

## ARCHITECTURE & PLANNING

[SPECILISATION CODE: 01]

### PAPER-1

(Choose Any ONE Subject)

S.NO	SUBJECT NAME	SUBJECTCODE
1	PLANNING ANALYSIS AND TECHNIQUES	R 50101
2	RESEARCH METHODS	R 50102
3	RESEARCH METHODOLOGY AND QUANTITATIVE METHODS FOR DECISION-MAKING	R 50103
4	RESEARCH METHODS IN LANDSCAPE DESIGN	R 50104
5	SOCIAL RESEARCH METHODS IN URBAN DESIGN	R 50105
6	RESEARCH METHODS IN ENVIRONMENT BEHAVIOR STUDIES	R 50106
7	RESEARCH METHODS IN URBAN AREA DEVELOPMENT	R 50107
8.	RESEARCH METHODS IN ARCHITECTURAL ANTHROPOLOGY	R 50108

## ARCHITECTURE & PLANNING

[SPECILISATION CODE: 01]

### PAPER-II

(Choose Any ONE Subject)

S.NO	SUBJECT NAME	SUBJECTCODE
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3	DISASTER MANAGEMENT	R 50153
4	ECOLOGY AND ENVIRONMENTAL PLANNING	R 50154
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20	Traditional & Contemporary Design Trends in Church Architecture	R 50173
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## PLANNING ANALYSIS AND TECHNIQUES

1. **Introduction and overview:**  
An overview of planning practice in India. Scope and methods of analysis and techniques and their application to spatial planning.
2. **Data Collection:**  
Primary and Secondary sources of data, Survey design, observational methods, Types of observation, Controlled observation. Mail questionnaire, personal and telephone interview.
3. **Qualitative research:**  
Secondary data, limitations and search process; Census-A brief introduction and nature of organization. Sources of various data in India.
4. **Data presentation, Data analysis and Interpretation:**  
Tabulation, Classification, Graphical methods. Coding and its construction.
5. **Simple Descriptive Statistics:**  
Measurement, univariate analysis, Frequency tables and graphs, Central Tendency, Distribution, Bivariate analysis-concepts of relationship; Nominal, ordinal and interval measures of relationship.
6. **Correlation and Regression:**  
Linear and nonlinear.
7. **Multiple Regression and Correlation:**  
Linear and nonlinear, partial correlation and regression.
8. **Probability and Sampling:**  
Types of probability, sampling Unit and Frame, Sample Size, Sample Design, Non-response errors Probability and normal distribution-binominal and Poisson distribution.
9. **Time Series Data Analysis:**  
Time-series analysis; trend, variation, business cycles.
10. **Index Numbers:**  
Price index, Quantitative index, construction, tests, types, problems and specific uses.

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- 11. Linear Programming:**  
General introduction to Linear programming, methods for maximizing, Methods for minimizing, Transport problem.
- 12. Measures of Association and Hypothesis testing:**  
Percentage difference, Nominal ( $\lambda$ ) and ordinal ( $\gamma$ ) measure, The Chi( $\chi^2$ ) test, The Z-Score Test, , The T-Test, Test for Proportion.
- 13. Demographic Analysis:**  
Population Projection-Simplex population forecasting models-The linear model, Exponential curves, modified exponential, Gompertz growth curve, comparative method, ratio method.
- 14. Composite population forecasting model:**  
The cohort-survival model, Migration model.
- 15. Economic Analysis:**  
Multipliers. Input-Output Analysis, Brief introduction to projection techniques like ratio and econometric methods, Analysis of labour force; sectoral shifts and employment.
- 16. Spatial Analysis:**  
Comparative analysis techniques-Specialization, Concentration and Independence association, Gini coefficients and Lorenz curves, Spatial distribution analysis using centrography techniques, Rent and Gradient models, Locations equilibrium of the firm-transport and labour orientation., Market and supply area analysis and thresholds, pure gravity model. Reilly's law and mapping of trade areas-constrained and unconstrained gravity model-methods for parameter estimation.
- 17. Land use and transportation models:**  
General approaches to land use and transportation forecasting.
- 18. Basic sector land use models:**  
Residential distribution models, retail and local service activity location models.
- 19. Decision making models:**  
General introduction to various decision making models.

## RESEARCH METHODS

1. **Research:**  
Definition – Importance – Characteristics and Objectives – Ethics in Research – Contribution of research to theory and Use of Theory in Research
2. **Types of Research:**  
Research classification according to intend: Pure research Applied research, Exploratory or formulate research, Descriptive research, Descriptive research, diagnostic research, Evaluation research and Action research.
3. **Basic Elements of a Research:**  
Research problems- Units of Analysis Variables Relation  
Steps in research:
  - 1) Exploration of the situation.
  - 2) Development of the research design.
  - 3) Literature Review
  - 4) Data Collection.
  - 5) Analysis and interpretation of the results.
4. **Methods and Tools of Data Collection:**  
Meaning and importance of Data – Sources of Data (Documentary, Field sources).  
Methods – Interviewing, observation and Experimentation.  
Tools – Observation schedule, interview guide, interview schedule, mailed questionnaire, rating scale, check list, opinionnaire, document schedule and inventories.
5. **Processing and Analysis of Data:**  
Processing –Editing, classification and coding, transcription, tabulation and graphic representation.  
Analysis - Interpretation – Explanation and Specification.  
Hypothesis and Hypothesis testing.
6. **Genesis of Architectural Research:**  
Definition-Importance of Architectural research. Nature and areas of research in architecture – methods of architectural Research.
7. **Research Typologies in Architectural Research:**  
Historical studies-Comparative studies-Case studies Critical Evaluation of buildings.

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**RESEARCH METHODOLOGY AND QUANTITATIVE METHODS FOR  
DECISION-MAKING**

1. Introduction to research Methodology: Importance of research in decision making. Role of research in important areas, Process of research, Types of research, defining research problem and information of hypothesis, Research problem and hypothesis testing.
2. Data Collection and Measurement: Methods and Techniques of Data collection, primary and secondary data, designing a questionnaire, pre-testing, editing, technique of interview.
3. Sampling and sampling methods: probability sampling methods: simple random, systematic sampling stratified sampling(proportional and disproportional), cluster sampling, Multistage and multi phase sampling. Non probability sampling methods: Convince sampling and multi phase sampling. Sample size.
4. Life cycle costing: Internal costs, operating costs, maintenance and alteration costs. LCC in design, LCC in maintenance, LCC in energy conservation
5. Sensitivity analysis: Sensitivity coefficient, influence coefficients, Arc-mid-point elasticity,
6. Cost-Benefit Analysis: Determination of costs, Evaluation of benefits, Cost-benefit ratio.
7. Value Analysis: Value tests, VE job plan, Fast (Functional analysis system technique) diagram, why/How logic diagram of rules.

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**RESEARCH METHODS IN LANDSCAPE DESIGN**

1. **RESEARCH:** General Meaning of research, characteristics and objectives of research, contribution of research to theory and use of theory in research. Ethics in research.
2. **Research classification according to intent:** Pure research, Applied research, Exploratory or formulative research, Descriptive research, diagnostic research, Evaluation research and Action research.
3. **Basic Elements of a Research:** Conceptualisation, Units of analysis and variables. Development of the research design, Literature Review, Data Collection, Analysis and interpretation of the data.
4. **Research in landscape design:** Significance and need of research, relationship between design and research. Theoretical and practical implications of research outcomes. Areas of research in landscape design-landscape preference studies, visual evaluation of landscaped, use of open spaces, spatial characteristics of open space and behavior.
5. **Research methods in landscape design:** Correlational Studies-Causal Comparative studies. Case study method Qualitative research-Grounded theory Combine strategies. Strength and weakness of each method.
6. **Visual tactics for data collection:** Cognitive mapping, direct observation on the field, documentary techniques, activity mapping, photographically studying behavior.
7. **Survey tactics for Data collection:** Mailed questionnaire, personal interview, telephone interview, and schedules. Questionnaire construction.  
**Secondary Data Sources:** Unobtrusive measures, archival records, content analysis.
8. **Processing and Analysis of Data:** Processing – Editing, classification and coding, transcription, tabulation and graphic representation. Analysis – Interpretation-Explanation and Specification. Hypothesis and Hypothesis testing.

**List of books:**

1. Babbie Earl (1983), "The Practice of Social Research" third edition, Wadsworth Publishing Co., Belmont, California.
2. Kothari C.R. (1990), "Research Methodology: Methods and techniques", Wishwa prakashan, New Delhi.
3. Groat L.& Wang D. (2002), "Architectural Research Methods", John Wiley and Sons Inc
4. Sanoff Henry (1991), "Visual research methods in design", Van Nostard Reinhold, USA.
5. Creswell John W.(1994). "Research Design": Qualitative Approaches", Sage publications.
6. Nachmias F.C. and Nachmias D (1996), "Research Methods in Social Sciences", Arnold, London.

