

FOURTH YEAR (8TH SEMESTER)

4RARC801: ARCHITECTURAL DESIGN - VIII

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FOURTH	4RARC801	ARCHITECTURAL DESIGN – VIII	1	0	10	100	50	50	200	11	8

OBJECTIVES:

- Understanding design as a function of specific agenda of complex services, acoustics, building byelaws and structure
- To understand design as a process: of problem identification, space analysis, formulation of requirements, evolution of design criteria and design.
- Incorporating elements of site planning and landscape in the design process: Preparation of computer aided presentation drawings.

CONTENTS:

Services and Byelaws in low-rise buildings: **Suggested design exercises:**
Cinema Halls, Auditoriums, Indoor Stadiums etc.

Services and Byelaws in high-rise buildings: **Suggested design exercises:**
Hospitals. Hotels, Super Markets etc.

Note: The subject will be taught by at least one teacher for every 15 students.

APPROACH:

- Students will develop the programs after prototype studies.
- Computer drawings will be produced for at least one of the design programs.
- Time problems between major studio programs shall be given to prepare students for the examinations.
Conduct of Examinations:
- The duration of examination for this subject is 6X3 = 18 hours. The examination shall be held over three days. The drawings completed on the first and the second days shall be left in the examination hall and shall be completed and submitted on the third day.

References:

1. Ching, Francis D. K. (2007). *Architecture: Form, Space and Order*, John Wiley and Sons Inc., 3rd Edition, New Jersey, Canada, ISBN 978-0-471-75216-5
2. Lidwell, William, Holden, Kestina, Butler, Jill, “*Universal Principles of Design*”, Rockport – Publications, Massachusetts.

4RARC802: BUILDING CONSTRUCTION & MATERIALS - VIII

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FOURTH	4RARC802	BUILDING CONSTRUCTION & MATERIALS - VIII	1	0	5	100	50	50	200	6	6

OBJECTIVES:

- To introduce and familiarize the students with advanced and speedy building techniques.
- The understanding for the system to be adopted for the construction of large span structures.

CONTENTS:

CONSTRUCTION:

Prefabrication:

system, joints,

Systems open prefab system, large panel prefab

pro-casting methods, materials, on-site and off-site prefabrication, components etc.

Pre-stressed Concrete:

application to

Introduction, methods of pre-stressing and their

large-space structures.

Speedy Construction:

Grid Slab,

Methods,

Types of floor construction: Beam & Slab, Waffle

Construction:

Drop Beam & Slab, Flush Slab. Lift Slab

Cast-in-situ service & stair cores;

Cross wall & Box frame construction.

Industrial Construction:

North-

Structural Steel Works: Portal Frame Construction.

coverings

Light truss and Lattice Girder roof with various roof

Construction Equipment:

Rollers,

Electric hand tools, Vibrators, Power Floats, Pumps,

Earth Moving & Excavation: Dozers, Scrapers,

Graders, Shovels, Skimmers. Back actor, Dragline, Trenchers.

Transportation: Lorries. Tracks, Dumpers, Elevators, Conveyors,

Hoist, Cranes (mobile, static, tower).

Concrete Mixers, Pumps etc.

Defects and Remedies:

The study of various defects in buildings and their remedies.

Defects caused by dampness, applied forces and changes in size.

APPROACH:

- The students would be familiarized with vernacular terminology prevalent in this part of the country.
- The emphasis will be on construction details.
- Site visits will be integral part of sessional work.

References:

1. Timberlake James (2010) *Prefab Architecture: A Guide to Modular Design and Construction*, Wiley Publication, Hoboken, New Jersey, US.
2. N Krishna Raju (2006) *Prestressed Concrete*, Tata McGraw-Hill Education, India.
3. Luntz Robert (2013) *The Modern Modular Prefab Houses of Resolution: 4 Architecture*, Princeton Architectural Press, New York, US.
4. Koones Sheri (2010) *Prefabulous and Sustainable: Building and Customizing an Affordable, Energy-Efficient Home*, Harry N. Abrams publishing, NY, US.

4RARC803: STRUCTURES - VIII

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FOURTH	4RARC803	STRUCTURES - VIII	2	1	0	50	50	-	100	3	4

OBJECTIVES:

- To understand the basic of soil mechanics and foundation engineering.
- To understand the design of steel structures.

CONTENTS:

- Elements of soil Mechanics & foundation engineering:**
- Properties of Soil
 - Safe bearing Capacity.
 - Active & Passive Earth Pressure.
 - Type of foundation and their Design. (Spread. Piles & raft foundation.
- Steel Structures:**
- Riveted & welded connections (Simple cases only).
 - Tension & Compression members.
 - Beam & Plate Girder.
 - Introduction to grillage foundation.
 - Trusses.

