/article/pii/S1755458612000771)
- John, Gold R., 1980, An introduction to Behavioural Geography, Oxford University Press, ISBN-13: 978-0198232339, ISBN-10: 0198232330
- Joyce Davidson (Ed), 2006, Emotional Geographies, Routledge,ISBN 9780754671077
- Krapfl, J.E. Behaviorism and Society. *BEHAV ANALYST* **39**, 123–129 (2016).

https://doi.org/10.1007/s40614-016-0063-8
- Liz Bondi, 2005, Emotional Geographies, Ashgate Publishing Limited, Routledge, 978-0754643753
- Russell, J. (1991). Culture and the categorization of emotion. Psychological Bulletin, 426-450

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHY OF TRANSPORTATION (DSE 16)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Transportation (DSE 16)	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives: The course is mapped to Industry, innovation and infrastructure (SDG 9) with reference to transportation modes and systems. Specifically, the objectives are:

- To understand the significance of Geography of Transportation.
- To outline the need of Travel and development of Transportation.
- To discuss the importance of Mobility, Connectivity, Accessibility and Modal Choice.
- To evaluate the role of Transport Planning and Governance in Sustainable Transportation.

Learning Outcome:

Students will have an in-depth knowledge of the following:

- Dimensions of Means of Transportation.
- Factors affecting development of Transport.
- Socio-economic and Environmental Problems of Transportation.
- Initiatives for Transport Management and Policy Making.

Course Outline:

- **Unit 1: Geography of Transportation (15 hours):** Introduction, Significance, Terrain factors in the Historical Development of Transport; Mechanized Means of Transportation – Land, Air and Water; Factors affecting development of Transport; Modal Choice.
- **Unit 2: Urban Transport (15 hours):** Urban Mobility, Characteristics and Need of Urban Transport, Modes of Urban Travel, Challenges and Solutions.
- **Unit 3: Methods and Models in Transport Study (10 hours):** Graph Theory - Connectivity Matrix and Accessibility Matrix, Gravity Model, Cost-Benefit Analysis.

- **Unit 4: Issues and Policies of Transport Planning and Policy (20 hours):** Challenges of Transport Sector including Land use and Traffic Generation, Socio-economic and Environmental Problems Transport Management and Policy Framework, Transport Planning and Governance, Role of Geospatial Technology in Planning and Monitoring of Transport, Initiatives for Sustainable Transportation, A Case Study of Delhi in understanding the issues in Transportation Geography.

Tutorial Exercises:

Tutorial exercises will include discussion of specific readings and case study of Delhi metro and Mumbai monorail

Readings:

Essential:

- Boardman, A. E., Greenberg, D. H., Vining, A. R., & Weimer, D. L. (2017). Cost-benefit analysis: concepts and practice. Cambridge University Press.
- Giuliano, G., & Hanson, S. (Eds.) (2017). The Geography of Urban Transportation (4th Edition). New York: The Guilford Press.
- Halder, D. (2006). *Urban Transport in India: Crisis and Cure*, New Delhi: Bookwell.
- Hoyle, B. S., & Knowles, R. D. (Eds.) (1992). *Modern Transport Geography*, London and New York: Belhaven Press.
- Rodrigue, J. P., Comtois, C., & Slack, B. (2006). The Geography of Transport Systems. New York: Routledge.
- Taaffe E. J., & Gathier, H. L. (1973). *Geography of Transportation*, ISBN: 0-13-351395-5, Prentice-Hall, Inc.
- Ramanathan, R. (2004). *Indian Transport Towards the New Millennium: Performance, Analysis and Policy*, New Delhi: Concept Publishing Co.