**SOCIAL RESEARCH METHODS IN URBAN DESIGN**

1. **Research :** Define of research, significance of research, Characteristics and objectives of research, Basic approaches in research, Use of theory in research, Ethics in research.
2. **Categories of Research :** Descriptive research, Analytical research, Exploratory research, Pure research, Applied research, Evaluation research, Diagnostic research.
3. **Research Process:** Research problem, Units of Analysis & Variables, Literature review, Hypothesis, Research design, Data collection & processing, Data analysis & interpretation, Recommendations, Hypothesis testing, Conclusion.
4. **Research in Urban Design:** Significance of Urban Design research, Nature of Urban Design research, Relationship between research and design, Translating values into design, Areas of research in Urban Design.
5. **Typologies in Social Research methods:** Simulation of social processes, Action research, Socio-spatial schemata, Socio-cultural mapping, Quality of Life Indicators, Co relational/ comparative studies, Case study approach.
6. **Methods and Tools for Data collection:** Visual methods: mental mapping, direct observation, documentation, activity mapping, Survey methods: direct interview, telephone interview, mailed questionnaire. Tools: Questionnaires, schedules, mapping tools, check lists and inventories. Secondary sources: archival records, literature survey.
7. **Data Processing:** Classification, coding, Editing, Tabulation, Graphical representation, Referential scaling, Digital mapping
8. **analytical Methods for Urban Design Research:** Townscape analysis, Environmental cognition of urban image, Ethological space modeling, Urban Spatial – Temporal (CA) ANALYSIS, Geo- Spatial analysis, Space Syntax techniques, Statistical analysis.

**References:**

1. Kothari C. R, (1990), “Research Methodology: Methods and Technology”, Vishwa Prakashan, New Delhi.
2. Groat L & Wang d, (2002), “Architecture Research Methods”, John wiley and Sons Inc.
3. Wallace, Walter (1978)”, Social Research, Principles and Procesures”, Longman, Hariow.
4. Hillier Bill, Hanson Julienne (1998), “ Current Methods and Best Practices in Space Research”, Cambridge University Press, Cambridge.
5. Ali Madanipur, (1996), “ Design of Urban space, an enquiry into the Socio- Spatial Process”, Jhon wiley & Sons, Chichester.
6. Amos Rapoport, (1977),” Human Aspects of Urban Form – Towards Man- Environment approach to Urbanform,” Pergamon Press, Oxford.

**RESEARCH METHODS IN ENVIRONMENT BEHAVIOR STUDIES**

1. **Introduction:** Meaning of research, characteristics and objective of research, Ethics in research, Use of research in Design.
2. **Research paradigms:** Qualitative, Quantitative and combined. Theories: Meaning contribution of research to theory and use of theory in research. Hypothesis: Meaning, characteristics and significance.
3. **Research classification according to intent:** Pure research, Applied research, Exploratory or formulative research design, Descriptive research, diagnostic research, Evaluation research and Action research.
4. **Areas of research in Environment behavior Studies:** Territoriality, Imageability, way finding, defensible spaces, and gendered space.
5. **Basic Elements of a Research:** Conceptualization, Units of analysis and variables. Development of the research design, literature Review, sampling, Data Collection, analysis and interpretation of the data.
6. **Visual tactics for data collection :** Cognitive mapping, direct observation on the field, documentary Techniques, activity mapping, photographically studying behavior.
7. **Surveys for Data collection:** Mailed questionnaire, personal interview, telephone interview, and schedules Questionnaire construction  
**Secondary Data Sources:** Unobtrusive measures, archival records content analysis.
8. **Data Processing and analysis:** Editing, Classification and coding of data Preparing variable for analysis, building scales, methods of analysis, Diagrammatic representation, univariate and bivariate analysis

**List of books:**

1. Babbie Earl (1983), THE PRACTICE OF SOCIAL RESEARCH third edition, Wadsworth Publishing Co., Belmont, California.
2. Kothari C.R., (1990), RESEARCH METHODOLOGY: METHODS AND TECHNIQUES, Wishwa prakashan, New Delhi.
3. Groat L. & Wang D. (2002), architectural research methods, John Wiley and Sons Inc
4. Sanoff Henry (1991), VISUAL RESEARCH METHODS IN DESIGN, Van Nostard Reinhold, USA
5. Creswell John W. (1994), RESEARCH DESIGN: QUALITATIVE APPROACHES, Sage Publications.
6. De Vaus D. A. (2002), SURVEYS IN SOCIAL RESEARCH Rawat publications Jaipur and New Delhi.
7. Ahuja Ram(2001),RESEARCH METHODS Rawar Publications Jaipur & New Delhi
8. Newman Oscar (1972), DEFENSIBLE SPACE PEOPLE AND DESOIGN IN THE VIOLENT CITY Architectural Press London

**RESEARCH METHODS IN URBAN AREA DEVELOPMENT**

- 1) **Research and Theory:-** a) Definition of Research. B) Characteristics and Objectives of Research. c) Scientific method of Research. d) Definition of Theory. e) Criteria and Components of Theory. f) Interaction of Theory and Research. g) Process of Theory Construction and Testing. h) Steps in the Research process. i) Types of Research.
- 2) **Elements of Research:-** a) Unit of Analysis- Variables – Dependent, Independent Intervening. b) Review of Literature – Need, Purpose, Procedure, Sources. c) Sampling- Concepts and Techniques.
- 3) **Planning of Research:-** a) The Planning process. b) Selection of problem for Research. c) Formulation of selected problem. d) Hypothesis. e) Clarifying the Concept. f) Developing and Evaluating Indicators. g) Measurements. h) Research Design/Plan.
- 4) **Constructing Questionnaires:-** a) Principles of Question design. b) Selecting Question type. c) Developing question responses. d) Developing response alternatives for closed choice questions. e) Questionnaire layout. f) Pilot testing - evaluating questions and questionnaire.
- 5) **Indicators for assessing development of Urban area: -** a) Population, Migration and Urbanization. b) Income disparity, Unemployment and Poverty. c) Health and Education. d) Urban productivity and competitiveness. e) Housing. f) Urban land. g) Municipal services. h) Urban Transport.
- 6) **Indicators and the management of Urban areas:-** a) The need to develop Indicators. b) Framework for Indicators – Definition, Relationship between Data Statistics, Indicators and Index, Types of indicators (Performance indicators, Issue based, need based), Conceptual approaches for developing Indicators (Policy based, Thematic/Index approach, Systems approach), Urban Metaphors, Indicators and Strategic planning, Benchmarking, Choice of Indicators. c) Indexes – City development Index, The Congestion Index, The Connectivity Index.
- 7) **Developing and Applying Indicators in Urban area:-** a) Emerging strategies for Urban planners. b) Process for linking Urban Indicators to Urban area goals and policies. c) Application of Indicators for improved Urban area management.
- 8) **Comparing the Urban area Database:-** a) Cross boundary Urban growth Issues. b) Methods of analysis for comparing cities- Indexes, Urban, City clusters & City holograms c) Asian Development bank's Urban sector strategy.

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## RESEARCH METHODS IN ARCHITECTURAL ANTHROPOLOGY

- 1. Research:** General Meaning of research, characteristics and objectives of research, Contribution of research to theory and use of theory in research Ethics in research.
- 2. Types of Research:** Exploratory or formulative research, Descriptive research, Diagnostic research, Pure research, Applied research, Evaluation research and Action research
- 3. Process of Research:** Research problem, Units of Analysis & Variables, Literature review, Development of the Research design, Data collection, analysis & interpretation.
- 4. Research in Architectural Anthropology:** Significance and need of research, Various Methods-interpretive Historical research, Case study method. Qualitative research- Grounded theory, ethnography, Interpretivism, Strength and weakness of each method.
- 5. Survey tactics for Data collection:** Mailed questionnaire, personal interview, telephone interview and schedules. Questionnaire construction  
**Secondary Data sources:** Unobtrusive measures, archival records, content analysis
- 6. Visual tactics for data collection:** Cognitive mapping, Observation- Participant and Non Participant, documentary techniques, activity mapping, photographically studying behavior.
- 7. Processing and Analysis of Data:** Processing- Editing, classification and coding transcription, tabulation and graphics representation. Statistical Analytical methods for Hypothesis testing. ( t test,chi square test)
- 8. Tools and Techniques for socio spatial Analysis:** Socio- cultural mapping, Townscape Analysis, Space syntax Techniques, Ethological Space modeling, Urban spatial – Temporal(CA) Analysis.

