

**Uttarakhand Tech. University, Dehradun**  
**Faculty of Architecture**

**B. ARCH. (Fourth Year) SEMESTER – IX**  
**AR – 901 ARCHITECTURAL DESIGN– IX**

Schedule of Teaching and Examination							Examination Duration	
L	P/TV	ST	TOTAL	S	T	P/V	TOTAL	
1	-	10	11	100	100	50	250	3 x 6 = 18 Hours

**OBJECTIVES**

- Understanding design as a process of problem identification, space standards, formulation of requirements, evolution of design criteria and development of design of buildings in urban context, phasing and development.
- Understanding relationship of buildings/ building amongst themselves and with a given environments.

**CONTENTS**

- Urban intervention Projects: Design of buildings/ building complexes in specific urban context such as heritage zones, near existing and within built environments.
- Development Projects containing group of buildings with multiplicity of constraints such as relationship of land uses, space, architectural character, circulation, movement, landscape and buildings.

<b>Suggested Design exercise</b>	:	1. Redevelopment, rehabilitation and urban improvement projects. 2. Development Projects such as Universities, District Centers and City Centers etc.
<b>Approach</b>	:	1. The design methodology will take precedence over design. 2. Model of existing site shall be a pre requisite for urban intervention programs. 3. Part of the project must be done in groups to develop teamwork and a multi-faceted approach to design.

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

<b>CONDUCT OF EXAMINATIONS</b>	:	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.
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**B. ARCH. (Fourth Year) SEMESTER – IX**  
**AR – 902 CONSTRUCTION & MATERIALS – IX**

Schedule of Teaching and Examination								Examination Duration
L	P/TV	ST	TOTAL	S	T	P/V	TOTAL	
1	-	6	7	100	50	50	200	3 Hours

**OBJECTIVES**

- To introduce and familiarize the students with the various construction equipments required for speedy and effective construction works.
- To study the causes and remedies of various defects in existing and new construction.
- Understanding the need and application of modular coordination in buildings.

**CONSTRUCTION :**

**Construction Equipments** : Electric hand tools, Vibrators, Power Floats, Pumps, Rollers. Earth Moving & Excavation: Dozers, Scrapers, Graders, Shovels, Skimmers, Backactor, Dragline, Trenchers. Transportation : Lorries, Trucks, 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.

**Modular Coordination** : Aims, basis, planning, dimensioning, Assembly of components, tolerances, modules, reference system, grids, positioning of functional elements – slabs, walls, staircases; Standardization in buildings' design and their components.

**APPROACH :**

- The students would be familiarized with vernacular terminology prevalent in this part of the country.
- The emphasis will be on construction details as applicable to Indian conditions.
- Site visits and market surveys will be an integral part of sessional work.

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**B. ARCH. (Fourth Year) SEMESTER – IX**  
**AR – 903 PROFESSIONAL PRACTICE – I**

Schedule of Teaching and Examination								Examination Duration
L	P/TV	ST	TOTAL	S	T	P/V	TOTAL	
2	2	-	4	50	100	-	150	3 Hours

**OBJECTIVES**

- To acquaint the students with the role of an architect in society; scale of charges; an architect's conduct in architectural Practice.
- To familiarize a student with requirements of Architectural Competitions and appointment of a contractor through tenders.

**CONSTRUCTION :**

<b>Role of Professional Bodies</b>	:	The Indian Institute of Architects, its working constitution and byelaws, categories of memberships, election procedures; The Uttar Pradesh Architects Association.
<b>Architects' Act 1972 :</b>	:	Detail study of the act, Council of Architecture; Procedures of membership.
<b>Scale of Charges :</b>	:	Conditions of engagement of an architect – Duties; Responsibilities and liabilities of a professional architect; Scale of charges, mode of payment etc.
<b>Code of Professional conduct</b>	:	Clauses governing conduct of professional architect.
<b>Architectural Competition</b>	:	Types of competitions; need and procedure for conducting competitions.
<b>Tender and Contract</b>	:	Type of building contracts, their demands, Preparation of tender documents, method of inviting tenders, opening of tenders, preparation of comparative statement, recommendation and award of projects, preparation of contract documents, general conditions of contract, interim certificated, defect liability period, retention amount and virtual completion.

**APPROACH :**

- The course will be covered through lectures citing practical examples.
- Specialist should supplement the course through extension lectures.

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**B. ARCH. (Fourth Year) SEMESTER – IX**  
**AR – 904 BUILDING ECONOMICS**

Schedule of Teaching and Examination								Examination Duration
L	P/TV	ST	TOTAL	S	T	P/V	TOTAL	
1	2	-	3	50	50	-	100	3 Hours

**OBJECTIVES**

- Understanding Architectural Projects as an Economic function and understanding their evaluation techniques.

