

FUE - Future University in Egypt

Faculty of Engineering and Technology Department of Architectural Engineering

Course Specifications

ARC 212: Architectural Design (2)

"Creativity within Functionality"

Programme (s) on which the course is given:	B.Sc. in Architectural Engineering
Major or minor element of programme:	(Not Applicable)
Department offering the programme:	Architectural Engineering
Department offering the course:	Architectural Engineering
Academic year/Level:	Level Two – 4 th semester
Date of specification approval:	September 2019

A- Basic Information

Title: Architectural Design (2)	Code: ARC 212
Credit Hours: 3 Cr. Hrs.	
Lectures: 2 Hrs.	
Tutorial: 4 Hrs.	
Total: 6 Hrs.	
Prerequisite:	
ARC 211 - Architectural Design (1)	

B- Professional Information

1- Catalog Course Description:

The main concern and focus of this course will be about the "Problem Solving" design process. The design process will be approached as a method of finding solutions for functional, environmental, and structural needs and problems. This will be as important as the need for generating creative and innovative ideas as the creative thinking methods should be well rooted in the prerequisite "Architectural Design (1)" course. The student will address various issues such as functional relations, circulation patterns, qualitative and quantitative study of architectural spaces, relationships between spaces and required openings, the effect of openings upon facades, human / environmental / functional relations, simple structures for small scale buildings, and similar issues. The course projects may be such as: a Celebrity Residence, Chalet, Youth Hostel, an Exploration Center, a Kindergarten, Kids' Arts Center, Children's' Library/Museum and similar projects.

2- Overall aims of the course:

The main aims of this course are to:

1. Enhance student's awareness of creative design process within a set of moderate functional limitations.
2. Train student to defend and criticize ideas verbally and graphically.
3. Train student to think critically.

3- Intended learning outcomes of course (ILOs):

3.1. Program ILOs related to course:

A04 Demonstrate knowledge and understanding of the principles and theories of architectural design and planning, as process and product.

A05 Demonstrate knowledge and understanding of design problems, list clients' needs & requirements and gather relevant information.

A23 Demonstrate knowledge and understanding of the principles of sustainable design and climatic considerations in addition to the different elements of the natural environment, different energy types, appropriate environmental control techniques and different technical installations in buildings.

B02 Compare, analyze and criticize different engineering problems and case studies, evaluate design alternatives and conclude results based on analytical thinking

B03 Think of creative and innovative ways in problem solving and architecture design.

B07 Solve architectural problems often on the basis of limited and possibly contradicting information

B14 Explore and think of design forms in two and three dimensions engaging images of places and time with innovation and creativity

B19 Appraise the spatial, aesthetic, technical and social qualities of a design within the scope and scale of a wider environment

C01 Ability to integrate knowledge and understanding of mathematics, science, art, information technology, design and engineering concepts to design and plan buildings and to solve problems.

C04 Use different expression techniques to visualize ideas verbally and graphically, either manually or digitally.

C18 Display imagination and creativity.

D02 Work under stressful environments and within constraints of time and budget

D03 Communicate effectively.

D06 Manage tasks and resources

D07 Search for information and adopt life-long self-learning

3.2. Course Detailed ILOs:

a- Knowledge and understanding:

Upon successful completion of the course, the student should be able to:

- a1. Define the theoretical bases upon which a private residence is designed.
- a2. Define different site constraints.
- a3. Explain what is meant by design problem.

b- Intellectual skills:

Upon successful completion of the course, the student should be able to:

- b1. Apply analytical thinking methods to define design problems.
- b2. Apply creative thinking methods to propose different design alternatives.
- b3. Analyze site constraints and limitations.

b4. Appraise spatial forms and their aesthetic values.

c- Professional and practical skills:

Upon successful completion of the course, the student should be able to:

- c1. Design architectural projects in light of spatial, aesthetic, and functional requirements.
- c2. Apply creative concepts and methods to develop his/her design.
- c3. Create 2D & 3D sketches to express and develop his/her design.
- c4. Use proper presentation techniques to represent his/her design proposal.

d- General and transferable skills:

Upon successful completion of the course, the student should be able to:

- d1. Express his/her ideas by visual, graphic, written and verbal means
- d2. Discuss and defending his/her ideas.
- d3. Manage time and meet deadlines.
- d4. Search for relevant information.

4- Course ILOs versus Program ILOs relation

See Appendix, table [1]

5- Contents:

#	Topic	Lec	Tut	Tot.
#1	Residential Design Project: Start and Orientation AND One day sketch "Personal residence Space Design"	2	1	6
	Research Data Review (Group Work), Types of Residential Villas AND One day sketch "Space Design Critique"	2	1	
#2	Final Research Submission and Group Discussion (Group Work)	3	0	6
	Individual work: Concept with keywords, Detailed Program, Relationship Matrix, Bubble Diagram, Site analysis, and Site Zoning	0	3	
#3	Pin-up and Group Discussion: Volumetric Zoning, Schematic Plans, Concept with keywords, Detailed Program, Relationship Matrix, Bubble Diagram, Site analysis, and Site Zoning	4	0	6
	Individual work: Project Development	0	2	
#4	Individual work: Project Development	0	3	6
	1st Sketch Design: Work at Studio then submittal Volumetric Zoning, Schematic Plans, Concept with keywords, Detailed Program, Relationship Matrix, Bubble Diagram, Site analysis, and Site Zoning	0	3	
#5	General Criticism + Project Development	3	0	6
	Individual work: Schematic Elevations, Schematic Sections, Layout, Plans, Concept with keywords, Detailed Program, Relationship Matrix, Bubble Diagram, Site analysis, and Site Zoning	0	3	
#6	Pin-up and Group Discussion: Elevations, Sections, Layout, Concept with keywords, Site analysis, and Site Zoning	4	0	6
	Individual work: Project Development	0	2	
#7	Individual work: Project Development	0	3	6
	2nd Sketch Design: Work at Studio then submittal Elevations, Sections, Layout, Concept with keywords, Detailed Program, Relationship Site analysis, and Site Zoning	0	3	
#8	General Criticism + Project Development	3	0	6
	Individual work: Project Development	0	3	
#9	Pin-up and Group Discussion	3	0	6
	3rd Sketch Design: Work at Studio then submittal + Orientation	0	3	
#10	Individual work: Project Development	0	6	6

