



**DEPARTMENT OF ARCHITECTURE
UNIVERSITY OF THE PUNJAB, LAHORE.**

**BACHELORS OF ARCHITECTURE (B. ARCH)
5 YEARS PROGRAM**

COURSE OUTLINE

Course Title	Material and Construction Systems II
Course Code	ARCH-252
Credit Hours	3
Semester	Fall
Prerequisites	NA
Tutor	As per Timetable
Student Advising	As per Timetable
Contact	-

Teacher Signature

Chairman Signature

Course introduction

Material and construction systems are a course the familiarizes the student with construction material and their installation techniques. The course is offered in three levels the material and construction II focuses on arches, lintel, door, windows, stair cases, floor and ceiling and finishes.

Learning Objective:

This course will give students a detailed understanding of materials commonly employed in Architecture and construction (arches, lintel, door, windows, stair cases, floor and ceiling and finishes.) including their methods of manufacturing, material properties, and life-cycle impact. The course will provide detailed guidance on material preparation and material testing that are commonly employed in the construction and civil engineering disciplines.

Outcome

Course learning outcomes are as following.

1. Explain the specification and method of construction of arches, lintel, door, windows, stair cases, floor and ceiling and finishes.
2. Describe the manufacturing process of above mentioned materials
3. Understand the Architectural application of arches, lintel, door, windows, stair cases, floor and ceiling and finishes.

Learning Methodology:

- Lectures as provided in the schedule of the semester activities
- Study of Archival Material and recommended books
- Guest Lectures as per requirement
- Presentation on allocated topics

Grade Evaluation Criteria

Following, is the criteria for the distribution of marks to evaluate final grade in a semester.

Marks Evaluation

Marks in percentage

Sessional (Assignments, Quizzes, Presentations)	30
Mid Term	30
Final examination	40

Total	100
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Content	
Unit 1	Introduction to the Course
Unit 2	History of Arches and Lintels, Vaults, Aqueducts, types of arches, constructability, Method of Construction, Materials, Benefits and problems, common architectural uses, examples of historical and modern structures.
Unit 3	Stair & Stair cases, uses, types of stair cases (Spiral, straight, circular, split, winder), riser and treads, flight of steps, landing, Architectural uses, Material of constructions.
Unit 4	Student Presentation
Unit 5	Doors, types of doors (penal door, wooden doors, glazed door, flush doors, louvered door, revolving door, sliding door, swing door, collapsible door), exterior interior door and wooden door,
Unit 6	Materials used for making door (wood, Metal, glass, fiber glass and PVC), installation of doors, Architectural uses of doors,
Unit 7	Windows , sill level, lintel level, types of windows (fixed windows, sliding windows, pivoted windows, double hung windows, louvered windows, casement windows, bay windows), ventilator, sky light
Unit 8	Materials used for making Window (wood, Metal, glass, fiber glass and PVC), installation of window and Architectural uses of window,
Unit 9	Mid Term Exam
Unit 10	Surface Finishes (Paint, Rockwall, Gotka, Stone, Brick, Metal), installation detail of surface finishing materials

Unit 11	Innovative Architectural uses of surface finishes. Modern and historical examples
Unit 12	Site Visit (a visit to one canal house in DHA and visit to inter-wood)
Unit 13	Roofs detail, insulation, water proofing, roof tiles etc. Ceiling Materials, types of ceiling materials (MDF, plaster of paris, gypsum board, thermopor), installation detail of ceiling
Unit 14	Flooring, internal and external flooring, types of flooring materials (wood, synthetic wood, marble tiles, granite and tuff tiles), mortar, installation details of flooring materials.
Unit 15	Guest Lecture
Unit 16	Plastic, types of plastic, uses of plastics in Architecture, chemical and physical properties of plastics, corian
Unit 17	Dampness and Damp Proofing, horizontal damp proofing, vertical damp proofing, plinth beam, detail of damp proofing, Materials use for the construction of damp proof course, additional Materials use for damp proofing (arcol, plastic sheets, sealers and chemicals)
Unit 18	Final Exam
Recommended Books/References	Simmons, Construction: Principles, Materials and Methods (7th Edition) Bary, The Construction of Buildings (Vol. I) Bary, The Construction of Buildings (Vol. II) Bary, The Construction of Buildings (Vol. III) Bary, The Construction of Buildings (Vol. IV) Bary, The Construction of Buildings (Vol. V)

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