### Reference:

1. Babbie Earl (1983), “ The practice of Social Research” third edition, Wadsworth Publishing Co., Belmont, California.
2. Creswell John. W. (1994). “ Research Design: Qualitative Approaches”, Sage Publications.
3. Kothari C. R. (1990), Research Methodology: Methods and techniques”, Wishwa Prakashan, New Delhi.
4. De Vaus D.A (2002), “ Surveys in Social Research “Rawat publications Jaipur and New Delhi.
5. Goode. J. William and Hatt. P. K(1952) Methods in social Research: Mcgraw Hill Inc. United States.
6. Groat L. & Wang D. (2002), “ Architectural Research Methods”, John wiley and Sons Inc
7. Sanoff Henry (1991), “ Visual research methods in design”, Van Nostard Reinhold, USA.
8. Nachmias F. C. and Nachmias D (1996), “ Research Methods in social Sciences”, Arnold, London
9. Hillier Bill Hanson Julienne (1998), “ Current Methods and best Practices in Space Research “, Cambridge University Press, Cambridge
10. Ali Madanipur, (1996), “ Design of Urban space, an enquiry into the Socio- Spatial Process”, Jhon wiley & Sons, Chichester.
11. Ahuha Ram (2001), “ Research Methods” Rawat Publications Jaipur & New Delhi
12. Goode Judith (1977) “ Anthropology of the city” Prentice Hall, New Delhi.

## **ARCHITECTURAL CONSERVATION**

### **I. Introduction:**

History and Heritage: Need for conservation.

Conservation Procedures:

Preparatory procedures for Conservation interventions and seven Degrees of Interventions-Adaptive reuse.

Art and Science of Architectural Conservation.

### **2. Investigating historic buildings:**

Documentation:

Through documentation, recording, research and analysis.

Study of structural movements in Historic Buildings.

Measurement and recording of deformations.

Testing Methods:

Non-Destructive and Destructive Investigations.

### **3. Decay Mechanisms of historic buildings :**

Causes / factors of Decay:

Climate Factors- Solar radiation. Temperature and thermal expansion thermal movements, actions of moisture ground water, dissolved salts, frost & snow, wind, smoke, dust and sand particles.

Biological, Biotechnical and micro biological factors:

Fungi, bacteria, termites, moulds pests, insects, borers, plants and animals.

Natural disasters:

Man made factors- Damages by vandalism, vibration water abstraction and atmospheric pollution.

### **4. Techniques of conservation of historic buildings:**

Repair and maintenance of stonework – Reorganization and diagnosis of

Problems categorizing the decay pattern routine maintenance Cleaning methods- removal of soluble salts and other dirt: Repair of ruined stone masonry buildings.

Repair and maintenance of brick work. - Control of dampness in brick work – mortar analysis - pointing brick work. Repair and maintain repointing repair joints in historic brick buildings.

Repair and maintenance of wood work – Recognition and diagnosis of problems. Wood destroying agents. Identifying and Eradicating Timber fungi and pests- Dry rot and wet rot – mounds termite attach remedial treatments.

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## DEVELOPMENT AND MANAGEMENT OF MUNICIPAL LAND AND ASSETS

1. **Development Management:**  
Development management – Concepts National goals and political & economic system affecting development management and development process.
2. **Planning Administration:**  
Systems of local Government in India, functions, powers, structure, possibilities of qualities improvement in plan administration, Administrative reforms- Good Governance- Corporate planning land use information System.
3. **Development Finance:**  
Local financial systems in India, -Local taxation and fees, state and local fiscal relations, financing local services, local expenditure, capital budgeting and performance budgeting. Resource mobilization. Municipal bonds privatization of infrastructure services and facilities.
4. **Methodologies for project identification & Appraisal:**  
Identification of development projects, Feasibilities, appraisal development projects, ARR, IRR, NPV, and Feasibility Monitoring & Evaluation.
5. **Land Development:**  
Development of land and real property and values and its prices, assessment and prediction of land values, and development process, controls and regulation.
6. **Urban land Economics:**  
Urban land and urbanization, land use pattern, land & Real Estate Market, Municipal assets and its management, public, private partnership in improving urban services.
7. **Urban Development:**  
Urban Development policies during five year plans-National Committee on urbanization-National Urban Land policies.
8. **Urban Land Legislation:**  
Appreciation of APTP Act 1920, APM Act 1965, APUD Act 1975, APULC Act 1976, Building regularization Scheme, 73<sup>rd</sup> & 74<sup>th</sup> Constitutional amendment Act-1992 (DPC,MPC)

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## DISASTER MANAGEMENT

1. **Disasters:**
  - Definition, factors, significance & Repercussions,
  - Nature of disasters, Aggravating factors.
  - Causes and effects of disasters,
  - Global and regional contest.
2. **General characteristics of disasters:**
  - Causes, interaction of disasters and Vulnerability.
  - Impact of disasters.
  - Nature and extent of damage.
  - Urban concerns of disasters and elements at risk.
3. **Disaster typology(classification of disasters):**
  - Natural disasters-Major-Minor types.
  - Man made disasters-Major types
  - Other disaster-Major-Minor types.
4. **Disaster profile in India:**
  - Regional and seasonal aspects.
  - Causes and effects of disasters.
  - Vulnerable areas, frequency and intensity,
  - Urban risks in India.
5. **Disaster management:**
  - Lessons learnt past experiences.
  - **Prevention**.-Predictability, forecasting and warning
  - **Reduction**
  - **Preparedness**- Preparedness-short term planning and long term planning, Preparing through IEC (information, Education, Communication)
  - **Mitigation**-Aims, Structural and non-structural approaches, Adopt an areas – based approach.
  - **Relief, Reconstruction and rehabilitation**-Rehabilitation; Social and economic aspects, As means of development planning. Urban Housing to resist to disasters including relocation. Retrofitting, repairing and significance of urban housing.
6. **Space technology- Disaster management:**
  - GIS-Remote Sensing.  
Introduction, definition, scope and use in Disaster management, Issues at National, regional, and local levels.
  - Urban Disaster mapping-active fault mapping.
  - Vulnerability mapping

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- Urban Demographic details, Micro-donation maps, soil and geology maps-techniques of area mapping.
- Pre-disaster planning-Preparedness planning-short term and long term planning. Risk assessment-a key prevention
- Urban Land use Zoning and Zoning regulations for disaster management, Mapping of prominent disaster prone areas.
- Post disaster planning-Relocation planning-logistic planning.

**7. Disaster management:**

- Institutional frame work in India.
- Role of various agencies- Functional mechanism.
- District administration.
- Ministries and department of central and state level.
- NGO's-National and international levels-Objectives and importance.
- International agencies-Importance and role Media.
- Definition of IDNDR (International Decade for Natural Disaster Reduction) 1990-2000 and ISDR (International Strategy for the Disaster Reduction)

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## ECOLOGY AND ENVIRONMENTAL PLANNING

### 1. Ecology:

Man and Ecophere, Components of nature and some basic concepts, flow of material, water, energy, invasion, succession, predation, regulatory forces, adoption, tropic levels, food chain, food web, ecological pyramids.

Ecosystem:

Types and components of ecosystem, Bio- diversity, matter recycling, interaction in Ecosystem.

Eco-system and their relevance to environment, causes and consequences. Impact of advanced agricultural methods, urbanization and industrialization on nature.

Pollution: Types, sources, effects remedies.

### 2. Introduction to quantitative Ecology:

Identification of ecological parameters for planning at different levels, site planning settlement planning, regional planning.

Data needs, formats for data collection. Types of analysis required to evolve ecological parameters.

Environmentally compatible regional development: an approach.

Ecological awareness in India: traditional, indigenous methods, contemporary trends.

Endowments and resources definition and classification according to different criteria ends, renewable non-renewable etc.

Way of living and technology. Space bound and flow resource matrices, examples of transfer from one resources to another in history at different parts of the world development, utilization and conservation of resources planning, integrated resources management, , resources development in India some selected case studies.

### 3. Environment Planning:

Planning and environment:

Planning, types of planning, planning process and tools definition of environment, Types of Environment, population

**Physical environment:**

Air Environment- Air Resources, Atmospheric systems, climate, Emission standards, Global warming, Ozone depletion, nuclear wars, Problems.

Water Environment: Water Resources – Types, Water Resources- Renewal use, Drinking Water, Standards, Health Aspects, Water Pollution, Sanitation, Disposal Standards of Treated Wastewater.

Soil Environment - Soil Types, Soil Yield, Soil pollution.

Energy – Evaluation of Energy Resources, Types of Energy Sources – Renewable, Non-Renewable, Conventional and Non Conventional.

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**4. Environmental Policies, Protocols and Regulatory Mechanisms-**

Fundamentals of Environmental Acts, Rio Earth Summit, Stockholm Conference, Kyoto Protocol.

**Environmental Technology**

Technology options for mitigation of environmental pollution Environment by “End of Pipe Treatment Systems”, like Effluent Treatment Plants. Use of Scrubbers to minimize air pollution load, Versus combating environmental pollution, through “Waste Minimisation”. “Re-use” and “Recycle”.

Environment Management Systems (ISO-14001 and its Planning Implications, Environmental and Financial Benefits of ISO)

Principles of Energy,(Energy-environment-Pollution Linkages, Energy Demand and supply Planning Management Energy Conservation Issues and Need of Energy audit.)

