FOURTH YEAR VII SEMESTER

1. Architectural Design VII (210711)

OBJECTIVE: The objective of the subject is to Understand design as a function of specific agenda of complex services, acoustics, building byelaws and structure and to understand design as a process: of problem identification, space analysis, formulation of requirements, evolution of design criteria and design, to incorporate elements of site planning and landscape in the design process, to prepare computer aided presentation drawings.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot					L	T	P			
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation									
				End Sem.	Proficiency in subject/ course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project								
1.	**210711**	**Architectural Design VII**	**DC- 15**	-	-		-	100	80	20	200	6	-	-	6*(1.5)	**9**	Offline**	AO

Problem -1

The range of design problems shall include projects of progressively increasing complexity. Exercises related to public buildings i.e. Commercial center, hospital, Study and incorporation of building bye-laws should be complete in this Sem.

Problem -2

The range of design problems shall include projects of progressively increasing complexity.

Exercises related to public buildings i.e. Auditorium, sports cinema, sports complex & educational buildings on sloping/ flat sites. Simultaneously, stress should be given on the interior treatment of small and large spaces. Freedom in design is to be given with preliminary introduction of importance and role of bye laws in building design.

Note: The sessional will be in the form of drawings and models along with technical report for the design dealt with. The evaluation should be done in intermediate review consisting of internal /external experts. There should be regular site visits to the building types dealt in the studio problems of which audio - visual should be prepared. The various aspects of the design problem shall be dealt with lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach.

COs & LOs for Architectural Design VII (210711)

<table>
<tr><td colspan="4">Overall Course Outcome: Understand design as a function of specific agenda of complex services, acoustics, building byelaws and structure, understand design as a process: of problem identification, space analysis, formulation of requirements, evolution of design criteria and design, incorporate elements of site planning and landscape in the design process, prepare computer aided presentation drawings.</td></tr>
<tr><td rowspan="5">CO
1, 2,
3, 4,
5</td><td rowspan="5">The course should enable the student to:
● Train the student to gather knowledge on the given design project based on books / literature and websites.
● Make the student understand the complexity, functioning and salient features of the design project through organizing field visit, train them to document and present the findings.
● Develop design ideas and create them.</td><td>LO1</td><td>Analyze and study, pre-design process, design process & conceptualization stages in design.</td></tr>
<tr><td>LO2</td><td>Understand the materials and technology required to build the same.</td></tr>
<tr><td>LO3</td><td>Understand the building byelaws and apply them to the project.</td></tr>
<tr><td>LO4</td><td>Handle large scale buildings such as projects of progressively increasing complexity.</td></tr>
<tr><td>LO5</td><td>Design the projects based on the concept of space and form, Innovate Visualization of projects using computer software is also acquired.</td></tr>
</table>

REFERENCES

1. "Planning by E. & O.E". Lliffe book Ltd., London.
2. D.E. CHIRAIRA & CALLENDAR, "Times Saver Standard for Building Types".
3. RUDOLF HERGE, "Nuferts Architects Data", Cross By Lockwood & Sons Ltd.
4. EDWARD D. MILLS, "Planning the Architects Hand Book".
5. National Building Code

2. Adv Building Construction (210712)

OBJECTIVE: The objective of the subject is to introduce the students about the implementation of new technology concepts which are applied in field of advanced construction and also to study different methods of construction in the field of architecture.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot					L	T	P			
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation									
				End Sem.	Proficiency in subject/ course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project								
2.	**210712**	**Adv Building Construction**	**DC- 16**	50	10	20	20	20	20	10	150	4	2	-	2*(1.5)	**5**	Blended *** (3/2)	PP

UNIT-1 SPECIAL STRUCTURES

Definitions, Types – single, double & multilayered grids – two way & three way space grids, connectors, Grids – Domes - various forms - Geodesic domes, Suspended cable structures – types of cable network systems, shapes of cable suspended systems, examples of tensile membrane structures – types of pneumatic structures. Long Span bridges, Cables Structure.

UNIT- 2 ADVANCE CONSTRUCTION SYSTEM

Advance construction systems and techniques developed by research organization in In dia- Design and detailing of building materials and components developed by research organizations like CBRI, SERC, NBO & BMTPC.

