



**DEPARTMENT OF ARCHITECTURE
NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR**

G. E. Road, Raipur, 492010 C. G
राष्ट्रीय प्रौद्योगिकी संस्थान रायपुर,
जी. ई. रोड, रायपुर, 492010 छ.ग.

Phone: (0771) 2255475, Fax: (0771) 2254600, Website: nitrr.ac.in

**Master of Technology (Urban Planning)
Semester-II**

1.	Department	Architecture and Planning
2.	Course Title	City and Metropolitan Planning
3.	L-T-P Structure	4-0-0
4.	Credits/# of period	4
5.	<p>Course Syllabus:</p> <p>Unit-1: Demography</p> <p>a. Introduction to Demography, Determinants of Demography b. Population Projections (Types, Calculations and Resultants) c. Migration Patterns (Urban to Urban migration, Rural to Urban migration, In-migration, Out-migration, etc.) d. Quality of life, Inclusivity and equity</p> <p>Unit-2: Cities</p> <p>a. Origin of Cities, Cities as engines of growth, City growth b. Urban Morphology, Structure and Classification of City c. Area of Influence, Impact of Technology on Urban forms, Urbanization Process d. Concepts and concerns of urban sustainability</p> <p>Unit-3: Settlement Systems</p> <p>a. Hierarchy of Urban settlements, Central Place Theory b. Primate city concept, Rank size rule c. Conurbation (Megalopolis), Satellite Towns, Smart City, Capital Regions d. Issues related to diversity and unintended growth</p> <p>Unit-4: Growth Implications</p> <p>a. Economic attributes of activity location b. Economic forces in Urban Development c. Land values, Land Pooling d. Rural-Urban Fringe, Urban sprawls (Ribbon Development)</p> <p>Unit-5: Urban Development Norms, Policies and Programmes</p> <p>a. Concepts, approaches, strategies and tools b. Policies and programmes at various levels, impact on metro and mega city development, Authorities and Regulatory bodies (Development Authorities, RERA, etc.) c. Development standards for residential, industrial, commercial, institutional, Ecological spaces, etc. d. Capacity building and Resource mobilization, Performance standards</p>	
6.	<p>References: -</p> <p>i. Reading Material by ITPI, New Delhi ii. Ramchandran, R. (1998), Urbanization and Urban Systems in India, Oxford University Press, New Delhi. iii. Bava, V.K., (1987), Indian Metropolis: Urbanization, Planning and Management, Inter-India Publications, New Delhi iv. Misra, R.P. & Misra, K., (1998), Million Cities of India Vol. 1&2, Sustainable Development Foundation, New Delhi</p>	



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**Master of Technology (Urban Planning)
Semester-II**

1.	Department	Architecture and Planning
2.	Course Title	Research Methods for Urban Planning
3.	L-T-P Structure	4-0-0
4.	Credits/# of period	4
5.	<p>Course Syllabus:</p> <p>Unit-1: Literature Review and Research</p> <p>a. Research in Urban Planning b. Literature Review c. Hypotheses formulation d. Different Probabilistic Modelings</p> <p>Unit-2: Data Analysis</p> <p>a. Parametric Statistics b. Non-Parametric Statistics</p> <p>Unit-3: Probability</p> <p>a. Distribution Functions b. Hypothesis Testing c. Correlation and Regression Analysis</p> <p>Unit-4: Report Writing</p> <p>a. Content Analysis b. Empirical Article Writing c. Ethical Issues d. Referencing, Use of Relevant Software</p> <p>Unit-5: Use of Software in Urban Planning Research</p> <p>a. Bi-variate Analyses b. Multivariate Analyses c. Role of Programming in Urban Planning d. Use of Relevant Software and packages such as SPSS, R, etc. for big-data.</p>	
6.	<p>References: -</p> <p>i. Bracken, I., (1999), Urban Planning Methods: Research and Policy Analysis, Methuen, London.</p> <p>ii. Wang, X., Rainer, A., and Hofe, V. (2007), Research Methods in Urban and Regional Planning, Springer, Berlin.</p> <p>iii. Machi, L.A. and McEvoy, B.T., (2012), The Literature Review, Six Steps to Success, Sage, New Delhi.</p> <p>iv. Booth, W.C., Colomb, G., Williams, J.M., Fitzgerald, W., (2016), The Craft of Research, University of Chicago Press, Chicago.</p> <p>v. Eco, U., (2015), How to Write a Thesis, MIT Press, Massachusetts.</p> <p>vi. Oliver, P., (2008), Writing your Thesis, Sage, New Delhi.</p> <p>vii. Creswell, J.W & Creswell, J.D., (2018), Research Design: Qualitative, Quantitative and Mixed Modes Approaches, Sage Publication, Singapore</p>	