**5 EIA**

**Introduction to Environment Impact Assessment:** Defining the role of impact assessment-rational for EIA – phases of impact assessment.

Impact Identification Techniques: Various methods used in impact identification – detailed techniques of using these techniques – strengths and weakness of the various techniques used as Impact identification process.

Impact Evaluation Techniques: Techniques used in impact evaluation –Weighting-Scaling techniques, ecological rating systems – Goals achievement matrix, priority-trade-off scanning matrix.

Predicting Impact on the Physical Environment: Land – indicators for land suitability and vulnerability – Landscape characteristics and indicators of landscape process – Mapping landscape characteristics – Techniques for evaluating alternative land use plans.

Calculating air pollutant emission – predicting ambient concentration – predicting ecological response to air pollutant – predicting human health risks.

Water- categorization of pollutants – pollution dispersion – water quality predicting. Impact on Biota: Ecosystem process and impact assessment – energy fixation and flow.

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## ENVIRONMENTAL PSYCHOLOGY

### 1. Introduction to Environmental Psychology

- Roots and scope of study
- Issues
- Principles
- Theories and Approaches

### 2. Environmental perception and Cognition

- **Environmental Perception**
  - Distinctions definitions and variations
  - Influences on Environmental perception Personal and theories
  - Concepts and theories Probabilistic functionalism, Affordances, Collative properties phenomenology.
- **Environmental Cognition**
  - Distinction and variations
  - Influences on Environmental Perceptions Stage of life, familiarity of experience, special ability, Special Cognitive biases, Physical influences.
  - Concepts and theories Physical perspectives, Cognitive perspectives, Physiological perspectives.

### 3. Personality and Environment

- Connections between personality and environment.
- Traditional personality dimensions.
- Environmental personality dimensions – constructs and concepts.
  - Person – Thing orientation
  - Environmental personality inventory
  - Environmental response inventory
  - Environmental stimulus sensitivity

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## INTERIOR DESIGN

1. Design related cognitive learning. Colour theory & application to the interior environment principal colour systems, methods of colour harmony  
Appreciation of various arts, painting murals sculpture, architecture etc. Interior Design in the context of other arts.
2. **Thermal Comfort:**  
Importance of human comfort in interior spaces. Heat flow within buildings.  
Thermal properties of materials. Climate and material choices for interior spaces  
Human response to the thermal environment.  
  
Lighting  
Lighting in interiors. Lighting levels & criteria. Natural & artificial lighting. Selection of lighting. Lighting devices available in the market and their characteristics. Economic issues. Fixture selection and placement – floor, table, desk, wall & ceiling units. Psychological impact on human moods & emotions.
3. **Acoustics:**  
Behaviour of sound in enclosed spaces. Understanding acoustics and its integration with interior design Sound absorbents porous materials, panel or membrane absorbers, resonators. Absorption coefficient of various acoustical materials. Human responses to the sensation of sound.
4. **Theory and History of Interior Design**  
Land mark events in the history of International design movement. Historical development of artifact.  
Overview of the major styles like regency, colonial, Art & crafts Romanticism, Art. Nouveau, Eclecticism, Art-Deco, Cubism, Post modernism, Late modernism and Deconstructivism.  
Industrialization changes in technology and production systems. Impact on life style and interiors.  
  
The modern movement and its impact on India.  
Shift from historical to modern methods of building spaces, change in the interior elements of design and interior architecture. Various schools of thought and design emphasis. Study of Interior Design in the Indian context, contemporary styles with particular reference to India. Elements of Interior Design including floors, walls, ceiling, lighting , furniture, furnishings and indoor landscape. Indian elements of space making. Anthropometrics, Ergonomics, Proxemics, and behavioural issues. Metaphor as a tool in the design process. Graphics & signage and its applications.

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## REGIONAL PLANNING AND DEVELOPMENT

1. Definition, scope and content of regional planning:  
Regional disparities in development, surplus generation of primary is influence on development. Development as defined and implied in Indian planning and related development programmes.
2. Methods and purpose of regionalization, delineation of regions in India.
3. Concept of regional growth possesses: Approaches of rostow, michman, myrdan concept of core and periphery.
4. Concept of growth centres, growth pole, services centers: agropolitan district, concept and their approaches in India and other countries.
5. Spatial growth posses: settlement structure and distribution. Theories charistaller, Losch-rangsizerole, primary spatial innovation diffusion etc.,
6. Introduction to regional /economic industrial location theories. Changing trends in location analysis. Methods of analyzing regional industrial structure – regional cycle and multiplier analysis and economic base analysis, coefficient of localization, shift share analysis.  
Concepts of Industrial society, social aspects of industrialization.
7. Regional imbalances and inequalities in India, policies its impact on regional imbalances and planning imperatives, industrial location policies, agricultural development policies, structural adjustment policies.
8. Population growth, distribution and regional development in India. Population distribution and resource base, migration in India, causes flows and impacts. Theories of migration and population moment, metals of measuring volumes of migration, direct and indirect measures, effects of migration on, composition of population, migration models.
9. Backward area development. In identification and development policies and approaches in India. Regional basis of decentralize and multilevel planning, decentralize planning approaches, district planning and block level planning, sector basis of decentralized planning. Decentralized resources management planning, with respect to concept of property resources, community based resource management systems, traditional knowledge and institutional systems.
10. Intuitional framework for regional planning (Center, state regional planning authorities and the issue of resource transfers in India).

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**SETTLEMENT PATTERN IN HILLY REGIONS.**

1. Evaluation of human settlements in hilly regions-Historic perspective and current trends, Socio-economic and environmental issues relating to such settlements land slides, sensitive Eco systems etc.
2. Geographical classification of land at Macro levels. Classification, topography and geological conditions of land with in hilly regions.
3. Morphology and form determinants in settlements of mountainous configuration, such as shops, ranges, peaks, valleys, plateaus, foot hills etc.
4. Survey methods and map preparation techniques in hilly areas. Use of remote sensing and satellite imagery. Conventional and state of act techniques in survey methods.
5. Infrastructure provisions in hilly regions such as transport water supply sanitation and communication facilities.
6. Socio economic conditions occupational patterns, and regional development, role of settlements in regional economic activity.
7. Findings, documentation, recommendation of studies on hilly regions, role of communications, committees, agencies related to hilly regions of both governmental and non-governmental organizations.

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## **THERMAL DESIGN OF BUILDINGS**

1. Elements of climate: solar radiation, temperature, humidity, sky condition, vegetation, precipitation and wind.
2. Macro & Microclimate: Classification of tropical climates & thermal requirements.
3. Comfort: Thermal comfort factors, thermal comfort indices-Effective temperature. Tropical Summer Index (SP-41, BIS).
4. Steady state and period heat flow, Admittance procedure
5. Mechanical Controls: Cooling by ventilation, Mechanical cooling, minimum standards for ventilation.
6. Structural controls: Thermal insulation, thermal capacity, internal blinds and curtains shading devices & their design; passive solar systems like trombe walls, attached green house, thermal roof storage etc.
7. Ventilation and air movement; convective cooling, physiological cooling and cross ventilation.
8. Light and Lighting: Day lighting, sources, climate & light, day light factor, design variables Design sky concept, day lighting in tropics, electric lamp-s, glare in day lighting.
9. Traditional shelter forms in hot-dry climates; Nature of climate, physiological objectives, form and planning, external spaces, roofs, walls, openings, roof and wall surfaces, ventilation & air flow.
10. Design aids: (1) Forward analysis stage. The Mahoney's tables. (2) Plan development stage: Activity charts, thermal performance index of building element, Building index, Concept of O.T.T.V.

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## **TRANSPORTATION PLANNING**

1. **Introduction:**  
Planning definitions, Fundamentals and trends of Urban Transportation Planning.
2. **Regional Analysis:**  
Problem identification and problem solving process, Data requirement for existing land-use, Physical aspects, Transport networks, Methodology for land-use cover, Change detection, population estimation. Transport network development.
3. **Information System in Transport Planning and models:**  
Land –use transportation models, Traffic forecasting, Theory of Traffic flow, transmission process, Traffic and Transportation surveys, Trip generation, Model split, Value of travel time savings, Nature of traffic problems in Metropolitan cities.
4. **Techniques in Analysis:**  
Land-use transportation, inter relationship and modes, Scenario building and their analysis, Techniques for urban structure analysis, Urban travel characteristics, Urban planning process, Evaluation of urban structure.
5. **Corporate Planning:**  
Relevance of Boot, Bolt in Transport planning.
6. **Mass Transport Systems:**  
LRTS, MRTS Express ways and its relevance in urban Transportation planning examples of developed countries south East Asian countries models adopted especially in Malaysia, Singapore, South Korea and Bangkok.
7. **Acts & Legislation:**  
Urban Transportation Acts, National Highways Act 1976, Recent Legislation brought by the union surface transport ministry in this area.