Suggestive:

- ADB. (2013). Cost-benefit analysis for development: A practical guide. Asian Development Bank.
- Brooks, P. W. (1994). The Development of Air Transport. In. Hurst, M. E. (Eds.) Transportation Geography: Comments and Reading, Mc Graw Hill, 256-273.
- Mishan, E. L., & Quah, E. (2007). Cost–Benefit Analysis (5th Edition). New York: Routledge.
- Murty, M. N., Dhavala, K. K., Ghosh, M., & Singh, R. (2006). Social Cost-Benefit Analysis of Delhi Metro, Munich Personal RePEc Archive, Institute of Economic Growth, Delhi.
- NCAER. (2001). Designing A Fare Structure for the Delhi Metro Rail System. National Council for Applied Economic Research.
- Sarkar, P. K., Maitri, V., & Joshi, G. J. (2017). Transportation planning: Principles, practices and policies. PHI Learning Pvt. Ltd.

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHIES OF ENVIRONMENTAL JUSTICE AND ENVIRONMENTAL ETHICS (DSE 17)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geographies of Environmental Justice and Environmental Ethics (DSE 17)	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives: The course is mapped to SDG 13 Climate action and addresses environmental concerns

The course focusses on students' comprehensive understanding of the following concepts to enhance their ability for analytical thinking about the present-day enviro-ethical issues and legal provisions under it. The main objectives are-

- To understand the basic concepts of environment, ethics and law.
- To evaluate the role of ethics and its application.
- To assess the problems related to environmental justice and sustainability based on case studies.
- To understand the provisions under the Indian constitution and the Jurisprudence; and major PILs.
- To discuss the global initiatives and policies emerging from multilateral environmental issues.

Learning Outcomes:

By the end of the semester students will have an in-depth knowledge of:

- The principles of Environmental Ethics in making Environmental Laws.
- Various legislations as per the Indian Legal System.
- Provisions of violations and understanding of PIL.
- How to enhance the decision-making process while addressing the issues of justice and sustainability.
- Types of international institutions and laws for environmental protection.

Course Outline:

- **Unit 1: Understanding of Environmental Ethics (10 hours):** Concept and principles; Evolution of Environmental Ethics; Importance of Environmental Justice and Ethics in our everyday life- Valuing Nature; Right of Nature

- **Unit 2: Environmental Stewardship, Environmental ethics and Justice (20 hours):** Concept of

Environmental Justice and Environmental Stewardship; Approaches in Environmental Ethics- Anthropocentric, Bio- centric, Eco- centric; Role of Environmental Ethics in Law Making; Tran boundary Environmental Issues; Role of International Organisations

- **Unit 3: Environmental Law, Environmental Conflicts and Resolution in India (15 hours):** Constitutional Provisions and Environmental Laws; Key Environmental Legislations in India; National Green Tribunal, Public Interest Litigations- selected case studies. Case studies of Multilateral Environmental Agreements (Montreal protocol, Paris Agreement, Convention on Biological Diversity)

- **Unit 4: Sustainability and Ethical Principles (15 hours):** Dilemma in achieving Sustainability; Environmental Justice; Case studies- MC Mehta vs. Union of India, 1991 Delhi Vehicular pollution Case; Almitra H Patel vs. Union of India, 2000 Waste Management Case, Case of Dongria Kondhs vs Niyamgiri.

Tutorial Exercises

Tutorial exercises will include discussion of specific readings, presentations on case studies. For unit 4 refer to - George, Anjali. "Claiming Niyamgiri: The Dongria Kondh's Struggle against Vedanta." Ritimo: Informées? Transformez (2014).

Readings:

