



University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc. Architectural Engineering and Environmental Design

Form no. (12): Course Specification

1- Course Data

Course Code: AR 456	Course Title: Execution Design 2	Academic Year/Level: 4th year / 8th semester
Specialization: Architecture	No. of Instructional Units Credit 3 Lecture 2 Tutorial 4	Prerequisite AR455

2- Course Aim

This course deals with preparing execution design drawings for more sophisticated projects, taking into consideration the different technical systems and their installation. Advanced technical systems, as well as sanitary electromechanical ducts (HVAC, lighting & electrical power) and spatial requirements are introduced through the study of the course. Students practice how to develop design concepts into real projects.

The course aims to:

Enhance the student's practical skills in dealing with relatively sophisticated buildings, including different workable technical systems and installations.

3- Intended Learning Outcomes

a- Knowledge and Understanding	<p>Through knowledge and understanding, students will be able to:</p> <ul style="list-style-type: none"> • Draw a complete set of execution drawing for relatively sophisticated buildings including different architectural requirements for different technical systems and installations. • Distinguish between the nature of building services like lighting, sound, air conditioning systems, water and air quality, waste, fire protection, safety and their statutory instruments and needs; both during construction and subsequent occupation of a project and their impact upon human comfort, well – being and protection.
b- Intellectual Skills	<p>Through intellectual skills, students will be able to:</p> <ul style="list-style-type: none"> • Implement the various methods of sustainability in the technical and execution drawings. • Design realistically according to environmental responsive building design techniques, standards and procedures. • Integrate the mechanical, electrical and sanitary installations into buildings. • Apply and execute any design concept correctly.
c- Professional Skills	<p>Through professional and practical skills, students will be able to:</p> <ul style="list-style-type: none"> • Design and solve integrated technical problems parallel to the architecture design (mechanical-electrical, safety and sanitary installation problems...etc). • Employ visual written and verbal techniques in order to communicate architectural design and ideas.
d- General Skills	<p>Through general and transferable skills, students will be able to:</p> <ul style="list-style-type: none"> • Work coherently and successfully as a part of a team in projects, assignments, etc. • Independently seek knowledge, set aims, targets, objectives and plan to meet them with a deadline (time management). • Adopt an open-minded approach in the appraisal of design issues, requirements and opportunities. • Listen and critically respond to the views of others.

- Transfer techniques and solutions from one field of architecture to another.

4- Course Content

- Week No.1** Introduction & choice of the design of small project intended to be studied.
- Week No.2** Developing the architectural design of the chosen project through the different requirements of plumbing, HVAC, electricity, lighting & mechanical circulation.
- Week No.3** Sanitary (Plumping system & water supply).
- Week No.4** Sanitary (Plumping system & water supply).
- Week No.5** Sanitary (Plumping system & water supply).
- Week No.6** Sanitary (Plumping system & water supply).
- Week No.7** Continuation of the previous lecture and evaluation.
- Week No.8** Electricity & Lighting System
- Week No.9** Electricity & Lighting System
- Week No.10** Electricity & Lighting System
- Week No.11** Electricity & Lighting System
- Week No.12** Continuation of the previous lecture and evaluation.
- Week No.13** HVAC
- Week No.14** HVAC
- Week No.15** Other mechanical systems (vertical circulation and fire fighting systems).
- Final submission + Portfolio (hard copy +softcopy).

5- Teaching and Learning Methods

The course comprises a combination of:
Lectures, analysis of case studies, class activities, project work, site-visits, and research work.

6-Teaching and Learning Methods for Students with Special Needs

- Consulting with lecturer during office hours.
- Consulting with teaching assistant during office hours.
- Private sessions for redelivering the lecture contents.
- For handicapped accessibility, please refer to program specification.

7- Student Assessment

Asses No.	Procedures used		Start Week No.	Subm. Week No.	Weighting of Asses.
	Type	To assess			
1	Collab. Project	All skills	2	5	15%
2	Project	All skills	6	6	10%
3	Drawing exam.	Knowledge and intellectual skills Practical skills	7	7	5%
4	Project	All skills	8	11	15%
5	Drawing exam.	Knowledge and intellectual skills Practical skills	12	12	10%
6	Collab. Project	All skills	13	15	5%
7	Project	All skills	16	16	20%
8	Drawing exam.	Knowledge and understanding Intellectual thinking skills	16	16	20%
Total					100%

8- List of References:

a- Course Notes	Noted are handed out to the students throughout the semester.
b- Required Books (Textbooks)	<ul style="list-style-type: none"> • CHING, T., <i>Building Construction Illustrated, 4th edition</i>. London: John Wiley & Sons, 2008.
c- Recommended Books	<ul style="list-style-type: none"> • JIRICNA, E., <i>Staircases</i>. London: Laurence King Publishing, 2001. • ALLEN, E., <i>Architectural Detailing; Function-Constructability & Aesthetics</i>, Second Edition. London, John Wiley & Sons, 2006. • SIDNEY, L., <i>Construction Building Envelope and Interior Finishes Databook</i>. New York: McGraw-Hill, 2001. • BARRY, R., <i>The Construction of Buildings: Multi-storey Buildings, Foundations and Substructures, Structural Steel Frames, Floors and Roofs, Concrete, Concrete Walls and Cladding of Framed Buildings</i>. London: Wiley-Blackwell, 2001. • GUTHRIE, P., <i>The Architect's Portable Handbook</i>. New York: McGraw-Hill, 2003. • BANGASH, T., <i>Lifts, Elevators and Escalators</i>. London: Belkema Publishers, 2007. • BLANC, A, <i>Stairs</i>, 2nd edition. London: Architectural Press, 2001. • GARRISON, E., <i>The Graphic Standards Guide to Architectural Finishes</i>. London: John Wiley & Sons, 2002.
d- Periodicals, Web Sites, etc.	N/A