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## TRIBAL AREA DEVELOPMENT PLANNING

1. **Rural Development planning:**  
Rural development policies & Programmes During five Years plans. Self employment programmes, wage employment programmes and infrastructure development programmes, Food for work, Employment Assurance Scheme.
2. **Tribal Development:**  
Structure and Composition of tribal in India. Tribal development policies during for year plans, special plan for North Eastern Region, Constitutional provision and legislation, tribal land & Forest laws.
3. **Tribal Development programmes:**  
Housing, tribal roads, drinking water, sanitation, employment, physical quality improvement levels of living in Tribal areas.
4. **Community participation:**  
Participatory methodologies, delivery of services, problems of operation and maintenance of services, environmental issues related to quality of life.
5. **Tribal Development Planning:**  
Planning process-Planning tools & techniques –physical planning & tribal communities.
6. **Conservation of Tribal Areas:**  
Tribal population, technical groups resources, environment, ecosystems and biodiversity conservation, indigenous Tribes.
7. **Institutional frame work:**  
Tribal development institutes – resource transfer, special component plan in scheduled areas.
8. **Decentralized Planning:**  
73<sup>rd</sup> & 74<sup>th</sup> Constitutional Amendments Act 1992, Role of DPC's, MPC's, people's empowerment & planning at Gross root level, Gender issues.

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## **URBAN POVERTY AND PLANNING POLICIES FOR THE POOR**

### **Urban Poverty :**

Dimension of urban poverty, basic problems of poverty: magnitude of the problems and major characteristics of spontaneous growth; urban poverty alleviation programmes; impact of macro economic structural adjustment policies on poor urban households; basic need and their provision for various target groups; concern for urban poverty, poverty studies-planning law and the poor., strategies and programs tried at various metropolitan cities.

### **Migratory impulses and its impact:**

Identification of migratory impulses; characteristics of migrants and their association with growth of informal sector; socio-economic deprivation.

### **Slum notification:**

Slum notification criteria, role of organization/agencies, advantages and limitations of notification.

### **Planning and design of housing areas for the poor:**

Housing issues of the urban poor; basic factors and reasons for emergence of slums; incremental approach; investment in housing for the poor in public and private sectors; essential components and issues in housing situation in India quantitative and qualitative terms; slums and squatter settlements in urban areas; process of settling in urban slums and in low income settlements; planning and design issues in slum upgrading and slum reconstruction projects.

### **Alternative approaches for delivery of services to the urban poor :**

Community planning and participation approach, low cost alternatives and institutional reforms approach; public-private partnership. Policies for assistance and implications for promotion-Appropriate regulatory control and standards for basic needs; flexibility in byelaws and organization through self-help and community development; shelter services and management for the urban poor; policy implications.

### **Tenure security :**

Tenure categories; legality and legitimacy of tenure; communal tenancy; intermediate and tenure policies; tenure systems and conferring tenurial rights, criteria for the issue of pattas/ownership status to the slum/ squatter dwellers; tenure ship of land; achievements & limitations of large scale tenure regularization and options to ownership.

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## LANDSCAPE DESIGN IN URBAN RESIDENTIAL-DEVELOPMENTS

1. Man's relationship with nature in various phases of history in various civilizations of the world. Responses and attitudes to nature and to landscape resources.
2. Environment-Behavioral theories namely: Defensible space and prospect – refuge theory. Relationship between spatial characteristics of open space and user behavior.
3. Theoretical framework for comparative analysis of designed landscapes separated in time and space-: Siting, relationship to surroundings, spatial organization, ownership, use of landscape elements (landform water, vegetation), symbolism, scale and function.
4. Landscape design elements: Water, landform, vegetation, and architectural elements. Their characteristics and application in spatial design from point of view of aesthetics, function, climatic control, sustainability, costs and maintenance. Effect of time on landscapes.
5. Socio cultural impact of industrialization and urbanization: Effect of urbanization and industrialization on public health and development of new landscape types: Public parks and facilities for outdoor recreation. Open spaces in New towns, Garden city, Radburn Pattern and Neighborhood planning. Hierarchy of open spaces in a city.
6. Factors affecting the use of the community open spaces in residential developments: Quality of the open space, socio economic and demographic profiles of the users, accessibility and location of open space, safety, facilities and amenities in the open space, maintenance costs: Benefits of open space-social recreational economic, aesthetic, ecological and climatic benefits.
7. The Indian context: Understanding landscape traditions in India-ancient horticultural traditions, river ghat, Mughal influence, and British colonial influence. Contemporary trends in landscape design in residential developments. National building code standards for community open spaces in residential areas.
8. Maintenance and management as a factor in design with plants. Establishment and maintenance of grass, shrubs and trees with respect to: ground preparation, planting and transplanting and pruning. Significance of Native plant selection in designed landscapes.

### List of Books:

1. Turner Tom (1987), "Landscape Planning", Hutchinson, Nichol Publishing Co., New York.
2. Hackett Brain (1979), "Planning Design", McGraw Hill Book Company, New York.
3. Hester Randolph (1978), "Neighbourhood Space" Dowden Hutchinson and Ross, Inc. Stroudsburg. Pennsylvania. Community development series.
4. Laurie Michel, (1975) "An introduction to landscape Architecture", American Elsevier Pub. Co Inc.
5. Lynch Kevin (1962), "Site Planning", The MIT Press, Cambridge.
6. Motloch John L. (2001), "Introduction to landscape Architecture", American Elsevier Pub. Co Inc.
7. Williams Stephen, "Outdoor recreation and the urban environment", Rutledge, 1995.
8. Pregill Phillip and Nancy Volkman (1993), "Landscapes in history – design and planning in the western tradition", Van Nostrand Reinhold, New York.
9. Jellicoe Geoffrey and Jellicoe Susan (1987), "The Landscape of man", Thames and Hudson.
10. Newman Oscar (1972), "Defensible Space: Crime prevention through urban design", MacMillan.
11. National Building Code of India (1984).
12. K.S. Gopalawamiengar (1991), "Complete gardening in India", Published by Gopaldaswamy Parthasarathy, 4<sup>th</sup> edition.

**URBAN LAND ISSUES & ALTERNATIVE DEVELOPMENT STRATEGIES**

1. **Human Rights on Urban Land :** UDHR Article: 17 Right to own property, Human rights & legal rights, Equality & Human development, Rights empowering People against Poverty, sustainable.
2. **Urban Land and Development Process:** concept of Urbanization, NCU & Five Year Plans, National Urban Land Policies, Urban Development Plans, Development Finance – system at National, State a local Level, Development – Controls and Regulations.
3. **Development Management and Administration:** Urban Development Management, Effect of Political & Economic systems on Development Goals & Process Development Administration at National, State & local Level, Administration Reforms & Good Governance, Urban Development, Authorities & Urban Local Bodies.
4. **Urban Land Legislation, Andhra Pradesh:** AP town Planning Act 1920, AP Urban Development Act 1975, AP Municipal Act 1965, AP Urban Land Ceiling Act 1976, Land Acquisition Act of 1984, 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendment 1992.
5. **Urban Land Management, Issues & Aspects:** Urban Land as a Resource for Development, Land Value System, Land Management Policies, Land For Housing, Land Reservations for Poor, Land Ownership System, Land Records and Information system, Land Speculation & Land Markets.
6. **Approaches to Urban Land Management:** Land Pooling, Land Taxing, Plot Reconstitutions, Lease hold system, subdivision Regulations, Negotiated Land Purchase, Incentive Zoning, Transfer of Development Rights, accommodation Reservation.
7. **Unauthorized Settlements & alternative Development Strategies:** community Development & Participatory Approach, C. B. O's & Capacity Building, Institutional Reforms, Public – Private Sector Participation, Appropriate Regulatory control & Standards for Basic Services, Conferring Tenure Rights & Tenure Security.
8. **Implications of the New Community Based Development Initiatives:** Citra Niaga Urban Renewal, Indonesia, Fevela – Bairro Project, Rio-de-Janeiro, Orangi Pilot Project, Karachi, Participation and Partnership in Habitat Upgradation, Sri Lanka, Khuda Ki Basthi Development scheme, Hyderabad, slum Net working Indore, India.

**References:**

1. United nations Development Programme, (2004), "World Development atlas", a World Bank initiative.
2. UNCHS- Habitat, (1999), "Best Practices in Improving Living Environment", Data base.
3. TCPO, (1996), "Urban Planning and Development in India", Ministry of Urban Development and Poverty Alleviation.
4. N. S. Saini (1995), "Reading Material on Development Management", Institute of Town Planners, India.
5. Ramachander, R (1996), "urbanization and Urban Systems in India", Oxford India Press
6. Badshan Akhtar, (1996), " Our Urban Future: New Paradigms of Equity and Sustainability:, Zed Books, London.
7. Mohan Rakesh, (1994), "Understanding the Developing Metropolis", The World Bank/Oxford University Press.