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**Master of Technology (Urban Planning)
Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Urban Transportation Planning
3.	L-T-P Structure	4-0-0
4.	Credits/# of period	4
5.	<p>Course Syllabus:</p> <p>Unit-1: Introduction to Transport Planning</p> <p>a. Basic terminologies in Transportation planning</p> <p>b. Transport planning process</p> <p>c. Land use - Transportation integration</p> <p>Unit-2: Transport Surveys and Modeling</p> <p>a. Transportation surveys</p> <p>b. Demand and supply of Transport services, Travel demand forecasting</p> <p>c. Trip generation, Trip distribution</p> <p>d. Modal split, Traffic assignment</p> <p>Unit-3: Urban Roads and Traffic- I</p> <p>a. Hierarchy and Classification of Roads</p> <p>b. Geometric design of roads, Level of services</p> <p>c. Intersection/Interchange, rotary design, etc.</p> <p>d. Traffic control infrastructure</p> <p>Unit-4: Urban Roads and Traffic- II</p> <p>a. Traffic management</p> <p>b. Traffic flow characteristics and theories</p> <p>c. Traffic Surveys</p> <p>d. Traffic control infrastructure and design</p> <p>Unit-5: Public Transportation and Traffic Management</p> <p>a. Introduction to mass transit and its classification</p> <p>b. Planning for public transport, Environmental implication</p> <p>c. Advances in transportation planning (ITMS, etc.)</p> <p>d. Economic evaluation: pricing and fundings, economic appraisal of transportation projects, Cost-Benefit analysis of road users.</p>	
6.	<p>References: -</p> <p>i. Papacostas, C. S., & Prevedouros, P. D., (1993), Transportation engineering and planning, Pearson Publication.</p> <p>ii. Kadiyali, L. R., (2013), Traffic engineering and transport planning, Khanna publishers.</p> <p>iii. Mohinder Singh, M., and Kadiyali, L.R., (1989), Crisis in road transport, Konark Publishers Pvt. Ltd., New Delhi</p>	



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Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Planning Legislation and Professional Practice
3.	L-T-P Structure	4-0-0
4.	Credits/# of period	4
5.	<p>Course Syllabus:</p> <p>Unit-1: Introduction to Planning Legislation</p> <ul style="list-style-type: none"> a. Meaning, significance and objectives b. Constitutional basis and provisions relating to land, its development, and use (Eminent domain, Police power, etc.) c. Legislation related to local government (73rd and 74th constitutional amendment acts, panchayat acts, municipal acts, etc.) <p>Unit-2: Legal Tools for Urban Planning and Development</p> <ul style="list-style-type: none"> a. Overview of legal tools for urban planning in India (Improvement Trust and Development Authorities Act, Town and Country Planning Act, Urban Planning and Development Authorities Act, etc.) b. Urban Planning Schemes, Incentives in Urban Planning (TDR, etc.) c. Ancient monuments and Archeological Sites and Remains Act 1958-2010 <p>Unit-3: Land Related Legislation</p> <ul style="list-style-type: none"> a. Legislation for land acquisition and land ownership (Property rights, Land Acquisition Act, Urban Land (Ceiling and Regulation) Act, Rent Control Act, land registration process and codes, RERA act, Slum improvement Act) b. Role of judiciary in Plan Enforcement (selected cases) c. Land policies at state levels <p>Unit-4: Professional Practice-I</p> <ul style="list-style-type: none"> a. Aims and objectives of professional institute b. Professional role and responsibility of planning consultants c. Professional ethics code of conduct, Scale of professional charges <p>Unit-5: Conditions of Engagement of Professional Services</p> <ul style="list-style-type: none"> a. Formulation of project proposal and outlines b. Consultancy agreements and contracts c. Role in decision making processes 	
6.	<p>References: -</p> <ul style="list-style-type: none"> i. Reading material on Planning Legislation and Professional Practice by B.K.Sengupta ii. Shah. U. C. (2016), Planning legislation covering Urban & regional planning and environmental laws in India. 	



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Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Planning Studio-II
3.	L-T-P Structure	1-1-5
4.	Credits/# of period	4
5.	Course Syllabus: A Comprehensive City Development Plan is to be prepared by the students as a group assignment. The groups are to be created by the Studio Coordinator and the students are to work for the assigned groups starting from Literature reviews, case studies, data collection, data analyses, proposals, and recommendations. Inter and intra group collaboration and consultation will be required to give the shape of Comprehensive City Development Plan. For this, a study tour and excursion of the selected city will be conducted accompanied by concerned faculty members and a report in the shape of Comprehensive City Development Plan is to be submitted by the end of the semester. The evaluation of the same is to be conducted in the form of jury and the report submitted.	