- Alder J and Wilkinson D (1999) *Environmental Law and Ethics*, Macmillan Law Masters, London.
- Baker E and Richardson M eds. (1999)*Ethics Applied*, Simon and Schuster, New York.
- Chandna R C (2003) *Environmental Geography*, Kalyani Publishers, New Delhi.
- Divan S and Rosencranz (2002)*Environmental Law and Policy in India- Cases, Materials and Statutes*, Oxford University Press, New Delhi.
- Ghosh S ed. (2019)*Indian Environmental Law: Key Concepts and Principles*, Orient Black Swan, Hyderabad.
- Huggins A (2019)*Multilateral Environmental Agreements and Compliance, The Benefits of Administrative Procedures*, Routledge, New York.
- Jaiswal P S (2021)*Introduction- Environmental Law*, Pioneer Publications, New Delhi.
- Kumar M and Verma S K eds (2020)*Environmental Ethics and Law*, V L Media Solutions, New Delhi.
- Mehta M C vs. Union of India, 1991 Delhi Vehicular Pollution Case.
- Patel Almitra H vs. Union of India, 2000 Waste Management Case.
- Purdy J, (2013)*One Place in the World: A New Relationship for Environmental Ethics and Law*, Duke Law Journal, Vol. 62, No. 4.
- Raven P H, Berg L R, Hassenzahl(2010) *Environment*, John Wiley and Sons, NJ.
- Rolston H (2001)*Enforcing Environmental Ethics: Civic Law and Natural Value* in James P S (ed.) Social and Political Philosophy Contemporary Perspectives, Routeledge, London.
- Sharma P D (2016-17)*Ecology and Environment*, Rastogi Publications, Meerut.
- Singh G (2021)*Environmental Law*,Eastern Book Company, Delhi.
- Sulphey M M, *Introduction to Environmental Management*, PHI Learning Pvt Ltd, Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHY OF MOBILITY AND MIGRATION (DSE 18)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Mobility and Migration (DSE 18)	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives: The course addresses SDG 9 -Industry, innovation and infrastructure
The Learning Objectives of this course are as follows:

- It introduces the basic concepts of migration and mobility to the students.
- It focuses on understanding of the importance and need of Mobility and Migration,.
- It analysis the changes and recent development in the Mobility and Migration.

Learning outcomes:
The Learning Outcomes of this course are as follows:

- The students would get an understanding of the basic concepts of migration and mobility along with types and causes and consequences.
- The students would get an understanding of Theories of Migration.
- An Understanding of the implications of migration in different regions of the world along with Streams of Migration, Recent Trends of Migration, the Role of Diaspora, and Issues of Migration.

Course Outline:

Unit 1: Introduction (15 hours): Concept and Definition of Mobility, concept of motility, Migration, Types and Measures of Migration

Unit 2: Geographical Dimensions and Theories of Migration (15 hours): Push and pull factors, Theories of Migration: Zelinsky and Lee. Gravity Model and Intervening Opportunity Model

Unit 3: Streams of Migration (15 hours): Continental, Trans-Oceanic migration, Recent Trends of Global Migration, Diaspora and its importance in maintaining spatial linkages

Unit 4: Issues of Migration (15 hours): Conflict Induced migrations, climate migrants, undocumented migrants, Role of UNHCR in refugee protection, migration of highly skilled workers (brain drain) and reverse migration.

Tutorial Exercises

Tutorial exercises will include discussion of unit specific readings, presentations

Readings:

- Ataç, I., Rygiel, K. & Stierl, M. (2016). Introduction: The contentious politics of refugee and migrant protest and solidarity movements: Remaking citizenship from the margins. *Citizenship Studies*, 20(5): 527–544.
- Bhagat, R.B., Roy, A.K., & Sahoo, H. (Eds.). (2020). Migration and Urban Transition in India: A Development Perspective (1st ed.). Routledge India. https://doi.org/10.4324/9780429298356
- Dodge, S., Nelson, T.A. A framework for modern time geography: emphasizing diverse constraints on accessibility. *J Geogr Syst* (2023). https://doi.org/10.1007/s10109-023-00404-1
- Fiddian-Qasmiyeh, E., Loescher, G., Long, K., Sigona, N., & Barnett, M. N. (2014). *The Oxford Handbook of Refugee and Forced Migration Studies*. (First ed.) Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199652433.001.0001
- Kumar, A., & Bhagat, R.B. (Eds.). (2021). Migrants, Mobility and Citizenship in India (1st ed.). Routledge India. https://doi.org/10.4324/9780367765477
- L. Gil (2021). Refugees: A Very Short Introduction. Oxford University Press
- Miller,S.(2023).Migrations: The Story of Us All, Little, Brown Book Group Limited.9781408713532
- Thornton, F., McNamara, K.E., Farbotko, C. *et al.* Human mobility and environmental change: a survey of perceptions and policy direction. *Popul Environ* **40**, 239–256 (2019). https://doi.org/10.1007/s11111-018-0309-3