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### SOCIOLOGY OF SETTLEMENTS

1. **Introduction** to Sociology, the Development of Sociology, **Basic concepts of sociology:** society and Individual, family, socialization, culture, Norms and Values, Status and Role. Social stratification, Race, Ethnicity, Gender, Caste, Class, Religion, Deviance Social Control and Social Change.
2. **Gender :** Gender roles socialization, gender and social stratification, labor market, Feminism and feminist theories.  
**Indian Sociology:** Social Stratification, Caste, Class and Gender in Indian society, social change in India.
3. **Urbanization:**A Global analysis of Urbanization Metropolis and Megalopolis, Types of cities, Theories of Urbanization, Urbanization in India: Urban Rural Migration
4. **Urban Problems:** Overcrowding, Problems of Housing, Poverty, Unemployment, Crime, Juvenile Delinquency, while Collar Crime, Prostitution, Alcoholism and Drug Addiction, Suicide, Beggary.
5. **Urbanism,** Urban Culture and Urban society Models of Social Geography, European Perspectives, Chicago School of sociology, Traditional Models of Urban Spatial Structure-Concentric Zone, Sector and Multiple Nuclei Theories, Social Area Analysis, Factorial Ecology Gentrification, Suburbanization Race, Caste and Spatial Segregation , Inequality and Polarization
6. **Community in Urban Settings,** Identify, Difference and fear in city life, Urban Anomic Theory, Symbolic Interactionism, Theory of Social Action, Phenomenological sociology, Ethno Methodology, Urban Eco criticism and eco feminism
7. **Social Psychology:** Image of the City, Mental Maps The Public Realm, The production of space Safety, Concept of Defensible space, The Importance of Human Interaction Personal Space and behavior, Structure and navigation of Public Space Geography of Gender in the City.
8. **Indian Cities:** The village community and Urban Community in India, Metropolitan Cities in India, Gender in Indian Cities.

#### List of Books:

1. Bitton, Bonet, Jones, Skinner, Stanworth and Webster (1996) INTRODUCTORY SOCIOLOGY Palgrave
2. Singhi Narendra K. (Ed.) (1996) THEORY AND IDEOLOGY IN INDIAN SOCIOLOGY Rawat Publication (Jaipur and New Delhi)
3. Charon Joel M. (Ed.) (1999) THE MEANING OF SOCIOLOGY A READER Prentice Hall, New Jersey
4. Bhattacharya B. (2006) URBAN DEVELOPMENT IN INDIA SINCE PRE HISTORIC TIMES Concept Publishing New Delhi.
5. Kaplan Wheeler, Holloway (2004) URBAN GEOGRAPHY Wiley
6. Chopra Girish (2006) URBAN GEOGRAPHY Common wealth Publishers New Delhi

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7. Thio Aex (2000) SOCIOLOGY A BRIEF INTRODUCTION Allyn and Bacon
8. Haralambos M. with R.M. Heald (1980) SOCIOLOGY THEMES AND PERSPECTIVES Oxford University Press.
9. Schaefer Richard T. (2002) SOCIOLOGY A BRIEF INTRODUCTION McGraw Hill
10. Sharma Rajendra Kumar (2004) URBAN SOCIOLOGY Atlantic Publishers and distributors.
11. Macionis John J., Parillo, Vincent N. (1998) CITIES AND URBAN LIFE Prentice Hal, New Jersey.
12. Gugler Josef (Ed) (1997) CITIES IN THE DEVELOPING WORLD; ISSUES, THEORY AND POLICY, Oxford University Press.
13. Miles Malcolm, Hall Time and Borden Jain (2000) THE CITY CULTURES READER Routledge
14. Ahuja Ram (1992) SOCIAL PROBLEMS IN INDIA Nice Publishing press, Delhi
15. Ramachandran R. (1989) URBANIZATION AND URBAN SYSTEMS IN INDIA Oxford University Press

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**IMPACT OF ICT (Information and Communication Technology) SECTOR ON PHYSICAL PLANNING OF URBAN AREA**

- 1) **Structure and Growth of Urban area:** - Definition- Urban, Urbanization, Suburbanization, Deurbanization, Urban Area. b) Principles of building Urban area- Manifestation of Form, Correlation of Form, Organic order in Form. c) Urban Structure – Elements, Form, Hierarchy and Density. d) Urban Growth – Scope of Urban area in relation to its Structure, Growth of urban area and its consequences. e) Translocation. f) Emerging trends in the growth of Urban agglomeration.
- 2) **Impact of Globalization on Urban Form:** - a) Components of Urban form – Urbanism, Image and Identity, Spatial Organization and Structure, Social Ecology, Public Realm, Scale and Pace of development, Architectural vernacular. b) Components of Globalization (Capital, People, ICT, Culture) and their effect on Urban Form.
- 3) **Impact of ICT sector on Urban Form:** - a) Introduction to ICT and Urban Form relationships – Deconcentration school and Economic Restructuring school. b) Deconcentration school views. c) The Economic Restructuring School views.
- 4) **Emerging Planning Cultures for the 21<sup>st</sup> century:** - a) Market oriented Planning – Introduction, Principles of Market oriented Planning, Key elements of Market oriented Planning. b) Emerging Cultures of Global Planning – Planning as an innovative practice, The Expanding scope of Spatial planning, Expanded and Multiple Scales of Planning, Planning for endogenous development, Planning for Cities of difference, Strategic focus for Planning. c) The future of Spatial Planning.
- 5) **ICT sector and Physical planning:-** a) Planners perspective of Information and Communication technology revolution. b) Government (GOI) initiatives for ICT revolution c) ICT in Urban planning – Parameters for the implementation of ICT in planning, Concept of e- Planning, ICT and SITAR model.
- 6) **Impact of ICT sector on Offices/Firms & Residential development:** - a) The changing role of determinants of Locational factors. b) Spatial impact on the location and design of Offices/Firms. c) Emergence of New working Practices and Teleworking options. d) Spatial impact on the location and design of Residential developments.
- 7) **Impact of ICT Sector on Transportation and Landuse:** - a) Impact of ICT on travel. b) Concepts – Time space convergence, Time Space compression, Human extensibility, Trackability and Locational based services. c) Relationship between Urban form and Transport- Settlement size, Density, Job Housing balance and Mixed Landuse development, Locational accessibility and Neighborhood design. d) ICT's contribution to accessibility. e) The emergence of Aerotropolis
- 8) **ICT policies at Urban area level:** - a) ICT as a shaping factor and policy tool. b) Urban policy making process. c) Building the concept – The emerging city, Beliefs and Attitude towards ICT, Assessment of Urban ICT policy.

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## CULTURE AND ARCHITECTURE

- 1. Sociology and Culture**  
**Introduction** to Sociology, the Development of Sociology  
**Basic concepts of Sociology:** Society and Individual, family, socialization, association, Institution,  
**Culture:** Definition, meaning, components of culture-Beliefs, Norms, values, Language, Technology, Patterns and aspects of culture.
- 2. Settlement Evolution**  
Evolution of settlement-Type and Structure of human settlements. Typology of Villages as described in Mayamata. Traditional city planning principles of India and near east-Indus valley, Mesopotamia, Egypt, Greece, Rome and Planned Cities of Jaipur and Madhura evaluation
- 3. Historic Urban form and Landscape**  
Determinants of Urban form-mobility, socio cultural, climate, technology, political power And geographical location. Traditional Urban open spaces in India and their significance-Maidans, kunds, riverghats and sacred groves
- 4. Theory of Urban form**  
Urban form Theories-Figure Ground Theory, Linkage theory and Place Theory Basic elements defining urban form-mass space, paths, edges, districts, nodes and Landmarks, Characteristics of Urban space – Hard space and soft space
- 5. Vernacular Architecture and form**  
Vernacular Architecture-Definition-Approaches and concepts- Socio cultural forces and form-relation of house and settlement Role of climate, culture, values and tradition in determining the house form and layout.
- 6. Anthropology and Ethnic Groups**  
Anthropology-Definition. Fields of Anthropology-Physical and Cultural Societies in Socio cultural evolution-Hunting and gathering, horticultural, pastoral, agrarian Industrial and postindustrial Groups-Racial, Minority and Ethnic groups Social stratification, Race, Ethnicity, Caste, Class, Religion
- 7. Traditional Interiors and Space Utilisation**  
Customary Practices as a generator of Interior space. Space configuration-hierarchy of Interior spaces.Evolution of spaces based on climatic, economic and social factors  
Space utilization based on value additions, gender specific and rituals.Space modulators-furniture, art and artifacts. Relationship between interior and exterior spaces
- 8. Traditional Building Materials and Technology**  
Traditional building materials-classification, characteristics, choice of materials  
Techniques of construction-structural system  
Impact of materials and Technology as modifying factors of house form