# 11	One day sketch design: External Design Project	0	3	6
	General Criticism	3	0	
# 12	Project developing	0	6	6
# 13	General Criticism	3	0	6
	Project Finishing	0	3	
# 14	Project Preliminary (Pencil) Submittal	0	3	6
	Project Finishing	0	3	
#15	Project Finishing	0	3	6
	Project Submittal	0	3	
Total		30	60	90

For the relation between the course contents and "Intended Learning Outcomes" (ILOs) see Appendix, table [2]

6- learning/teaching methods:

See Appendix, table [3]

7- ILOs Teaching & Assessment Method

See Appendix, table [4]

8- Weighting of assessments

- Final exam:.....40%
- Year work:.....50%
 - Group Research 5 %
 - 1st Sketch Design 5 %
 - 2nd sketch Design 5 %
 - 3rd sketch Design 5 %
 - One day External Sketch Design 10%
 - Preliminary Submission of Final Project 5 %
 - Submission of Final Project 15 %
- Participation.....10%
- **Total**.....**100%**

9- List of references:

1. Text Book:

Unwin, Simon.:

Twenty Buildings Every Architect Should Understand, Routledge; 2 edition, 2014

2. All course notes and lectures are uploaded on the "Moodle"

3. Recommended Readings:

- Neufert, E.:. Architects' Data; The Handbook of Building Types, Third Edition, Blackwell Publishing, 2002, The Alden Group Ltd., Oxford & Northampton, metric edition.
- Ramsey, C.; Ray, J. & Hoke, Jr.: *Architectural Graphic Standards*, Tenth Edition - metric, AIA. John Wiley & Sons Inc., 2000, NJ. USA
- Chiara, J.: *Time Saver Standards for Architectural Design*, Most recent metric version
- Francis D.K. Ching: **Architecture: Form, Space and Order**.
- Architectural Magazines and Projects

- Periodicals & Web sites:
 - Architecture
 - Architectural Record
 - Architectural Review
 - Architecture d'aujourd'hui
 - www.architecturalrecord.com
 - www.greatbuildings.com

10- Facilities required for teaching and learning:

- Design Studios
- White board
- Computer & Data show for presentations
- Architectural Library
- Internet Connection

Course coordinator: Prof. Dr. Samir Sadek Hosny

Head of Department: Prof. Dr. Samir Sadek Hosny

Date: September 2019

Course Instructor:

Appendix (1)

Table [1]: Course ILOs/ Program ILOs Matrix

		Program ILOs														
		A04	A05	A23	B02	B03	B07	B14	B19	C01	C04	C18	D02	D03	D06	D07
Course ILOs	a1.	•														
	a2.			•												
	a3.		•													
	b1.				•	•										
	b2.							•								
	b3.						•									
	b4.								•							
	c1.									•						
	c2.											•				
	c3.												•			
	c4.										•					
	d1.													•		
	d2.														•	
	d3.															•
d4.																•

Table [2]: Course Content/ILO Matrix

Topic	a1	a2	a3	b1	b2	b3	b4	c1	c2	c3	c4	d1	d2	d3	d4
One day sketch "Sleeping Zone Space Design"	•			•						•	•			•	
One day sketch "Guest Zone Space Design"	•			•						•	•			•	
Final Research Submission and Group Discussion		•	•									•	•	•	•
Project Concept & Program	•	•	•	•	•	•	•	•	•	•					
Pin-up and Group Discussion		•	•	•	•	•	•	•	•	•	•		•		
Project Development		•	•	•	•	•	•	•	•	•	•	•			
Sketch Designs			•	•	•	•	•	•	•	•	•	•		•	
General Criticism	•	•	•	•		•	•						•		
One day sketch design			•	•	•	•	•	•	•	•	•	•		•	
Final Project Submittal							•	•		•	•	•		•	

Table [3]: Learning- Teaching Method/ILO Matrix

Topic	a1	a2	a3	b1	b2	b3	b4	c1	c2	c3	c4	d1	d2	d3	d4
Lecture	•	•				•									
One to One Discussion	•	•	•	•	•	•	•	•	•	•			•		
Public Group Discussion	•	•	•	•	•	•	•	•	•		•	•	•	•	
Search for Data (Self-study)								•	•						•
Research Presentation											•	•	•	•	•
Sketch Designs	•	•	•	•	•	•	•	•	•	•	•	•	•	•	

Table [4]: Assessment Method/ILO Matrix and Final Exam Blueprint

Topic	Mark	a1	a2	a3	b1	b2	b3	b4	c1	c2	c3	c4	d1	d2	d3	d4
Research Document	10			•									•		•	•
presentations/Participation	10	•	•	•	•	•		•						•	•	
Sketch Designs/ Project	40	•	•	•	•	•	•	•	•	•	•	•	•		•	
Final Exam	40		•	•	•	•	•	•	•	•	•	•	•		•	
Final Exam marks distribution		20%			30%				40%				10%			