LIST OF GENERIC ELECTIVES OFFERRED IN GEOGRAPHY FOR SEMESTERS VII AND VIII

Note: Generic Electives(GE) offer an understanding of contemporary issues through a geographical lens. GE 20, and 21 to be offered in Sem VII; GE 22 and 23 to be offered in Sem VIII

GENERAL ELECTIVE – GEOGRAPHY OF FOOD SECURITY (GE 20)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Food security (GE 20)	4	3	1	0	Class 12th	NIL

Learning Objectives: The course addresses SDG 2 Zero hunger and aims to:

- Understanding geographical dimensions of food security
- Critically analysing indicators used to determine food and nutrition security.
- Learn the basic strategies to mitigate food insecurity at different scales
- In-depth knowledge of issues, challenges and programmes associated with food security in the world and in India

Learning Outcomes:

Upon completion of this course, students will be able to:

- correlate poverty, hunger, malnutrition, diseases, and gender with food security
- recognize the role of both national self sufficiency and international organizations in eliminating food and nutrition insecurity
- know the best approaches and strategies to eradicate hunger and food insecurity
- gain in-depth knowledge of the issues, challenges and programmes associated with food security in India

Course Outline:

- **Unit-1 Food security (15 hours)**: Definition and concept of Food security and insecurity, Nutrition security, Food sovereignty, zero hunger, Factors affecting food security.
- **Unit-2: Geographical Approaches to food security (15 hours)**: Food Availability, Income-based, Basic Needs, Entitlement, Sustainable Livelihood, Human development and capability approach to food security
- **Unit-3: Global Issues and Challenges to Food Security (15 hours):** Climate Change and food insecurity, Globalization and sustainability of food supply, GM crop and food security, socio-spatial issues in attaining food and nutritional security.
- **Unit-4: Global Pattern and Policies (15 hours):** Global Hunger Index (GHI), International Organisations involved in ensuring Food Security, FAO food security policies; Food security in India-Challenges of food security in India, Government of India programs and initiatives, National Food Security Act (NFSA)

Tutorial Exercises

Tutorial exercises will include discussion of specific readings, presentations with specific reference to SDG 2: Zero Hunger

Readings:

- FAO. 2022. The State of Food Security and Nutrition in the world, accessed from https://www.fao.org/publications/sofi/2022/en/
- M.S. Swaminathan, 2016, Combating Hunger and Achieving Food security, Cambridge University Press, Delhi
- FAO, 2015, Climate change and food security: risks and responses, accessed from https://www.fao.org/3/i5188e/I5188E.pdf
- Zhang-Yue Zhou, 2019, Global Food Security What Matters? Routledge, New York
- John Krebs, 2013, Food a very Short Introduction, Oxford
- Sanjeev Kumar, 2020, The State of Indian Agriculture: Agricultural Productivity, Food Security and Climate Change, SAGE Publications Pvt Ltd, New Delhi
- FAO Food security and sovereignty accessed from https://www.fao.org/3/ax736e/ax736e.pdf
- World Bank Group, 2018, Atlas of Sustainable Development Goals 2018 From Development Indicators accessed from https://documents1.worldbank.org/curated/en/590681527864542864/pdf/126797-PUB-PUBLIC.pdf
- The National Food Security Act, 2013, Professional Book Publishers, Delhi
- A Human Development and Capability Approach to Food Security: Conceptual Framework and Informational Basis | United Nations Development Programme (undp.org). Accessed from: https://www.undp.org/africa/publications/human-development-and-capability-approach-food-security-conceptual-framework-and-informational-basis

GENERAL ELECTIVE – GEOGRAPHY OF SETTLEMENTS (GE 21)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Settlements (GE 21)	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives: The Course addresses SDG 11 Sustainable cities and communities
The Learning objectives of this course are as follows:

- To introduce the concept of settlement system, geographical linkages and hierarchy.