**CONTENTS**

<b>Elementary Concepts of Economics</b>	:	- Utility, Demand and Supply, Wants, Cost, Value, Price, - Micro & macro Economics
<b>Meaning &amp; Scope of Building Economics</b>	:	- Issues - Importance of Building Economics
<b>Project Costing</b>	:	- Initial Costing <ul style="list-style-type: none"><li>▪ Elements of Cost Components</li></ul> - Furniture Costing <ul style="list-style-type: none"><li>▪ Different Types of Costs and their impact on Building Projects</li></ul> - Non Monetary cost.
<b>Benefits of Buildings</b>	:	Monetary and Non Monetary benefits of buildings
<b>Economic performance of Building</b>	:	- Types of Economic Performance - Accounting for Risks & Uncertainty - Techniques of Performance Analysis - Cost Benefit Analysis, Rate of Return Analysis etc.
<b>Value Engineering</b>	:	Concept, its application to Architectural Projects, Real Estate PRO-FORM Analysis
<b>Feasibility Analysis</b>	:	Concept and Types of Feasibility, Feasibility Analysis

**METHODOLOGY :**

- Lectures based delivery of Subject exemplified with tutorial Projects.

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**B. ARCH. (Fourth Year) SEMESTER – IX**  
**AR – 905 ELECTIVE - II**

Schedule of Teaching and Examination							Examination Duration
<b>L</b>	<b>P/TV</b>	<b>ST</b>	<b>TOTAL</b>	<b>S</b>	<b>T</b>	<b>P/V</b>	<b>TOTAL</b>
2	-	2	4	50	-	50	100

Only viva voce, no exam.

**General Guidelines :**

- As already mentioned in the syllabus of B. Arch. Semester VIII syllabus, the electives of B. Arch VIII and IX semesters have been broadly classified into three parts: Communications skills and Humanities (Elective 1, which will run in VIII Semester), Design and Technology (Elective – II), and Independent Directions (Elective – III). Elective I, Communication skills and Humanities has already been covered in Semester VIII and therefore Elective II and Elective III will run in IX semester. These elective 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 from the choices being offered by the institution 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, students are expected to submit a minimum of 5 studios/ written assignments, 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. The scheme of teaching, the scheme of examination and the duration of the examination as mentioned above is to be followed separately for the two electives being offered in the IX semester.

**Semester IX Elective – II (Design and Technology Group)**

- Furniture Design** : Furniture design as a creative, problem solving design process based on ergonomics, materials, working parameters and visual perception, both as an independent entity as well as a part of a system in a given interior space.
- Art Appreciation** : To develop an understanding and appreciation of art through study and criticisms of some major art movements of twentieth century and their ways of expression.
- Architecture Design Theory** : Insight into aspects of architecture design theory through critical readings and discussions of primary theoretical texts to serve precedence and means for development of ideas and solutions to guide contemporary thinking and practice.
- Waste Disposal** : To identify the problem and understand the different types of process, mechanism and techniques involved for the disposal of solid wastes in urban areas.
- Advanced Services** : Comprehensive exploration of electrical, water supply and sanitation, and other services related issues through the design of ongoing studio project to provide practical insight and interaction between architectural design and appropriate services.

- Advanced Structures** : Exploration of issues related to structural design from supporting to roofing systems through the design of ongoing studio project to provide practical insight and interaction between architectural design and appropriate structures.
- Earthquake Resistant Structures** : Development of attitudes to design as well as understanding the types and issues involved in designing and construction of earthquake resistant structures.
- Human Values** : Exploring human values that make 'good' human being and society through study of work and personal lives of modern Indian P

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**B. ARCH. (Fourth Year) SEMESTER – IX**  
**AR – 906 ELECTIVE - III**

Schedule of Teaching and Examination								Examination Duration
L	P/TV	ST	TOTAL	S	T	P/V	TOTAL	
2	2	-	4	100	-	50	150	Only viva voce, no exam.

**Semester X Elective – III (Independent Directors Group)**

- Urban Design** : To develop an introductory understanding of history, concepts, issues, techniques and processes fundamental for practice and design of urban form.
- Landscape Design** : To develop an understanding of history, theory and practice of landscape architecture with emphasis on site planning through related design issues and concepts.
- Conversation** : Understanding need and ways to identify buildings for architectural conservation along with familiarization and investigation into techniques of conservation of historical structures.
- Energy Conscious Architecture Housing** : To develop an understanding of energy conservation methods and study of solar energy systems as well as other alternative sources of energy being developed for use in architectural applications.  
: To develop an understanding of theory and practice of housing as well as familiarizing and investigating key issues and factors that influence housing design.
- Transportation Planning** : Understanding significance of transportation in development of urban areas and study of the history, context, issues, and problems necessary for the development and practice of transport planning.
- Low Cost Construction Technology Rural Design and Planning** : To develop appreciation for low cost construction for building economy and understanding of different issues, type and techniques involved in the design and construction of low cost structures.  
: Understanding of context, available technology, economy and other related issues involved in the design and planning of rural settlements.