APPROACH:

- The lectures by the experts in the field will be arranged to make the students do independent design of foundation of steel structure elements.

References:

1. Bhavikatti S.S. (2009) “*Steel Structures By Limit State Method as Per IS: 800-2007*”.
2. Negi L. S. (2009) “*Steel Structure Design*”. L.P.

4RARC804: TOWN PLANNING

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER			In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks			
FOURTH	4RARC804	TOWN PLANNING	1	3	0	50	50	-	100	4	4

OBJECTIVES:

- Introduction to elementary art and science of town planning including traffic and transportation planning.
- Introduction to evolution and development of planning thought through history.

CONTENTS:

Introduction to Principles and Techniques:

Town planning and architecture. role of a town Planner.

Town planning Terminology:

Land use. Concept of F.A.R. and Density. Zoning and Subdivision Regulations, Master Plan

The Planning Process:

Town planning surveys, Preparation of MASTER PLAN for old and new towns. Planning Standards.

Evolution of planning thought:

Beginning of settlements.

Historical and analytical account of cities in history:

Egyptian, Mesopotamian, Greek, Roman. Medieval, Renaissance and Baroque. Development of modern cities: early utopias, Ebenezer Howard's Garden city, Tony Garnier's Industrial town, Raeburn planning, new cities such as Chandigarh, Brasilia etc.

Traffic and transportation planning:

Traffic and urban environment, Traffic design Elements, Traffic control devices, road intersections.

APPROACH:

- The course of evolution of planning thought shall be conducted through audiovisual lectures. Expert lectures on specialized topics. 15 days study programme to ascertain and enunciate the town planning problems of a chosen area.

References:

- 1 Lynch Kevin (1960) *The image of the city*, MIT Press, Cambridge, Massachusetts, United States
- 2 Howard James (1993) *The Geography of Nowhere*, Simon & Schuster, US.
- 3 Bacon Edmund (1967) *Design of Cities*, Thames & Hudson, London, UK.
- 4 Noah Hysler-Rubin (2011) *Patrick Geddes and Town Planning: A Critical View*, Routledge Publisher, London, UK.
- 5 Geddes Patrick (1915) *Cities in evolution*, Williams and Norgate, London, UK

4RARC805: ACOUSTICS

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FOURTH	4RARC805	ACOUSTICS	1	1	0	50	50	-	100	2	3

OBJECTIVES:

To initiate students into theory and practice of Acoustics.

CONTENTS:

Introduction & terminology:

Properties of audible sound intensity & loudness, frequency & pitch, quality.

Behavior of audible sound:

Reflection of sound, absorption, transmission.

Common acoustical defects:

Echo, sound foci, dead spots, sound shadows, resonance, Insufficient loudness, external noise.

Noise control:

Indoor noise, planning against indoor noise, outdoor noise, planning against outdoor (traffic & buildings in built — up area) noise

Constructional measures for sound insulation of buildings:

Materials, hollow & composite wall construction, flooring & ceiling.

Sound system - a brief study:

Sound reinforcement system, public address system, sound system equipment specification.

Acoustic design considerations

For the following:

Auditorium, conference rooms.

References:

1. Finch Robert D. (2007), *Introduction to Acoustics*, PHI Publishing, New Delhi.
2. Bhattacharya D (2007), *A Text Book Oscillations, Waves & Acoustics*, S.Chand (G/L) & Company Ltd, New Delhi.
3. Long Marshall (2005) *Architectural Acoustics (Applications of Modern Acoustics)*, Academic Press, Cambridge, Massachusetts.
4. Wilkes Joseph A. (2010) *Architectural Acoustics: Principles and Practice; 2nd Revised edition*, John Wiley & Sons; New Jersey, US.

4RARC806: LANDSCAPE ARCHITECTURE

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER			In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks			
FOURTH	4RARC806	LANDSCAPE ARCHITECTURE	2	2	0	50	50	-	100	4	3

OBJECTIVES:

- To make the students aware of plant-escape around them:
- To familiarize the students with techniques of preparation of simple landscape presentations.

CONTENTS:

Introduction to Landscape: Meaning of landscape and its relevance to architecture.

Landscape graphics: Tools and materials.

Graphic techniques: drawing trees with different textures, foliage patterns, tone, contrast and balance, rock and water.

Conventional symbols in landscape presentations

Conceptual drawings,

Preliminary landscape plans

Planting plans and drawings

Plants:

Plant Identification: Botanical and vernacular names of trees.

Shrubs, grasses and flowers and their ideal use.

Construction Techniques:

Details of pavements, retaining walls, grass laying, wooden decks and outdoor furniture.