- To analysis the geographical factors affecting the human settlement in the world
- To understand function, types and pattern of rural and urban settlements.
- To conceptualise the new trends in settlements system.

Learning outcomes:

After completion of this course students will be able to:

- Classify settlement and understand their hierarchy.
- Examine relationship between different factors and human settlements
- Elaborate the overview of various aspects of rural and urban settlements.
- Get insight into contemporary concepts of settlements.

Course Outline:

- **Unit-1 Introduction (15 hours)**: Geographical aspects of Settlement System; Ekistics theory of human settlement , Central Place Theory.
- **Unit-2 Origin and evolution of human settlements (15 hours)**: From Ancient to Contemporary; Types and patterns of rural settlements,
- **Unit-3 Urban Settlements (15 hours)**: Classification on basis the of Age, function and population size; Social and environmental issues in metropolitan cities, and Changing urban morphology and skyline in 21st century.
- **Unit-4 Contemporary programmes (15 hours)**: Review and analysis of Smart City, GIFT city programmes- components and examples, Review of Saansad Adarsh Gram Yojana (SAGY) wit examples

Tutorial Exercises

Tutorial exercises will include discussion of specific readings, presentations with specific reference to SMART city and GIFT City

Readings:

- Bansal, S.C. (2010) Urban Geography, Meenakshi Prakashan, Meerut.
- Carter, H. (2010) The Study of Urban Geography, Arnold Publishers, London.
- Doxiadis, C.A. (1970) "Ekistics, the Science of Human Settlements" Science, 170(3956): 393-404.
- Ghosh, S (1998) Introduction to Settlement Geography, Orient Longman Ltd., Calcutta.
- Government of India, (2014) Saansad Adarsh Gram Yojana (SAGY) Guidelines, Department of Rural Development, Ministry of Rural Development.
- Hll, M. (2003) Rural Settlement and the Urban Impact on the Countryside, Hodderb & Stoughton, London.
- Hudson, F.S. (1948) "A Geography of Settlements" Macdonald &Evans Ltd., London.
- Mondal, R.B. (2000) Urban Geography: A Text Book, Concept Publications, New Delhi,
- Mondal, R.B. (2001) Introduction to Settlement Geography, Concept Publications, New

Delhi.
- Morya, S.D. (2020) Adhiwas Bhogal, Sharad Pustak.
- Pacione, M (2001) Urban Geography: A Global Perspective, Routledge, New York
- Ramachandran, R. (2010) Urbanisation and Urban Systems of India, Oxford University Press, New Delhi.
- Rao, B.P. and Sharma, N (2007) Nagariya Bhoogal, Vasundhara Prakashan, Gorakhpur.
- Singh, R.Y. (2009) The Geography of Settlement, Rawat Publication, New Delhi.
- Singh, R.L., Singh, K. N. and Singh, Rana P.B., (eds.) (1975) Readings in Rural Settlement Geography, National Geographical society of India, Varanasi. S

Web link:
https://rural.nic.in/sites/default/files/SAGY_Guidelines_English.pdf
http://nir+dpr.org.in/nird_docs/sagy/sankalan-part1.pdf

GENERAL ELECTIVE – DYNAMICS OF URBAN SYSTEMS (GE 22)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Dynamics of Urban Systems	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives: The Course addresses SDG 11 Sustainable cities and communities. It aims specifically

- To critically understand the complexities of urban systems in the global context.
- To Learn about the broad range of Physical System Dynamics global cities face today.
- To provide a understanding of transformations cities are going through.
- To explore the future perspectives of urban development.