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Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Elective-III (Project Planning and Management)
3.	L-T-P Structure	0-2-2
4.	Credits/# of period	2
5.	<p>Course Syllabus:</p> <p>Unit 1 - Project and Project Management</p> <ol style="list-style-type: none"> Definition of Project, Project Management, and its importance Stages of Project Life Cycle Nature of planning projects, Identification of projects <p>Unit 2 - Project Formulation and Appraisal</p> <ol style="list-style-type: none"> Relationship between projects and planning issues including sectoral policy at: Local, State and National levels Project Appraisal - Types of Feasibility, Financial, Economic Appraisals, Project phasing and budgeting Ascertaining Projects Costs and Benefits, Project Financial Appraisal Techniques – Payback Period, Benefit Cost Ratio, Net Present Value, Internal Rate of Return Market Analysis - Survey Methods, Market Characterization, Demand Forecasting, Cost Benefit Analyses <p>Unit 3 - Project Management and Implementation</p> <ol style="list-style-type: none"> Introduction to Project Planning- Process, Investment Phase; Project Work (Work Breakdown Structure) Manpower and Organization, Planning of Project Finance and Resources, Project culture: line management, steering committee, role of project manager Process of Project Formulation and constraints; Break-Even Analysis; Sensitivity Analysis; Project Budgeting Project Control: cost and time, quality - ISI standards and its application to Indian context, Introduction to Project Management Software and its usage. <p>Unit 4 – Project Evaluation and Monitoring</p> <ol style="list-style-type: none"> Types of evaluation - concurrent, ex-ante and ex-post Methods of evaluation, techniques of evaluation, end results, Presentation of evaluation findings Techniques of Monitoring of Development Works Project Scheduling: Forward Pass and Backward Pass; Network Techniques, Critical Path and Slack; PERT; Gantt Chart <p>Unit 5 - Decision Making (Operation Research)</p> <ol style="list-style-type: none"> Criteria for decision making; Parameters and Tools of Control Decision making tools (operation research modeling approach and algorithms, linear programming, etc.) Assignment problems (traveling salesman, vehicle routing, etc.) Utility theory, decision tree, etc. 	
6.	<p>References: -</p> <ol style="list-style-type: none"> Project Management, Clifford F Gray et al, Tata Mc Graw Hill Construction Project Management, Kumar Neeraj Jha, Pearson Education Project Management - A Managerial Approach, Samuel J. Mantel, Wiley India Essentials of Project Management, Ramakrishna Kamaraja, Phi Learning PMBOK Guide 	



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Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Elective-II: Urban Sociology
3.	L-T-P Structure	0-2-2
4.	Credits/# of period	2
5.	<p>Course Syllabus:</p> <p>Unit-1: Culture and the City</p> <p>a. Urban culture</p> <p>b. Introduction to Urban sociology, Traditional patterns and trends of change in the Indian society</p> <p>c. Concepts of Urban, Urbanism and Urbanisation</p> <p>Unit-2: Origin and Growth of Urban Areas</p> <p>a. Theories of Urbanisation- Max Weber, Park and Burgess, Lewis Mumford, and Louis Wirth</p> <p>b. Urban Social Structure in India- Caste, Class, Gender, Family, Religion, Education and Occupation</p> <p>c. Urban Growth in India- Trends, Migration and Social Mobility; Urban Problems- Pollution and Environment, Housing, Slums, Urban Poverty, Crime and Violence</p> <p>Unit-3: Sociological Issues</p> <p>a. Urban social structure and society</p> <p>b. Relations between social structures and spatial structures</p> <p>c. Social problems of slum, squatters and communities</p> <p>Unit-4: Inclusive Planning</p> <p>a. Inclusive cities - Definition, Concepts, Elements of Inclusivity</p> <p>b. Social planning policy and community participation</p> <p>c. Settlement policies in urban projects</p> <p>Unit-5: Introduction to Urban Economics</p> <p>a. Introduction to urban economics, concept of micro and macro economics</p> <p>b. Theories of inter-urban and intra-urban location , Private ownership and social control over land</p> <p>c. Agglomeration economics and Concept of demand/supply, elasticity and other theories</p>	
6.	<p>References: -</p> <p>i. Yadav, C. S (1987) Cities and housing. Concept publishing company (New Delhi)</p> <p>ii. Jain, A. K. (2009). Urban Housing and slums. Global Media</p> <p>iii. Button, K.J.(1976). Urban Economics Theory and Policy.</p> <p>iv. Brueckner, J K (2013). Lectures on Urban Economics. PHI Learning Private Limited.</p> <p>v. Macionis. J J (2019). Sociology Pearson</p>	