### References:

1. Sharma Ramnath (1968) Principles of Sociology, Asia Publishing House , New Delhi
2. Herkovits. J. Merville (1958) Cultural Anthropology, Alfred, A. Knoff.inc
3. Thio Alex (2000)Sociology-A Brief Introduction, Allyn & Bocon
4. Lynch Kevin(2000)Good city form, M.I.T.Press, England

5. Prammar.V.S (2005) Social History of Indian Architecture, Oxford University Press, N. Delhi
6. Rapoport Amos (1977) Human Aspects of Urban form, Prentice hall, New Jersey
7. Cooper Ilay & Dawson Barry (1998) Traditional Buildings of India. Thames & Hudson
8. Jellicoc Geoffrey & Jellicoe Susan (1987) The Landscape of Man, Thames & Hudson
9. Crouch Dora. P & Johnson G.June (2001) Traditions in architecture, Oxford University Press. Newyork
10. Roger Trancik (1986) Finding Lost Space, Van Nostrand Reinhold, Newyork
11. Town & Country Planning Organisation (1996) urban and regional planning and Development in India.
12. Eames Edwin (1977) Anthropology of the city, prentics hall, New Jersey
13. Dagens Bruno (1985) Mayamata, Sitaram Bharatiya Institute of Scientific Research, New Delhi
14. Pile John (2005) History of Interior Design, Laurence King Publishing Ltd
15. Hayden Dolores (1984) Redesigning the American Dream, W.W.Norton & Company, New york
16. Morris A. E.J. (1994) History of Urban Form, Addison Wisley Longman Ltd, England
17. Papanek Victor (2003) Green Imperative Thames & Hudson
18. Rapoport Amos (1969) House Form & Culture, Prentice hall, New Jersey
19. Broadbent Geoffrey (1990) Emerging concepts in urban space design Van Nostrand Reinhold co.Ltd
20. Rob Kries (1984) Urban space, Academy editions, London
21. Upadhyay. V.S.Gaya Pendey (1997)History of Anthropological Thought, Concept Publishing company, Nee Delhi.
22. M. Francis Abraham (2006) contemporary sociology, Oxford University Press, New Delhi.
23. Roberts. K. Brian (1996) Landscapes of Settlement, Routledge, London
24. Courtyard Housing (2006) edited by Brian Edwards, Magda Sibley, Mohamad Hakmi and Peter Land

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**PAPER II - LEGAL ISSUES IN CONSTRUCTION**

**Paper II - Syllabus:**

- CONSTRUCTION CONTRACTS AS A LEGAL TOOL FOR MANAGING CONSTRUCTION PARTICIPANTS
- LEGAL RISKS OF WORKING IN A NEW TERRITORY
- LEGAL RIGHTS AND OBLIGATIONS IN COMPETITIVE BIDDING
- THE MANAGEMENT OF CONTRACT CHANGES
- CONTRACTUAL METHODS FOR LIMITING RISKS AND AVOIDING DISPUTES
- INSURANCE AS A TOOL FOR CONTROLLING COSTS OF DAMAGES
- SCHEDULES, DELAYS AND ACCELERATION , TIME CONSTRAINTS
- GOVERNMENTAL REGULATIONS
- SUBCONTRACT ADMINISTRATION AND DISPUTE AVOIDANCE
- TERMINATION OF CONSTRUCTION CONTRACT.
- ARBITRATION AND LITIGATIONS.

**Paper – II Detailed Syllabus:**

1. **Unit – I:** Legal context of construction & alternative contracting methods.  
Constructions contracts law – National and International – Based on specific project.
2. **Unit – II:** Competing for contract – Details of legal risks involved in projects identifying the legal rules governing competitive bidding – identify the potential problems that may arise as a result of incorrect interpretations of the language in a contract, explain the authority and responsibility of the various parties to a contract.
3. **Unit – III:** Interpreting the contract & codes analyzing of complex contracting methods for implementing changes and controlling performance problems and construction defects in a construction project. Implementation of legal standards concerning schedule delays.
4. **Unit – IV:** Authority and responsibility of professional and subcontract administration methods of measuring the owner and contractor claims – Identification of methods that are available to a subcontract for cost recovery.
5. **Unit – V:** Methods and alternatives of resolving disputes related to contract.
6. **Unit – VI:** Identification of provisions for shifting and sharing risks using contractual clauses, provisions related to termination of contract.
7. **Unit – VII:** Construction safety: 1. Types of safety practices: Top practices to increase safety implementing new safety practices, level of integration of safety practices / policies and programs. 2. Impact of safety practice/programs – communication and education like training and orientation for jobsite workers. 3. Technology and safety management. 4. Use of safety methods and technologies in prefabrication and module construction. 5. Impact of safety practices on the success of projects.
8. **Unit – VIII:** Consumer protection liability: Consumer protection act/Consumer protection bill law of damages under Indian Act 1872, law of damages in UK, Singapore, contractual laws.
9. **Unit – IX:** Tendering for construction projects – Types of tenders, process of tendering, Bidding

## PAPER II – BUSINESS LAWS

### Pre – PhD Syllabus

#### 1. THE ARCHITECT AND THE PROFESSION

**Professional Ethics:** The nature and distinguishing characteristics of a professional undertaking, The principles of professional conduct.

##### **The Constitution of the IIA and CoA**

The nature of incorporation, the objects and the correlative rights and duties of the institute and its Members. The Memorandum of Association, the Articles of Association and the By – Laws of the IIA and the sections of the CoA Act. The code of Professional Conduct and its application. The Architectural Competition System.

#### 2. THE ARCHITECT IN PRACTICE

**Forms of Association:** Partnership: the nature of partnership; the Partnership Act 1890; relations between partners; partnership, accounts and taxation. Incorporation: the nature of limited and unlimited Incorporation; the Companies Acts; company accounts and taxation. Consortium Practices: the nature of consortium practice; the relationship between the parties to a consortium. Networks and co – operatives.

**Office Management:** Principles of management. Applied management processes. Management structures and communications. Human Resources. Employment legislation. Health and Safety responsibilities.

**Financial Management:** Principles of financial management. Techniques of budgetary control. Applied financial management. Personal and company taxation, GST.

**Risk Management:** Risks in construction. Professional Indemnity Insurance. Public liability. Employer's liability and other insurance.

**Contract Documentation:** Production and coordination. Standard Method of Measurement. Bills of Quantities. Contract drawings. Specification; performance; materials and workmanship. Plan of work.

**Sources of Information:** Standards, Codes of Practice. IIA and CoA Guidance Notes, Technical Literature. Information systems.

**Project Planning and Control:** Principles and objectives. Performance standards. Pre-tender cost planning and control. Post-tender cost control.

**The Architect as Employer, and the Architect in Public and Private Services:** The duty to abide by the Code of Professional Conduct. The right and duty of independent professional opinion. Contracts of employment. Employment legislation.

#### 3. THE ARCHITECT AND THE CLIENT

The Architect's duty to the Client. The Architect as Agent: The nature of agency; powers and duties. The Architects Appointment, Conditions of Engagement and Scope of Services Agreement. The appointment, powers and duties of Consultants. The appointment, powers and duties of Clerk of Works and site inspection staff.

**The Architect as Project Manager**

**Collateral Warranties between the Architect and Third Parties:** Terms of and reasoning behind such warranties. The attitude of the profession to such warranties.

**4. THE ARCHITECT AND THE CONTRACTOR**

**The Construction Industry:** Organisation of the construction industry. The construction Industry Federation; objectives and management. Classification of Standard Forms of Contract.

**Selection of Contractors and Tendering:** Tendering procedures, Main Contract and Sub – Contract. Drafting of invitations to tender. Reporting on tenders. Procedures for dealing with errors in tenders.

**The General Principles of the Law on Contract:** Offer and acceptance. Implied and express terms. Conditions and warranties. Performance breach and damages.

**Standard Forms of Contract, Sub – Contract and Warranty:** Memorandum and Conditions. The policy of the Conditions in respect of: (a) Variation to consideration and obligation. (b) Time for performance. (c) Default by either party. (d) Indemnity and insurance. (e) Incorporation of provision and P.C. sums. (f) Payment in advance of discharge of obligation. (g) Disputes between the parties. (h) Possession in advance of completion of the works. (i) Liquidated ascertained damages.

The powers and duties of the Architect in: (a) Inspection. (b) Certification of payment. (c) Extension of time. (d) Variation of the works. (e) Appointment of Sub-contractors.

The purpose and effect of the Final Certificate.

Forms of Sub – Contract: substance and relationship to Main Contract.

Collateral Warranties between Nominated Sub-Contractors and the Employer.

Alternative Contract Types: (a) Design/Build Contracts, (b) Public Private Partnerships.