UNIT- 3 PRE STRESSED CONCRETE

Introduction to pre stressed concrete – Pre stressed concrete materials – Methods of pre stressing - Comparison between RCC and pre stressed concrete.

UNIT- 4 TALL BUILDINGS

Tall buildings structural systems – Rigid frames – Braced frames – Shear wall – Buildings – Wall frame buildings – Tubular buildings – Tube-in tube buildings – Outrigger braced system – Brief outline of their behavior and their applicability for various heights of buildings.

UNIT- 5 SHELLS AND FOLDED PLATES

Basic concepts of Shells – Types –Relative merits and applicability.

Folded plates – Types – Comparison with shells – Applicability. Arches & its types

COs & LOs for Adv Building Construction (210712)

Overall Course Outcome: Students will be able to **understand** about the implementation of new technology concepts which are applied in field of advanced construction and also to study different methods of construction in the field of architecture.

CO1	CO1 – As a result of studying about of latest materials and building technologies, structural systems , students will be able to understand use of latest technologies in the construction industry with a fair idea of their environmental performance.	LO1	**Remember** basic concepts of single, double & multi-layered grids – two way & three way space grids, connectors.
		LO2	**Learn** about domes - various forms - Geodesic domes, Suspended cable structures
		LO3	**Understand** the types of cable network systems, shapes of cable suspended systems, examples of tensile membrane structures.
		LO4	**Analyze** the types of pneumatic structures. Long Span bridges, Cables Structure.
		LO5	**Evaluating** role of latest materials and building technologies on site investigations, layout, site organization.
CO2	CO2 – As a result of studying about different research organization in India , students will be able to understand the detailing of building materials	LO1	**Remember** advance construction systems and techniques developed by research organization in India
		LO2	**Learn** about design and detailing of building materials and components developed by research organizations
		LO3	**Understand** the methodology of working in research organizations.

	and components developed by these research organizations.	LO4	**Analyze** design and detailing of building materials and components developed by research organizations .
		LO5	**Evaluating** role of latest materials and building technologies developed by research organization on site investigations, layout, site organization.
CO3	CO3 – As a result of studying about Pre stressed concrete materials, students will be able to analyse the use of advanced building construction methods and innovative architectural detailing with new materials.	LO1	**Learn** basic concepts of pre stressed concrete & pre stressed concrete material.
		LO2	**Understand** the methods of pre stressing.
		LO3	**Apply** the pre stressed concrete material on site investigations, layout, site organization.
		LO4	**Analyze** the comparison between RCC and pre stressed concrete..
		LO5	**Evaluating** pre stressed concrete material. through case studies and drawings of selected building types.
CO4	CO4 – As a result of studying about construction details in tall building structure, students will be able to understand the different types of structural methodologies involve in tall building structure.	LO1	**Remember** basic concepts regarding tall buildings structural systems
		LO2	**Learn** the Rigid frames – Braced frames – Shear wall – Buildings – Wall frame buildings – Tubular buildings – Tube-in tube buildings – Outrigger braced system
		LO3	**Understand** their behavior and their applicability for various heights of buildings.
		LO4	**Analyze** their behavior in different location.
		LO5	**Evaluating** their applicability for various heights of buildings through case studies and drawings of selected building types.
CO5	CO5 – As a result of studying basic concepts of Shells structure, students will be able to analyze different shells and folded plates and tensile structure for the space coverage.	LO1	**Remember** basic concept of shell structure.
		LO2	**Learn** its types and applicability.
		LO3	**Understand** folded plates structure.
		LO4	**Analyze** types folded plates structure and its Comparison with shells
		LO5	**Evaluating** their applicability through case studies.

REFERENCES:

1. Salvadori
2. Sinha .N.C and Roy .S.K, Fundamentals of Reinforced Concrete, S.Chand& Co. Ltd., New Delhi, 2001
3. Ramamrutham .S and Narayanan .R, Reinforced Concrete Structures, DhanpatRai Publications, New Delhi, 1997
4. Bryan Stafford and Alex Coull, Tall Building Structures, Analysis and Design John Wiley & Sons, New York, 1991
5. Bandyopadhyay .J.N, Thin Shell Structures Classical and Modern Analysis, New Age International Publishers, New Delhi, 1998
6. Ramaswamy .G.S, Design of Construction of Concrete Shell Roofs, McGraw Hill Publishing Company, New York, 19

Note: Total five questions shall be asked. Each question will consist of two parts, one of which will be of 7 marks (which shall be compulsory) and another with 3 marks(which shall be optional).

