**Department of Architecture**

**School of Architecture and planning**

**University of Management and technology**

**Course Outline (on OBE)**

## UMT’s Vision

## ***Our Vision is... Learning***

It defines our existence, inspires all stakeholders associated with us, creates a powerful momentum inside, and responds to the challenges outside. It continues to evolve as present captures new realities and foresight to unfold new possibilities. All in an incessant attempt to help individuals and organizations discover their God-given potentials to achieve Ultimate Success actualizing the highest standards of efficiency, effectiveness, excellence, equity, trusteeship and sustainable development of global human society.

## UMT Mission

Our Mission is.... Leading

We aspire to become a learning institution and evolve as the LEADING COMMUNITY for the purpose of integrated development of the society by actualizing strategic partnership with stakeholders, harnessing leadership, generating useful knowledge, fostering enduring values, and projecting sustainable technologies and practices.

### Mission of the School

The mission of the School is to provide the best leadership in the fields of the built environment; particularly in the development, management and innovation in the fields of architecture, urban planning and related specializations and sub-specializations

### Mission of the Department

At the Department of Architecture our mission is to challenge the participants to develop their abilities in solving complex problems by thinking creatively & informed decision making as a core of their professional schooling. Offering them a diverse interdisciplinary and meticulous program of studies led by an adroit faculty in a comprehensive studios or class environment and preparing them for leadership roles in the field of Architecture, Construction, Landscape, Built Environment and community development.

Course code: **AR-314** Course title: **Materials and Construction-III**

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| --- | --- | --- |
| Program | B. Arch | |
| Credit Hours | 0+2 | |
| Duration | 2 HOURS | |
| Prerequisites | **Materials and Construction I & II** | |
| Resource Person | Ar. Najam ul Haque | |
| Counseling Timing  (Room# 3 ), Hall A  Level 5, Library Building, UMT, LHR | Ar. Najam ul Haque  Tuesday 10:00am – 12:00pm  Wednesday 10:30am – 12:30pm |  |
| Contact | Najam-ul-haq  Contact # 03004000164 | Email:  [najam.haque@umt.edu.pk](mailto:najam.haque@umt.edu.pk) |

**Chairman/Director signature………………………………….**

**Dean’s signature…………………………… Date………………………………………….**

**Program educational objectives (PEO’s) of Bachelor of Architecture**

**PEO 1:** Ability to comprehend architectural skills manual as well as relevant computer programs

and think creatively and identify new trends in Architectural design

**PEO 2:** Critical learning for a broad function in various areas of Architectural sciences and

building technology including building materials, construction techniques, structural, mechanical, electrical, environmental, earthquake, and construction management

**PEO 3:** Ability to keep themselves abreast with recent developments in the relevant Architecture

and a broad theoretical and conceptual base focusing on research, creativity and

innovation

**PEO 4:** Spirit of discipline and respect for the code of ethics of the profession.

**Program Learning outcomes PLO’s)**

Graduates of the B-Architecture at UMT are expected to have acquired and developed the following set of knowledge, skills and personality traits (these are also referred to as graduate attributes).

**PLO 1Architectural Knowledge:** An ability to apply knowledge of mathematics, science, architectural fundamentals and an architectural specialization to the solution of complex architectural problems.

**PLO 2Design Analysis:** An ability to identify, formulate, search literature, and analyze complex architectural problems reaching substantiated conclusions using principles of natural sciences and architecture.

**PLO 3Design/Development of Solutions:** An ability to design solutions for complex architectural problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

**PLO 4Case study analysis:** An ability to investigate complex architectural problems in a methodical way including literature survey, design and conduct of field surveys, analysis and interpretation of field data, and synthesis of information to derive valid conclusions.

**PLO 5Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, and modern architectural computer simulations, including prediction and modeling, to complex activities, with an understanding of the limitations.

**PLO 6The Architect and Society:** An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional architectural practice and solution to complex problems.

**PLO 7Environment and Sustainability:** Ability to understand the impact of professional architectural solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

**PLO 8Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of architectural practice.

**PLO 9Individual and Team Work:** An ability to work effectively, as an individual or in a team, on multifaceted and/or multidisciplinary settings.

**PLO 10Communication:** An ability to communicate effectively, orally and written, on complex architectural activities with the architectural community and with society at large, such as being able to comprehend and write effective reports, design documentation and make effective presentations. To develop an understanding of architectural language through manual and digital ways, in order to make working drawings and presentable sheets using different rendering modes.

**PLO 11Project Management:** An ability to demonstrate management skills and apply architectural principles to one's own work as a member and/or leader in a team and to manage projects in a multidisciplinary environment.

**PLO 12Lifelong Learning:** Ability to recognize the importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

**Course learning outcomes (CLO’s)**

After studying this course, the students will be able to:

1. Components of Building structure and their detailed drawings . (C1)
2. Develop understandings about Working/Construction drawings stage wise. (C2)
3. Drawings of Public Health Projects. (C3)
4. Electrification Drawings. (C3)
5. Classification of building drawings.(C4)
6. Submission Drawings for approval. (C7)

