

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

We aim to equip participants with in-depth knowledge, advance skills and latest technologies to enter in construction profession and grow into novel technical problem solver and construction industry leader. The notion of the program is to offer curriculum which emphasize on issues of construction industry, new trends in the current world, committed to innovation, possess the ability to critically analyze and anticipate the direction of the future development. Students of

this program will be prepared through their educational experience to adapt to changes in society, technology and the profession by focusing on research-oriented learning which integrates construction practice with theory.

Course code **BDC-123**

Course title: **Computer Application in Building Construction-I**

Program	Bachelor in Building Construction & Design(BDC)
Credit Hours	0+2 (Practical)
Duration	Program: FOUR YEARS Course: Spring Semester 2023
Prerequisites	-
Resource Person	Arsala Hashmi
Counseling Timing	As per timetable
Contact	arsala.hashmi@umt.edu.pk

Chairman/Director signature.....

Dean's signature.....

Date.....

Program educational objectives (PEO's)

The objective of the program is to prepare professionals in the design and construction of commercial, industrial, and institutional buildings and other facilities. The curriculum has been developed to inculcate the following objectives in the graduates.

PEO 1: Able to acquire construction knowledge and skills, the graduates will serve the construction industry with professional integrity.

PEO 2: The graduates will pose decision-making and problem-solving abilities with reference to construction.

PEO 3: The graduates will respect the code of ethics for the construction profession.

Program Learning Outcomes PLO's

Graduates of the BS. Building & Design 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 1 Fundamental Knowledge of Building Construction: An ability to apply knowledge of construction fundamentals through a comprehensive learning of building design language.

PLO 2 Construction Analysis & Development of Sustainable Solutions: Ability to analyze and develop solutions to complex building problems that meet specified needs with appropriate considerations for public health and safety, society, and environment.

PLO 3 Modern Tool Usage: An ability to create, select and apply appropriate techniques, resources, and modern software computer simulations, including prediction and modeling, to complex activities, with an understanding of the limitations.

PLO 4 Project Management: An ability to demonstrate management skills and apply building construction principles to one's own work as a member and/or leader in a team and to manage projects in a multidisciplinary environment.

PLO 5 Lifelong Learning: Ability to recognize the importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

PLO 6 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of building construction practice.

Course Learning outcomes (CLO's)

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

1. Define the basic concepts of computer-aided design and Photoshop. (C-1)
2. Attempt different drafting techniques through drawing and modifying commands. (P-2)
3. Display an understanding of commands and Rendering techniques being applied in their design projects. (P-3)
4. Contribute their digital skills in the field of building construction and design. (A-2)
5. Demonstrate the use of the principles & application of different software. (A-3)

1 Course learning outcomes (CLO's)

CODE	NAME	CLO	CLO Type
123.1	123.C1	Define the basic concepts of computer-aided design and Photoshop.	C-1
123.2	123.C2	Attempt different drafting techniques through drawing and modifying commands.	P-2
123.3	123.C3	Display an understanding of commands and Rendering techniques being applied in their design projects.	P-3

123.4	123.C4	Contribute their digital skills in the field of building construction and design.	A-2
123.5	123.C5	Demonstrate the use of the principles & application of different software.	A-3

Mapping of CLO's to Program's Learning outcomes (PLO'S)

Semester	Course Code	Title	<u>Course Learning outcomes</u>	PLO 1: Fundamental Knowledge of Building Construction	PLO 2: Construction Analysis & Development of Sustainable Solutions	PLO3: Modern Tool Usage	PLO 4: Project Management	PLO 5: Modern Tool Usage	PLO 6: Lifelong Learning	PLO 7: Ethics
2nd SEMESTER	BDC-123	Computer Application in Building Construction-I	Define the basic concepts of computer-aided design and Photoshop. (C-1)	√						
			Attempt different drafting techniques through drawing and modifying commands. (P-2)		√					
			Display an understanding of commands and Rendering techniques being applied in their design projects. (P-3)			√				
			Contribute their digital skills in the field of building construction and design. (A-2)				√			
			Demonstrate the use of the principles & application of different software. (A-3)						√	

Learning Methodology

- Lectures as provided in the schedule of the semester activities.
- Assignments related to all studied topics. Students are asked to practice different commands and make a drawing using all those commands.

Grade Evaluation Criteria

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

Marks Evaluation	Marks in percentage
Assignments	50%
Quizzes	10%
Mid Term Project	10%
Term Project	20%
Final Viva Voce	10%
Total	100%

Recommended Text Books:

Learn autoCAD 12 in a day Ralph Grabowski

Autocade release 10 reference manual

An introduction to autocad release 13 Yarwood, A.

The AutoCad resource guide

Autocad 14 bible [+CD] Ellen Finkelstein

Mastering AutoCAD 2004 and AutoCAD LT 2004 Omura, George

Introduction to AutoCAD 2013 Yarwood, Alf

AutCAD 2013 & AutoCAD LT 2013 bible Finkelstein, Ellen

Digital drawing for designers : a visual guide to AutoCAD 2017 / Douglas R. Seidler

Reference Books

- CAD/CAM Principles & Applications 2nd Edition by PN Rao, McGraw Hill.
- Pipes Alan, Computer-Aided Architectural Design Features.
Mitchell, William. J, Computer-Aided Architectural Design.

Calendar of Course contents to be covered during semester

Week	Course Contents	CLO	Reference Chapter(s)
<u>1</u>	Quick introduction to auto cad interface. User interface. Toolbars, status bars, quick settings and options. Select and delete objects, use dynamic input to enter commands, zooming and panning.	C-1	Class notes
<u>2</u>	Use precision drawing tools such as grid. Object snap, and polar tracking to create measurements in drawings.	C-1	Class notes
<u>3</u>	Drafting settings, Introduction to drawing toolbars, line, circle, poly line cloud and ellipse tool etc.	P-2	Class notes
<u>4</u>	Modifying object properties, copy tool, mirror, offset tool, move tool, rotate tool, scale tool, chamfer tool, fillet tool. Stretch break tool.	P-2	Class notes
<u>5</u>	The dimensioning tools. Adding dimensions using tools from the command line, linear, aligned, circle, arc length, dimension style, dimension style, tolerances, and properties.	P-2	Class notes
<u>6</u>	Modify the properties of objects using the properties palette and by changing layer properties. Learn how to organize drawings with layers.	P-2	Class notes

<u>7</u>	Orthographic projection and draw different elevational views, sectional views.	P-3	Class notes
<u>8</u>	Inserting blocks into a drawing. Introduction to Explode tool, Purge tool, converting and generating blocks.	C-1	Class notes
<u>9</u>	MID TERM ASSIGNMENT		-
<u>10</u>	Introduction to rendering techniques. Hatching, properties , scale, material pattern symbol and size	A-3	Class notes
<u>11</u>	Gradient tool to render plans, elevations etc	P-3	Class notes
<u>12</u>	Introduction to Photoshop. Open save import export auto cad drawings.	C-1	Class notes
<u>13</u>	Introduction to toolbars and different commands to create various effects.	A-2	Class notes
<u>14</u>	Draw a poster using all those commands. Tools and Options Panel Marquee Tool, Crop, Lasso, Magic Wand, the Move Tool, Text, Line Tool Layers/ Resolution / Dimensions of Image / Size of File, Tonal Adjustment.	A-3	Class notes
<u>15</u>	Rendering a plan in Photoshop using different techniques and inserting furniture and fixture blocks.	P-3	Class notes
<u>16</u>	Final Exam		