3. Project Management & Building Economics (210713)

Objective – The course aims to obtain knowledge of Project planning and project scheduling and project controlling, Role of decision in project management, etc.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot					L	T	P			
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation									
				End Sem.	Proficiency in subject/ course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project								
3.	**210713**	**Project Management & Building economics**	**PAEC-3**	50	10	20	20	-	-		100	3	2	1	-	**3**	Offline***	PP

UNIT- 1 INTRODUCTION.

Project planning and project scheduling and project controlling, Role of decision in project management, Method of planning and programming, Human aspects of project management,. Work breakdown structure, Life cycle of a project, Disadvantages of traditional management system. Project management constructional organization, delegation of responsibilities, Role of an Architect, Engineer and Contractor.

UNIT- 2 ELEMENTS OF NETWORK & CPM AND PERT ANALYSIS

Event, Activity, Dummy, Network Rules, Graphical guidelines for network, Numbering of events. CPM network analysis & PERT time estimates, time computation & network analysis

UNIT- 3 PROJECT TIME REDUCTION AND OPTIMIZATION

Project cost, indirect cost, direct project cost, Slope of the direct cost curve, Total project cost & optimum duration, contracting the network for cost optimization, steps in cost-time optimization.

UNIT- 4 PROJECT UPDATING & RESOURCE ALLOCATION

When to update? Data required for updating, steps in the process of updating. Resource usage profile: Histogram, Resource smoothing and Resource leveling.

UNIT- 5 COMPUTERIZED PROJECT MANAGEMENT & PRACTICAL IMPLICATIONS

Introduction: creating a new project, building task. Creating resources and assessing costs, refining your project. Project tracking – understanding tracking, recording actual. Reporting on progress. Analyzing financial progress, Construction site practices, Inspection & quality control.

COs & LOs for Project Management & Building Economics (210713)

Overall Course Outcome: Students will be able to **understand** construction industry practices and project management techniques needed for coordinating building projects professionally.

CO1	CO1 – As a result of studying Project planning, project scheduling and project controlling, students will be able to understand the role of decision making in project management, method of planning and human aspects of project management	LO1	**Remember** basic concepts regarding the Project planning, project scheduling and project controlling.
		LO2	**Learn** the role of decision making in project management, method of planning and human aspects of project management
		LO3	**Understand** the work breakdown structure, Life cycle of a project and disadvantages of traditional management system.
		LO4	**Analyze** project management constructional organization activities and delegation of responsibilities
		LO5	**Evaluating** role of an Architect, Engineer and Contractor in building economics.
CO2	CO2 – As a result of studying Event, Activity, Dummy, Network Rules, Graphical guidelines for network, Numbering of events., students will be able to understand the site investigations, layout, site organization, networking techniques, PERT/CPM, LOB, MS Project	LO1	**Learn** basic concepts regarding Event, Activity, Dummy, Network Rules, Graphical guidelines for network, Numbering of events
		LO2	**Understand** the networking techniques, PERT/CPM, LOB, MS Project
		LO3	**Apply** the networking techniques on site investigations, layout, site organization
		LO4	**Analyze** the Event, Activity, Dummy, Network Rules, Numbering of events on a project.
		LO5	**Draw** all the elements of PERT/CPM **.**