Learning Outcomes:

- Students will learn historical context of urban system and hierarchies.
- The learning about urban growth dynamics of sprawl, spatial segregation and linkages.
- Understanding the digital and ecological transformations in cities.
- Learn about the urban development modelling.
- Understand futuristic urbanization, effective planning and policy interventions.

Course Outline:

- **UNIT 1: Introduction**: Concept of Urban Systems; Historical Context to Urban System; Approaches to Geographies of Urbanization; Hierarchies, Sphere of Influence and Urban Systems
- **UNIT 2: Physical System Dynamics**: Urban Growth andLandUse;Slums; Spatial Segregation; Gentrification; Dimensions of Urban Displacement;Peri-urban Development; Urban Spatial Linkages
- **Unit 4: Urban Development Modelling:** Fuzzy Logic; SLEUTH Model; Stage Model of Urban Environmental Evolution
- **Unit 3: Urban Transformations and Urban Futures (15 hours):** urban transformations driven by changes in transportation; Housing; Economy- emergence of digital economies, Urban Futures- Inclusive Cities; Resilient Cities; Sustainable cities (Detailed concept and one case study of Gurgaon (India) and Barcelona (Spain)

Tutorial Exercise:

Discussions on specific reading and focused on SDG 11 Sustainable cities and communities

Readings:

- Bai, X. and Imura, H..2000. A Comparative Study of Urban Environment in East Asia: Stage Model of Urban Environmental Evolution, International Review for Environmental Strategies, 1(1), pp. 135–158.
- Bhattacharya, B. 2006. Urban Development in India since Pre-Historic Times, Concept Publishing Company, New Delhi.
- Brunn, S.D., Hays-Mitchell, M., Ziegler, D.J. 2012. Cities of the World: World Regional Urban Development, Rowman and Littlefield Publishers: England
- Carter,H.2010.TheStudyofUrbanGeography,ArnoldPublishersLondon
- Fyfe, N.R and Kenny, J.T. 2005. The Urban Geography Reader, Routledge: London and New York.
- Global Environment Outlook GEO for Cities (2021),UNEP https://www.unep.org/resources/report/geo-cities-towards-green-and-just-cities
- Hall, P. 2001. Cities in Civilization: Culture, Innovation and Urban Order, Phoenix.
- Hall, P. 2002. Cities in Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century, 3rd Edition, Oxford: Blackwell.
- Joss, Simon, 2015. Sustainable Cities: Governing for Urban Innovation, Palgrave, London.
- Latham, A., McCormick, D., McNamara, K., and McNeil, D. 2009. Key Concepts in Urban Geography, Sage: London, California, New Delhi, Singapore.
- Liu, Y., 2008. Modelling urban development with geographical information systems and

cellular automata. CRC Press.

- Maitra, A. K. 2000. Urban Environment in Crisis, New Age International Publishers, New Delhi.
- Misra, R.P. (ed.) 2013. Urbanization in South Asia: Focus on Mega Cities, Cambridge University Press, New Delhi
- Pacione, M. (2009). Urban Geography: A Global Perspective. Taylor and Francis , UK
- Parnell, S. and Oldfield, S. 2014.The Routledge Handbook on Cities of Global, Routledge, London and New York.
- Ramachandran, R., (1992). Urbanisation and Urban Systems of India. New Delhi, India: Oxford University Press.
- Roberts, P., Ravetz, J. and George, C. 2009. Environment and the City. Routledge, London
- Sassen, S (ed.) 2002. Global Network, Linked Cities, New York: Routledge.
- Scott, A.J. 2002. Global City-Regions: Trends, Theory, Policy, Oxford: OUP.
- Sharma,P. and Rajput,S. 2017. Sustainable Smart Cities in India: Challenges and Future Perspectives. Springer International Publishing, Switzerland
- Singh, K. and Steinberg, F.M. 1996. Urban India in Crisis, New Age International Limited Publications, New Delhi.
- Singh, R. B. (ed) 2015. Urban Development Challenges, Risks and Resilience in Asian Mega Cities, Springer, Japan.