Planned landscape:

Small landscape design proposal incorporating the basics covered above, including calculation.

APPROACH:

- Emphasis would be on drawing in studios.
- Site visits to the Botanical garden and flower shows for plant identification.

References:

1. Swaffield Simon (2002) *Theory in Landscape Architecture: A Reader (Penn Studies in Landscape Architecture)*, University of Pennsylvania Press, Philadelphia.
2. Correa Charles(2010) *A Place in the Shade: The New Landscape and Other Essays*, Penguin Books India, India.
3. Holden Robert (2014)*Landscape Architecture: An Introduction*, Laurence King Publishing, London.
4. Dines Nicholas T. (1998) *Time-Saver Standards for Landscape Architecture* second edition, McGraw-Hill Publishing Company, New Delhi.

4RARCP807: RESEARCH SKILLS & PROJECT INTRODUCTION (PRACTICAL)

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FOURTH	4RARCP807	RESEARCH SKILLS & PROJECT INTRODUCTION (PRACTICAL)	0	1	2	50	-	50	100	3	3

OBJECTIVES:

- Understanding basic principles of any research with special reference to architectural research and applications.
- To write a technical paper of about 5000 words with original input.

CONTENTS:

Introduction:

Learning the formulation of research question or hypothesis

Module Writing a Technical Paper:

Writing a paper of 5000 words in following stages: Formulation of an original research issue by ascertaining the gaps in research Synopsis with clear heads of Intent, Background, Aims and Objectives, Scope, Methodology. Structuring the body of the paper in detail. Ascertaining Primary and Secondary Sources. Referencing in Harvard Style. Utilizing the sources to reach to the desired objectives. Editing the paper.

References:

1. Allison Brian (2001) *Research Skills for Students (Transferable & Learning Skills)*, De Montfort University, New York.
2. Borden (2000) *The dissertation : an architecture student's handbook*, Oxford : Architectural Press
3. David Wang (2013) *Architectural Research Methods second edition*, John Wiley & Sons Ltd, New York.

4RARCP808: ELECTIVE – I (PRACTICAL)

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FOURTH	4RARCP808	ELECTIVE – I (PRACTICAL)	0	1	2	50	-	50	100	3	3

General Guidelines:

The electives of B. Arch VIII and IX Semesters have been broadly classified into three parts: Communication Skills and Humanities (Elective 1, which will run in VIII Semester), Design and Technology (Elective 2), and Independent Directions (Elective 3). Elective 2 and 3 will run in IX Semester. These electives will enable students to initially suit their interests at the undergraduate level and later assist them pursue their specific interests at the postgraduate level. Students are expected to choose one elective from each part, having one elective in Semester VIII and two electives in Semester IX. The outlines of each elective have been broadly outlined to suit the availability and interests of faculty in different institutions. Considering the broad outline for each elective, in which only viva-voce examinations is to be held applicable only to 8th Semester, students are expected to submit a minimum of 5 studios/written assignments or equivalent, depending on the type of elective chosen, so as to enable uniformity in awarding sessional marks to the students in different institutions of the university.

Electives Available:

- (i) **Graphic Design:** Graphic design as means to explore understanding, development and communication of visual from with emphasis on symbology, typography, organization and signage.
- (ii) **Ceramics:** Introduction to basic properties and techniques of clay including all hand building techniques as well as glaze applications.

4ARC8010: SEAMLESS LEARNING

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER			In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks			
FOURTH	4ARC8010	SEAMLESS LEARNING	0	0	2	100	-	-	100	2	1

Course objectives:

- To sensitize among the students importance of values in a social system.
- To develop a sense of social responsibility among the students and encourage them to take up the initiative to serve for the noble cause.

METHODOLOGY

1. The course shall be inclusive of the various activities which shall be performed under the expert guidance of the course instructor.

4ARC8011: CO- CURRICULAR ACTIVITIES

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		EIGHTH SEMESTER			In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks			
FOURTH	4ARC8011	CO- CURRICULAR ACTIVITIES	0	0	2	100	-	-	100	2	1

Course objectives:

- To sensitize among the students importance of co-curricular activities in a social system.
- To give an opportunity of brushing up the skills to a limit of perfection and facilitating for the overall development of the students.
- To encourage the students for taking up the challenge of competing with the students of the other schools to ensure the enhancement of their interaction and coherent development.

METHODOLOGY

1. The students shall be informed about the various competitions/ conferences, being organized in and around at National and International level, by the respective club and/ or course co-ordinators.
2. The students shall be given effective guidance related to the respective clubs and other activities.
3. The students shall be enrolled in at least one club as a mandate.