CO3	CO3 – As a result of studying Resource management and value engineering-methods, students will be able to understand the material/ labour estimation, resource scheduling and levelling, construction equipment types and applications	LO1	**Learn** basic concepts regarding Project cost, indirect cost, direct project cost, Slope of the direct cost curve.
		LO2	**Understand** the total project cost & optimum duration, contracting the network for cost optimization, steps in cost-time optimization.
		LO3	**Apply** the cost optimization techniques on site investigations, layout, site organization
		LO4	**Analyze** the total project cost & optimum duration, contracting the network for cost optimization
		LO5	**Evaluating** cost optimization techniques on site investigations, layout, site organization
CO4	CO4 – As a result of studying to Compute the money values and demand forecasting., students will be able to understand the project updating and resource allocation on different steps of a project activities	LO1	**Learn** basic concepts regarding Project monitoring and cost control, manpower management, safety and labour issues.
		LO2	**Understand** the data required for updating, steps in the process of updating.
		LO3	**Apply** project monitoring and cost control, manpower management techniques on site investigations, layout, site organization
		LO4	**Analyze** the Resource usage profile: Histogram, Resource smoothing and Resource levelling.
		LO5	**Evaluating** project monitoring and cost control, manpower management techniques on site investigations, layout, site organization
CO5	CO5 – As a result of studying computerized project management and practical implication , students will be able to understand the on how to enhance the professional ability as an architect in a project	LO1	**Learn** basic concepts regarding new project, building task and creating resources and assessing costs.
		LO2	**Understand** the project tracking activities and to record the progress.
		LO3	**Apply** project tracking activities
		LO4	**Analyze** the financial progress.
		LO5	**Evaluating** construction site practices, Inspection & quality control.

REFERENCES:

1. S.P. Mukhopadyay, “Project Management for architects and Civil Engineers”, IIT, Kharagpur 2. 1974.
3. Jerome D. Wiest and Ferdinand K. Levy, “A Managementuide to PERT/CPM”, prentice hall ofIndian pub. Ltd. New Delhi 1982.
4. SR.A. Burgess and G. White, “ Building production and project management”, the
5. construction press, London 1979.
6. Dr. Punmia and K.K Kandelwal – project planning and control with PERT/CPM, Laxmi publications, New Delhi, 1987
7. Elaine marmel, Microsoft office project 2003 Bible, Wiley Dreamtact (p) Ltd, New Delhi, 2004

4. Estimating and Costing & Specifications (210714)

OBJECTIVE- The objective of the subject is to introduce the students about the successful implementation of the project to know about the material required and cost to be incurred before starting a new project.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot										
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation				L	T	P			
				End Sem.	Proficiency in subject/ course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project								
4.	**210714**	**Estimation, Costing & Specifications**	**PAEC-4**	50	10	20	20	-	-		100	3	2	1	-	**3**	Blended ** (2/1)	PP

UNIT- 1 INTRODUCTION TO SPECIFICATION

Specification - Definition, purpose, procedure for writing specifications for the purpose of calling tenders, types of specification. General specifications for 1St, 2nd, 3rd and 4th Class buildings. Data base for writing specification.

UNIT- 2 SPECIFICATION FOR DIFFERENT ITEMS

Specifications for the following items – Bricks; sand; cement; coarse aggregate; water; reinforcement; storing and handling of materials; Earth work in foundation; PCC; RCC; First class brick work in cement mortar; half brick thick partition in cement mortar; reinforced brick work; DPC; glazed tiles in skirting and dado; cement plaster; joinery in wood, steel &aluminum; painting to walls –emulsion, enamel paint

; painting to joinery ; varnishing ; French polishing ; based on surveys and Current trends.

UNIT- 3 INTRODUCTION TO ESTIMATION

Estimation – definition; purpose; types of estimate; various methods of approximate estimate of buildings with Introduction of computer applications in estimation.

UNIT- 4 DETAILED ESTIMATE

Detailed estimate – data required, factors to be considered, methodology of preparation, abstract of estimate, contingencies, work-charged establishment, bill of quantities, different methods for estimating building works, methods of measurement of works. – With case studies.

UNIT- 5 RATE ANALYSIS

Rate analysis – definition; method of preparation; quantity and labor estimate for unit work; task or outturn work; rate analysis for: earth work, concrete works, first class brick work, reinforced brick work, cement plastering, DPC with cement mortar/ concrete, finishing (cement paint, distemper, acrylic emulsion, enamel paint) to walls & ceiling. Using the current market rates for the materials, labor, tools and equipment

COs & LOs for Estimation, Costing & Specifications (210714)

Overall Course Outcome: Students will be able to calculate and estimate the costing of any building based on the material, measurements and specifications, etc.