**Mapping of CLO’s to Program’s learning outcomes (PLO’S)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Semester** | **Course Code** | **Title** | **Course Learning outcomes** | **PLO 1: Architectural Knowledge** | **PLO 2: Design Analysis:** | **PLO3: Design/Development of Solutions Design/Development of Solutions Design/Development of Solutions Design/Development of Solutions** | **PLO 4: Case study analysis** | **PLO 5: Modern Tool Usage** | **PLO 6: The Architect and Society** | **PLO 7: Environment and Sustainability** | **PLO 8: Ethics** | **PLO 9: Individual and Team Work** | **PLO 10: Communication** | **PLO 11: Project Management** | **PLO 12: Lifelong Learning** |
| **5th** | **AR-314** | **MATERIALS AND CONSTRUCTION-III** | Components of Building structure and their detailed drawings | √ |  | √ |  |  |  |  |  |  |  |  |  |
| Develop understandings about Working/Construction drawings stage wise. | √ |  |  | √ |  | √ |  |  |  |  |  |  |
| Drawings of Public Health Projects |  |  | √ |  | √ |  |  |  | √ |  | √ |  |
| Electrification Drawings |  |  |  | √ |  |  |  | √ |  |  |  | √ |
| Classification of building drawings | √ |  |  | √ |  |  |  |  |  |  |  |  |
| Submission Drawings for approval |  |  |  |  |  |  | √ |  |  |  |  | √ |

**Learning Methodology**

* Lectures as provided in the schedule of the semester activities
* Assignments related to all studied topics.
* Presentation on allocated topics by doing case studies of buildings

**Grade Evaluation Criteria**

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

**Marks Evaluation Marks in percentage**

Quizzes 10%

Assignments 10%

Mid Term 25%

Term Project 5%

Final exam 50%

Total 100%

**Recommended Text Books**

Manual of Procedures, The construction industries handbook by Robert.O. Wilheim

Building Construction: Principles, Materials & Systems by Madan L Mehta, Walter Scarborough&DianeArmpriest, 2nd Ed, 2016

Building Structures Illustrated by Francis D.K.Ching, 2nd Ed, 2014

**Reference Books**

1. Time-Savors Standards for Architectural Design Data.7th Edition. Joseph De Chiara and Johan HancookCallender.
2. Z H Syed, Materials for Construction
3. Pearson Construction Technology, CM216, 2009
4. Building Construction Illustrated by Francis D.K.Ching, 4th Ed, 2008
5. Construction materials, methods and techniques by William P. Spence and Eva Kultermann, 3rd Ed, 2006
6. Modern Construction Handbook by Andrew Watts, 3rd Ed, 2014
7. Professional architectural working drawings by Osamu. A. Wakita, Nagy. R. Bakhoum)
8. Architectural working drawings (Residential & Commercial) by William Perkins Spence Building Construction by Varghese, P.C., 3rd Ed, 2009
9. Construction Technology 2 Industrial and commercial building by Riley, Mike and Alison, 3rd Ed, 2014
10. Structural basis of architecture by Bjorn N.Sandaker, Arne P.Eggen& Mark R.Cruvellier, 2nd Ed, 2011.
11. Structure for architects and Engineers by Philip Garrison, 1st Ed, 2005

**Calendar of Course contents to be covered during semester**

Course code: AR-354 Course title: Structure for Architects-III

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| --- | --- | --- | --- |
| **Week** | **Course Contents** | **CLO** | **Reference Chapter(s)** |
| 1 | Mutual introduction of Resource person & participants  Introduction to the course.  **Assignment**   * Prepare a list of books from library related to the course. * Selection of term project (residential) per student. * Collection of set of working drawings from architectural office. (Residential) | 1,2 | Class Notes |
| 2 | Start of the working drawings.  **Working Drawing 1:**(Lecture & Practical)   * Demarcation/ Excavation Plan * Foundations Detail | 1,2 | Time Saver Standards for Material Types by Joseph De Chiara and Johan HancookCallender |
| 3 | **Working Drawing 2:**(Lecture & Practical)   * Ground Floor * First Floor | 1,2 | Professional architectural working drawings by Osamu. A. Wakita, Nagy. R. Bakhoum) |
| 4 | **Working Drawing 3:**(Lecture & Practical)   * Plumbing Plans (Ground Floor & First Floor)   **Quiz -I** | 1 | Architectural working drawings (Residential & Commercial) by William Perkins Spence |
| 5 | **Working Drawing 4:**(Lecture & Practical)   * Electrification Plans (Ground Floor & First Floor) | 1 | Class Notes & Sample  drawings |
| 6-7 | **Working Drawing 5:**(Lecture & Practical)   * All Elevations   **Quiz -II** | 1 | Architectural: Drafting and Design by Donald E. Helper, Paul I. Wallach |
| **Mid Term Exam (8th Week)** | | | |
| 9 | **Working Drawing 6:**(Lecture & Practical)  Section & Details | 1,3 | Class Notes & Sample  drawings |
| 10-11 | **Working Drawing 7:**(Lecture & Practical)   * Woodworking (Doors & Windows) | 3,4 | Time Saver Standards for Material Types by Joseph De Chiara and Johan HancookCallender |
| 12 | **Working Drawing 8:**(Lecture & Practical)  Staircase | 1,3,4 | Time Saver Standards for Material Types by Joseph De Chiara and Johan HancookCallender |
| 13 | **Working Drawing 9:** (Lecture & Practical)  Woodworking (Kitchen & Wardrobe) | 6 | Professional architectural working drawings by Osamu. A. Wakita, Nagy. R. Bakhoum) |
| 14 | **Working Drawing 10:**(Lecture & Practical)   * Submission Drawing | 5 | Class Notes & Sample  drawings |
| 15 | **Cost Estimation (B.O.Q)** | 5 | Class Notes |
| **Final Term Exam** | | | |