**The Architect as Administrator of the Contract**

**Project Management:** Project programming. Conditions of Contract as a management document.

**Site Operations Control**

**Site Safety**

**Construction Insurances**

**5. THE ARCHITECT AND PUBLIC AUTHORITIES**

**Principles of Public Administration:** The doctrine of vires and judicial review of administration.

**Central and Local Government in India; the WTO.**

**Public Authorities in the Regulation and Control of Building:** The constitution and function of the regulation authorities. The regulation statutes: objects and application. Procedures for Planning applications, Environmental Impact Statement, Fire Safety Certificate, etc.

**6. THE ARCHITECT AND REPORTS, SURVEYS, AND OPINIONS ON COMPLIANCE**

Drafting and Presentation of Reports, Condition Reports, Feasibility Reports, Reports on Title and Boundaries, Reports on Dilapidation, Fire Insurance Claim Reports, Architects' Opinions on compliance with Planning and Building Regulations.

**7. THE ARCHITECT AND THE LAW**

The General Principles of the Law on Easements, Negligence, Nuisance, Trespass

The General Principles of the Law of Torts, Defamation

The General Principles of the Law on Copyright

The General Principles of the Law and Practice of Insurance

Duty of Care to the Client and the Public

**8. THE ARCHITECT IN ARBITRATION**

The Nature of Arbitration, The Arbitration Act, The Preliminaries to Arbitration, Control of Arbitration by the High Court, The Arbitration Hearing, The Arbitrator's Award.

**9. THE ARCHITECT IN MEDIATION**

The Nature of Mediation, Resolution of Disputes

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**PAPER II - TRADITIONAL & CONTEMPORARY DESIGN AND TRENDS  
IN CHURCH ARCHITECTURE**

**Unit I: Theory of Architecture**

Architecture as an expression of the social values and technological achievement of a culture. Understanding the use of the elements of architecture as an expression of meaning.

Alberti Leon Battista: Theories of Architecture, and Impact on Renaissance society, studies on Palladian buildings.

Andrea Palladio: Principles of architecture and adaptation of Classical principles

Hegel and architectural history, architecture as expression of a society in “Geist”, or spirit of the times.

Gottfried Semper and the four elements of architecture

Aldo Rossi: contribution to architectural theory, and important works: Cuneo monument, Cemetery of Costa etc.

Le Corbusier and the spatial narrative: a study of villas in this context.

**Unit II: History and Theory of Architecture 1 :**

Evolution and transformation of the early Christian Church form, Overview of Christian architecture of Europe during the Early Christian, Byzantine, Romanesque and Gothic periods; Building typologies and building elements, eg;-pointed arch, church towers, etc, and their influence on the church form, Influence of structural elements like pendentives, flying buttress, stained glass, etc, on the built form and the resultant settlement planning.

**Unit III: History and Theory of Architecture 2 :**

Overview of different movements that led to the Modern movement: Industrial revolution, Art Nouveau, Arts & Crafts movement, to Modernism, Post-modernism, International Style & Critical regionalism (with the help of selected examples).

Works of renowned architects and their designs (w.r.t. churches). Richard Meier, Tadao Ando, Laurie Baker, etc. Study of examples of contemporary churches (including modern & post-modern).

**Unit IV: Socio-Cultural Religious Factors:**

Components of culture-beliefs, norms, patterns and aspects of culture. Liturgic considerations – two room structure or concept (Holy Sanctuary-people, Most Holy Sanctuary-priests)

Types of congregations in the church (penitents regular congregation clergy/priests, deacons/elders/ushers/choir.

**Unit V: Church Architecture:**

Parts of the church building (narthex, nave, aisle, transept, altar, pulpit, steeple, belfry, chancel, stained glass, windows, clerestory, crucifix, etc.)

Characteristics of urban spaces in churches – squares, gardens, baptistery, etc.

**Unit VI:**

**(i) Materials & Construction:**

Characteristics, choice of materials, techniques of construction systems, impact of materials and technology.

Traditional churches- materials (brick, mud, wattle and daub, split logs, dressed stone, etc); construction – complex structural forms- pendentives, arches, domes, pinnacles, buttresses, etc. Contemporary churches – steel, concrete, glass, wood, functional form of construction.

**(ii) Technology of Construction**

Use of technology to enable and promote new aesthetics, disrupting old stylistic traditions, as well as convey meaning; tectonics in architecture.

Study of the buildings and theory of Peter Behrens, Mies van der Rohe and Corbusier to understand the impact of steel, glass and concrete. Landmark buildings such as Pompidou Centre etc. as expression of avant-garde principles.

**Unit VII: Art & Architectural Appreciation :**

Introduction to various types of art, Concept of beauty & aesthetics, Importance of visual perception, Design elements from nature, Relationship between art & design with man, space & environment, Golden proportion, theories of scale & proportion, Factors influencing the process of art, design & architectural form and function, Factors influencing character & style in buildings, Review of selected examples, Understanding of design, Nature of good design & evaluation of design, role of a designer.

**Unit VIII: Symbolism:**

Architecture as an expression of philosophy and meaning; natural, human and spiritual phenomena translated into spatial forms.

Abstraction in Art & Architecture: Why abstraction is important; how it conveys essence of objects; examples.

Architecture Parlante or ‘speaking architecture’: the works of Ledoux, Boullée etc.

***Reference Books:***

1. *Fletcher, B & Cruickshank, D. (1996). Sir Banister Fletcher’s a history of Architecture. 20<sup>th</sup> ed. / Oxford; Boston: Architectural Press.*
2. *Ching, F. D. K. (2012). Architecture: Form, Space and Order, 3<sup>rd</sup> ed. Hoboken: John Wiley & Sons.*
3. *Fred, S. K. (2009). Art through the ages a Global History. 3<sup>rd</sup> ed. Clark Baxter.*
4. *Canter, D, and Lee, T. (1974). Psychology and the built environment. New York: Halstead Press.*

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**PAPER II - Building Construction Management issues in Affordable Urban Mass Housing.**

**UNIT – 1**

Management Functions, Management Styles, Integrated approach to materials management, Role of materials manager.

ABC analysis-Procedure and its use,

Standardization in materials and their management,

Procurement, identification of sources of procurement, vendor analysis.

Inventory Control techniques. Concept of Just in time (JIT) management,

Indices used for assessment of effectiveness of inventory management.

Stores Management: Receipt and inspection, care and safety in handling, loss on storage, wastage,

Bulk purchasing, site layout and site organization, scheduling of men, materials and equipment.

**UNIT – 2**

Sustainability, challenges in sustainable construction, materials and systems, waste materials, site waste management, re-use and recycling of materials,

**UNIT – 3**

Concept of housing, housing typology,

Current trends in affordable housing,

Alternative Building Materials for Low Cost Housing:

Substitutes of scarce materials, industrial wastes, agricultural waste, strategies for promotion of alternative building materials,

Approaches and strategies for housing urban poor,

Adoption of innovative and cost effective construction technology

**UNIT- 4**

Cost Effective Construction Technique (CECT),

innovative construction techniques, prefabrication and pre-casting,

modular construction, in-situ pre-fabrication, lift slab and tilt up construction,

Modern Construction Materials

**UNIT- 5**

Value Engineering (VE): Definition, Importance to Contractors,

*Syllabi for Pre. PhD.*

Potential VE Applications, identifying reasons or unnecessary costs.

VE during the Planning Phase of a Construction Project,

VE during the Design Phase of a Construction Project,

VE during the Construction Phase of a Construction Project

**UNIT- 6**

Construction waste definition, related implications,

Need for sustainable Construction waste management (CWM),

CWM hierarchy. CWM in India,

Factors affecting construction waste generation in Construction Industry,

Barriers and Motivation for CW reduction

Low cost management strategies,

Lean Construction principles,

Composite construction methods, Industrialized Building System,

Supply Chain Management, Reverse logistics in waste management plan of project,

Extended Producer Responsibility.

***Reference Books***

- *Construction management Fundamentals by Knutson, Schexnayder, Fiori, Mayo, Tata Mc Graw Hill, 2<sup>nd</sup> Edition, 201*
- *Construction Project management—Planning, Scheduling and controlling—K. K. Chitkara — Eight reprint 2004, Tata Mc Graw Hill Publishing Company Limited.*
- *Purchasing and Inventory Control- by K. S. Menon, Wheeler Publication.*
- *Materials Management, P. Gopalkrishnan, Prentice Hall*
- *Handbook of materials management, P. Gopalkrishnan, Sundershan, Prentice Hall.*
- *Inventory Management, L.C. Jhamb, Everest Publ. Charles J. Kibert, “Sustainable Construction: Green Building Design and Delivery”, Jhon Wiley & Sons Inc*
- *Value Engineering: Analysis And Methodology By Del Younke*
- *Lal A.K, “handbook of low cost housing”, New Age Publications*
- *SonikyaWole, “principles of Low cost housing”, Springer*
- *Monk Sarah, “making more affordable: the role of intermediate tenures”, John Wiley Inc*
- *Allen E, Iano, J, Fundamentals of Building Construction Material and Method, John Wiley & Sons, 2011.*

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