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Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Elective-III (Regional and Rural Planning)
3.	L-T-P Structure	0-2-2
4.	Credits/# of period	2
5.	<p>Course Syllabus:</p> <p>Unit-1: Understanding of Regions</p> <ol style="list-style-type: none"> Concept of Region Typologies (Formal, Informal, Micro, Meso, Macro, Special Regions, ecological regions, SEZ, Capital Regions, Agro regions, etc.) Regionalisation, Delineation of Region <p>Unit-2: Planning of Indian Regions</p> <ol style="list-style-type: none"> Regions of India (NCR, Metro Region, Western Ghats, North eastern Region, River valley regions, coastal regions etc.) Regional Connectivity, Interdependencies, Corridors and its planning Regional settlement systems (primate city, rank size rule, polarization, etc.) <p>Unit-3: Regional Analyses</p> <ol style="list-style-type: none"> Factors and indicators of competitiveness, Shift and share analysis, etc. Measures of concentration and dispersion/diversion Regional analyses (Shanon's entropy, Hirschman-Herfindahl index, etc.) <p>Unit-4: Rural Planning and Development</p> <ol style="list-style-type: none"> Village profile, community space, spatial pattern and structure of villages Introduction to rural planning, Rural planning in Indian context, Development of Rural settlements and growth centers <p>Unit-5: Rural Housing and Redevelopment</p> <ol style="list-style-type: none"> Problems of rural housing - typology of rural housing Factors affecting rural housings and surveys in rural planning Government policies for rural developments (SPMRM, PURA, etc.) 	
6.	<p>References: -</p> <ol style="list-style-type: none"> Glasson, J., & Marshall, T. (2007). Regional planning. Routledge. Planning Board N.C.R. (2005). National Capital region regional plan 2021, New Delhi: National Capital Regional Planning Board Ministry of Water Resources (2012). National Water Policy. New Delhi: Government of India. Singh, K., & Reddy, K. (2000). Designing and Managing Rural Development Organization, New Delhi: Oxford and IBH Publishing Co. Pvt. Ltd. Singh, K. & Shishodia, A. (2016). Rural Development: Principles, Policies, and Management. New Delhi: Sage Publication. Ministry of Law and Justice (1985). The Land Acquisition Act, 1894. New Delhi: Government of India Ministry of Rural Development (2015). The right to fair compensation and transparency in land acquisition, rehabilitation and resettlement amendment bill. New Delhi: Government of India. Bank A.D. (1995). Policy on Involuntary Resettlement. Indonesia: Asian Development Bank. 	



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Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Elective-IV (Urban Design and Heritage Conservation)
3.	L-T-P Structure	0-2-2
4.	Credits/# of period	2
5.	<p>Course Syllabus</p> <p>Unit-1: Introduction to Urban Design</p> <p>a. Scope and objectives of urban design</p> <p>b. Relationship between architecture, urban design and urban planning</p> <p>c. Urban design terminologies</p> <p>Unit-2 : Approaches to Urban Design</p> <p>a. Imageability and elements of urban design</p> <p>b. Social, Perpetual, functional, temporal and ,morphological aspects of urban design</p> <p>c. Historical and modern examples of urban design</p> <p>Unit-3: Urban Design approaches</p> <p>a. Principles of urban spatial organizations</p> <p>b. Approaches to Urban design at micro and macro level (Placemaking ,ToD, and form based code etc.)</p> <p>c. Data collection and analyses in urban design</p> <p>Unit -4: Understanding Urban Heritage and Conservation Policies</p> <p>a. Types of Built Heritage, Heritage Conservation-Policies, Need and its purpose</p> <p>b. Defining Conservation with its types, Preservation and Adaptive reuse and its relationship, Distinction between Architectural and Urban Conservation.</p> <p>c. Ethics of conservation, Significance and Value Assessment</p> <p>Unit-5 : Techniques of Urban Heritage Conservation</p> <p>a. Conservation as a Planning tool Financial Incentives and Planning tools,</p> <p>b. Conservation Project Management, Community Participation, Guidelines for preservation, rehabilitation and adaptive reuse</p> <p>c. Management of Historic Building :Definitions and concepts, Methods of Documenting and recording, Various techniques and maintenance program</p>	
6.	<p>References: -</p> <p>i. Roberts, P., & Sykes, H. (Eds.), (1999), Urban regeneration: a handbook, Sage Publication.</p> <p>ii. Adams, D., (1994), Urban planning and the development process, Psychology Press.</p> <p>iii. Diamond, J., & Liddle, J., (2013), Management of regeneration: choices, challenges and dilemmas, Routledge.</p> <p>iv. Couch, C., (1990), Urban renewal: Theory and practice, Macmillan International Higher Education.</p> <p>v. Lynch, K., (1964), The image of the city, MIT press.</p>	