CO1	Studying specification, students will be able to identify various materials based on specification and apply the understanding generated in their own design.	LO1	**Remember** basic definitions in specification.
		LO2	**Observe** the purpose and types of specification
		LO3	**Understand** general specifications, classes of buildings and database for writing specification.
CO2	Studying this, students will be able to analyze and apply specifications of different material and tasks in	LO1	**Understand** specification of basic construction material for substructure and superstructure.
		LO2	**Identify** classes in brickwork.

	construction in their own design and profession.	LO3	**Analyse** specification for basic construction work such as Dado, joiner, painting, etc. based on surveys and current trends.
CO3	Studying this, students will be able to estimate the approximate and basic construction cost of a building and their own design.	LO1	**Learn** the definition, purpose and types of estimation in architecture.
		LO2	**Identify** various methods of approximate estimate of the building.
		LO3	**Understand** basic application of computer software in estimation.
		LO4	**Apply** the formulas learned into calculating basic estimate of a small-scale building.
CO4	Studying this, students will be able to do detailed estimate of the construction cost of a building and their own design and profession.	LO1	**Learn** the definition, different methods, purpose and data required for preparation of detailed estimate of a building.
		LO2	**Identify** various methodologies for the preparation of detailed estimate of buildings.
		LO3	**Understand** abstract, contingencies and charge establishment, bill of quantities and methods of measurements, in estimation.
		LO4	**Illustrate** the different methods of detailed estimate with the help of case studies of buildings.
		LO5	**Apply** the methods learned into calculating detailed estimate of a small-scale building.
CO5	Studying this, students will be able to rate analysis for different construction works and apply them in their own design and profession.	LO1	**Learn** the definition and methods of preparation of rate analysis.
		LO2	**Understand** quantity and labor estimate, task or outturn work, etc.
		LO3	**Analyse** the rates for various construction work with different class of construction.
		LO4	**Calculate** the rate using the current market rates for the materials, labor, tools and equipments.

REFERENCES:

1. M.Chakraborti, .Estimation, Costing, Specification and Valuation in Civil engineering.
2. Dutta, Estimating and Costing, S. Dutta and Co., Lucknow 1983.
3. PWD Specifications of Tamil Nadu State Government.
4. CPWD Specifications of Government of India.

5. Elective- V

OBJECTIVE-The objective of the subject is to introduce the students about the best teaching learning resources and programs initiated by the Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The course is opted from NPTEL platform in traditional mode.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted									Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot			MOOC				L	T	P			
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation											
				End Sem.	Proficiency in subject/ course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project	Assignment	Exam								
5.	-	ELECTIVE V	DE- 5	-	-	-	-	-	-		25	75	100	3	2	1	-	**3**	Offline *	MCQ

S no	Elective	Sub code	Sub Name	Remark
1	ELECTIVE V			opted from NPTEL platform

Opted from NPTEL platform (July- Dec 2023)

6. URBAN & REGIONAL PLANNING (210717)

OBJECTIVES:

To expose the students to the history and development of planning, its relevance & application to modern day principles of town planning.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot										
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation				L	T	P			
				End Sem.	Proficiency in subject/ course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project								
6.	**210717**	**Urban & Regional Planning**	**DC**	50	10	20	20	-	-		100	3	2	1	-	**3**	Blended * (2/1)	PP

UNIT- 1 PLANNING CONCEPTS

Role and contribution of the following towards contemporary town planning thought – Geddesian Triad and outlook Tower by Patrick Geddes, City Beautiful by Daniel Burnham, Garden city by Ebenezer Howard, Neighbourhood by C.A.Perry, Radburn by Henry Wright and Clearance stein, Ekistics by CA Doxiadis, City for three million habitat, Radiant city and Chandigarh by Le Corbusier and F.L.Wright

UNIT- 2 CONTEMPORARY ISSUES IN URBAN AND REGIONAL PLANNING

Contemporary problems of settlements, Environmental impact of unplanned growth. Socio-economic aspects of urban housing and problems of slums, rationale of urban regulatory controls. Urban redevelopment and renewal, urban traffic and transportation planning

UNIT- 3 URBAN AND REGIONAL PLANNING

Influence of socio-economic factors in the development of human settlements, growth and decay of human settlements. Classification of settlements: Classification based on population, functions, locations, Municipal status. Town and its land uses, graphical representation and color coding of land use, character of a town, categories of a town, densities of a town, Principles, Advantages and types of Zoning. Scope and purpose of Perspective Plan, Regional Plan, Development Plan, Local Area Plan, Special Purpose Plan, Annual Plan, Project.

