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 455**	Course Title: **Execution Design 1**			Academic Year/Level: **4th** year / **7th** semester
Specialization: **Architecture**	No. of Instructional Units			Prerequisite
	Credit **3**	Lecture **2**	Tutorial **4**	**AR354**

2- Course Aim

This course introduces the student to the fundamentals of execution design drawings based upon the wide range of vocabulary taught through the previous courses of Building Technology. Students start by learning about the concepts of execution design and how detailing is mainly a design exercise. Then direct application is conducted in which the student applies basic execution instructions and previously earned knowledge of execution details into a small project. This includes arranging the information into easy, readable & complete set of execution documents. Execution basic documents are presented in the form of site plans and landscape, plans, sections, elevations, schedules, and types of the different components of a building.

The course aims to:
Emphasize an understanding of a wide-range of different building elements and their execution design aspects; construction materials and fixation methods.

3- Intended Learning Outcomes

a- Knowledge and Understanding	**Through knowledge and understanding, students will be able to:** • Define the procedures and requirements that need to be considered before producing construction documents. • Characterize building codes requirements and regional differences. • Illustrate a general outline and set of basic guidelines to improve their working drawing presentation techniques.
b- Intellectual Skills	**Through intellectual skills, students will be able to:** • Suggest primary structural systems. • Apply the most important and suitable building materials. • Implement their new earned knowledge regarding building working drawings, using symbols, dimensioning, building materials and their implications as well as complete details necessary for construction.
c- Professional Skills	**Through professional and practical skills, students will be able to:** • Prepare technical drawings using CAD software. • Assess different construction methods, structural systems, while complying with building codes and materials. • Understand any technical information required in site development.
d- General Skills	**Through general and transferable skills, students will be able to:** • 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. • Transfer techniques and solutions from one field of architecture to another.

4- Course Content

Week No.1	Introduction to execution design, and analytical examples.
Week No.2	Review of the building's anatomy and details (basic details, connections and assemblies).
Week No.3	Continue building anatomy and details analysis (special connections and materials).
Week No.4	Continue building anatomy and environmental treatments' details analysis.
Week No.5	Continue building anatomy and environmental treatments' details analysis.
Week No.6	Introduction to term project (students own design4 project). Plans: Introduction to floor plans, understanding how floor plans are drawn, implications of building materials in floor plans and methods of internal and external dimensioning, symbols used, dimensional reference numbers and letters in addition to different types of schedules.
Week No.7	Continuation of the previous lecture and evaluation.
Week No.8	Criticism and analysis of students' execution plans.
Week No.9	Exterior Elevations, wall sections and cross sections: Understanding the systematic approach to drafting exterior elevations, relationships between exterior elevations and other drawings. Elevation finishing materials, structural features and dimensioning. Introduction to different types of structural sections using different material types including masonry, concrete bricks, wood frame and steel construction. Full sections showing building components, partial sections showing structural complexities.
Week No.10	Criticism and analysis of students' execution drawings; plans, elevations and sections and Toilets: Detailed plans, cross-sections and internal elevations of disabled as well as common toilets.
Week No.11	Site: Information and construction elements, outline and information, layout and line-work, outlines of drive-ways and locations, streets, check-site, contours, walkways, fixed furniture, pools, gazebos, ramps and relevant dimensioning.
Week No.12	Continuation of the previous lecture and evaluation.
Week No.13	Site Development: Location of trees, plants, covers, fences and parking areas.
Week No.14	Final Review of the Project.
Week No.15	Final Submission

5- Teaching and Learning Methods

The course comprises a combination of:
Lectures, critical analysis of students work, workshops, students' self-critique, case study analysis, project work, data collection and research assignments.

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

Students have to present a portfolio during the final jury which will demonstrate the learning outcomes throughout the academic semester and a selection of previous projects in an appropriate form of documentation and presentation.

Asses No.	Procedures used		Start Week No.	Subm. Week No.	Weighting of Asses.
	Type	To assess			
1	Wall section sketch.	Knowledge and Professional Skills	1	1	5
	Research 3 different construction details and analysis.	General Skills	1	2	5
2	Draw collected details scale 1:10	All skills	2	2	5
	Repeat wall section sketch	All skills	2	3	5
3	Details drawing (special connections)	All skills	3	3	5
	Exercise wall section	All skills	3	4	5
4	Exercise: wall section and details (environmental treatments)	All skills	4	4	5
	Exercise: wall section (environmental treatments)	All skills	4	5	5
5	Exercise: wall section (environmental treatments)	All skills	4	5	5
6	Exercise: plans	Knowledge and understanding and practical skills	5	5	5
	Exercise: Project Plans	All skills	5	6	5
7	7th week exam	All skills	7	7	10%
8	Exercise: Sections	Knowledge, intellectual and professional skills	8	8	5
	Exercise: Project Plans & Sections	All skills	8	9	5
9	Exercise: Elevations	Knowledge and professional skills	9	9	5
	Exercise: Plans, Elevation and Section	All skills	9	10	5
10	Exercise: Toilets' Sections	Knowledge and professional skills	10	10	5
	Exercise: toilets	All skills	10	11	5
11	Exercise: site	Knowledge and Understanding	11	11	5
	Exercise: site, Plans, Elevations and Sections	All skills	11	12	5
12	12^{th} Exam	All skills	12	12	10%
13	Site Plan Details	Knowledge and understanding and intellectual skills	13	13	5
	Site Plan Details	Knowledge and understanding and intellectual skills	13	14	5
14	Final Review of Project	All skills	5	14	5
15	Final submission of project	All skills	5	15	10%
16	Final exam.	All skills		16	30%
Total					100%

8- List of References:

a- Course Notes	Notes taken through lectures.
b- Required Books (Textbooks)	• LIEBING, Ralph W, *Architectural Working Drawing*, John Wiley & Sons, 1998.
c- Recommended Books	• CHING Francis D.K, *Building Construction Illustrated*, Van Nostrand Reinhold, 1975. • Dickinson, Duo, *Expressive Details, Materials, Selection, Use*, New York, McGraw-Hill, 1997. • KEITH, Styles, *Working Drawings Handbook*, 3rd Ed., Oxford, Butterworth, Heinemann, 1995. • Nashed, Fred, *Time-Saver Details For Exterior Wall Design*, New York, McGraw-Hill, 1996. • OSAMU, Wakita A., *The Professional Practice of Architectural Working Drawings*, 2nd Ed, N.Y, Wiley, 1994. • RAMSEY / SLEEPER, *Architectural Graphic Standards For Architectural Design Data*. Mc. Graw – Hill, 1983. • WILLIAM, Spence, *Architectural working Drawings, Residential and Commercial Buildings*, N.Y., Wiley, 1993.
d- Periodicals, Web Sites, etc.	N/A