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**Master of Technology (Urban Planning)
Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Elective-IV (Development Management and Finance)
3.	L-T-P Structure	0-2-2
4.	Credits/# of period	2
5.	<p>Course Syllabus:</p> <p>Unit-1: Introduction to Development Management</p> <p>a. Concepts b. Political-economic systems' effect on Development Management c. Development Management in Urban and Rural settlements d. Selected task-forces/committees/seminar-recommendations on Development Management</p> <p>Unit-2: Development Administration</p> <p>a. Development Administration at various levels b. Municipal Administration Systems c. Rural Administration Systems d. Urban Development Authorities</p> <p>Unit-3: Urban Management Agencies</p> <p>a. Organizational and Management styles b. Personal Management c. Introduction to Development Finance d. Systems of Grants and Share Taxes of Local Bodies</p> <p>Unit-4: Development Finance</p> <p>a. Resource Mobilization and Intergovernmental Fiscal Relations b. Municipal Finance, Property Tax, Fiscal measure for Urban Development c. Institutional approach to Urban Finance d. New initiatives for financing Urban infrastructure</p> <p>Unit-5: Land economics, real estate development, and urban redevelopment</p> <p>a. Land pricing/valuation, demand forecasting of land use, factors affecting land supply and demand, land development methods, supply and demand management b. Real estate market, type of property development and its impact on supply and demand, development method, environmental considerations c. Strategies and evaluation of redevelopment, the role of public sector agencies in redevelopment d. Redevelopment initiatives, and policies, investment and funding of urban redevelopment schemes.</p>	
6.	<p>References: -</p> <p>i. Mathur, O.P., & Peterson, G. (2006), State Finance Commissions and Urban Fiscal Decentralization in India, NIPFP</p> <p>ii. Ministry of Finance (2011), Report of 13th Finance Commission, Government of India, New Delhi</p> <p>iii. Government of India (1992), 73rd and 74th Constitution Amendment, Acts, Government of India, New Delhi</p> <p>iv. Pandey, K.K., (2010), Stimulating Revenue Base of ULBs in India, IIPA</p>	



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Semester-II**

1.	Department proposing the course	Architecture and Planning
2.	Course Title	Elective-IV (Analytical Techniques in Planning)
3.	L-T-P Structure	0-2-2
4.	Credits/# of period	2
5.	<p>Course Syllabus:</p> <p>Unit-1: Analytical Methods-I</p> <p>a. Classification of Planning Regions, Delineation Techniques</p> <p>b. Analysis of Structure of Nodes, Hierarchy, Nesting</p> <p>c. Scalogram, Sociogram, etc.</p> <p>Unit-2: Analytical Methods-II</p> <p>a. Planning Balance Sheet, Threshold Analysis</p> <p>b. SWOT Analysis</p> <p>c. Theil's Index, etc.</p> <p>Unit-3: Demographic Analyses</p> <p>a. Urban-Rural Ratio, Urban Concentration Ratio</p> <p>b. Metropolitan Concentration Ratio</p> <p>c. Location Dimensions of Population Groups</p> <p>Unit-4: Spatial Analyses</p> <p>a. Suitability Analyses</p> <p>b. Vulnerability Analyses</p> <p>c. Network Analyses, etc.</p> <p>Unit-5: Software in Urban Planning</p> <p>a. Simulation based studies</p> <p>b. Roles of AI and ML in Urban Planning</p> <p>c. Software packages useful in Urban Planning</p>	
6.	<p>References: -</p> <p>i. Wang X., Rainer A., and Hofe, V., (2007), Research Methods in Urban and Regional Planning, Springer, Berlin.</p> <p>ii. Monmonier, M., (1996), How to Lie with Maps, University of Chicago Press, Chicago.</p> <p>iii. Lune, H., & Berg, B.L., (2018), Qualitative Research Methods for the Social Sciences, Pearson Publication, India</p> <p>iv. Bailey, K.D., (1994), Methods of Social Research, The Free Press, New York</p> <p>v. Lo, C.P. & Yeung, A.K.W., (2017), Concepts and Techniques of Geographic Information Systems, Pearson Publication, India</p>	