UNIT- 4 URBAN GOVERNANCE

Schemes, programs by government, Urban management including various schemes for small and medium towns by GOI. Human resource utilization - through schemes and use of PPP

UNIT- 5 EMERGING TRENDS IN URBAN AND REGIONAL PLANNING

New Urbanism, Smart growth, TOD, Form-Based Codes, Rural village, Transect Future of cities and cities of future - Sustainable cities, Intelligent cities, Liveable cities, Resilient cities, Smart Cities, Global city, Eco city, Compact city, Vertical urbanism, MediCity, Sports city**.**

COs & LOs for Urban And Regional Planning (210717)

Overall Course Outcome: Students will be able to identify various challenges of urban areas and suggest sustainable planning methods.

CO1	**Elaborate** the dynamics of city growth and development.	LO1	**Study** the concept of urbanization and growth pattern.
		LO2	**Explain** the impact of cities' scale and complexity on National development.
		LO3	**Identify** the issues and challenges of Peri urban and fringe areas.
		LO4	**Examine** the physical and functional linkage between the city, fringe and periphery
		LO5	**Determine** the principal dimensions of urban transformation (economic, social, cultural, physical, environmental, and spatial) and the key interdependencies among these facets of urban change
CO2	Student will be able to **elaborate** the role of socio-cultural aspects on growth patterns of city and neighbourhood communities	LO1	**Define** Gender Sensitive Planning, Inclusive Planning, Community Participation
		LO2	**Infer** various settlement policies for rural and urban settlements provided by National Commission on Urbanization and Rural Habitat Policy
		LO3	**Identify** social problems of slums and squatter settlements formed as a result of rapid urbanization and industrialization.
		LO4	**Examine** the impact of social transformation on social life, safety and security in rural and urban areas.
		LO5	**Discuss** the experiences from developing countries regarding settlement structure, growth and spatial distribution.

CO3	Student will be able to **propose** sustainable measures of Planning for metro and mega cities.	LO1	**Explain** the concept of Urban Sustainability
		LO2	**Identify** the problems pertaining to urban expansion in metro and mega cities
		LO3	**Examine** the issues and problems of inner city.
		LO4	**Determine** various strategies to achieve inclusivity, equity, improved quality of life and sustainability in metro and mage cities.
		LO5	**Discuss** Transit-Oriented Development as an approach to sustainable development in metro and mega cities.
CO4	**Recommend** effective tools and approach for Human Settlement Planning	LO1	**Study** various Urban Development policies and programs
		LO2	**Outline** the role of different agencies/bodies /authorities at different level
		LO3	**Analyse** policies, norms, byelaws and schemes in Indian context.
		LO4	**Determine** the success and failure of various schemes introduced at different levels
		LO5	**Elaborate** the concept of Human Settlement Planning
CO5	**Explain** land and real estate development impact on Urban land policies, land use and environment.	LO1	**Learn** dynamics of Urban Land market.
		LO2	**Summarize** land management techniques
		LO3	**Identify** legal aspects of development and their impacts on real estate development.
		LO4	**Analyse** impact on Urban land policies, land use and environment.
		LO5	**Perceive** knowledge on various Environmental Legislations and policies.

REFERENCES:

1. John Ratcliffe, An Introduction to Town and Country Planning, Hutchinson 1981
2. Arthur B. Gallion and Simon Eisner, The Urban Pattern – City planning and Design, Van Nostrand Reinhold company
3. Rangwala, Town Planning, Charotar publishing house
4. G.K.Hiraskar, Town Planning
5. Rame Gowda, Urban and Regional planning
6. Town Planning, A.Bandopadhyay, Books and Allied, Calcutta 2000

7. Summer Internship project- III **(04 weeks- Evaluation) (210719)**

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot										
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation				L	T	P			
				End Sem.	Proficiency in subject/ course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project								
7.	**210719**	**Summer Internship Project III**	**SEC- 9**	-	-		-	50	-		50	2	-	-	2	**1**	Offline	SO

Seminar / Workshop/ Training during previous summer break will be evaluated