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 325**	Course Title: **Rendering and Animation**			Academic Year/Level: **3rd** year / **5th** semester
Specialization: **Architecture**	No. of Instructional Units			Prerequisite
	Credit **2**	Lecture **1**	Tutorial **3**	**AR215/AR284**

2- Course Aim

This course is an advanced **3D Studio Max** course that aims to develop students' computer skills by giving them the ability to be professional in architectural rendering and animation, using v-ray plug in. Students begin by studying V-Ray materials, general settings of realistic material and v-ray lighting in different model type (interior and exterior). After this students will learn how to deal with v-ray camera and animation different types with in a simple building. Students will learn how to present the architectural concept of the building through animation. Finally, students will be able to create realistic images and animated videos of their projects.

The course aims to:

- Encourage students to create professionally rendered architectural forms.
- Provide the students knowledge of advanced 3D Studio Max and plug-ins.

3- Intended Learning Outcomes

a- Knowledge and Understanding	**Through knowledge and understanding, students will be able to:** • Express creative ideas and concepts using high quality rendered architectural forms. • Identify the role of the architect in simulation and modeling the physical environment.
b- Intellectual Skills	**Through intellectual skills, students will be able to:** • Apply acquired skills to the designs of three dimensional objects and spaces. • Suggest innovative designs, ideas and concepts in 3D
c- Professional Skills	**Through professional and practical skills, students will be able to:** • Produce 3D models of architectural projects. • Prepare rendered images of architectural projects.
d- General Skills	**Through general and transferable skills, students will be able to:** • Acquire knowledge and skill in oral and visual architectural presentation. • Prepare architectural design drawings and presentations. • Independently seek knowledge, set aims, targets, objectives and plan to meet them with a deadline (time management). • Gain an appreciation of long life learning. • 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	Basic Camera Types, Introduction to Metal-ray lighting
Week No.2	Adjust suitable exterior lighting depending on building location, depending on day light and mental-ray plug-in.
Week No.3	Introduction to animation
Week No.4	Camera path: different applications
Week No.5	Using advanced reactors and effects I
Week No.6	After effects,
Week No.7	Continuation of the previous lecture and evaluation.
Week No.8	Exploring how V-Ray plug in works. Adjust suitable exterior lighting depending on the building location: Sun light and the V-Ray sun concept.
Week No.9	V-ray Exterior Lighting
Week No.10	Different types of V-Ray internal lighting
Week No.11	Working with environments in V-Ray
Week No.12	Tutorials Exam
Week No.13	V-Ray Materials Concept
Week No.14	Night shot, using V-ray
Week No.15	Practice and revision

5- Teaching and Learning Methods

The course comprises a combination of:
Lectures, coursework, class activities, project work and studio project 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

Students must present classwork and homework assignments that contribute toward their understanding of the program's basic concepts. A preliminary project is assigned to the students for practice of modeling and rendering skills, using V-Ray lights and materials.
This project is carried on during a second stage, to enhance animation skills.
Students will also be assessed through exams to evaluate their gained skills in V-Ray lighting, Exams to assess their gained knowledge in animation and V-Ray materials, as well as a final exam.

Asses No.	Procedures used		Start Week No.	Subm. Week No.	Weighting of Asses.
	Type	To assess			
1	Assignment	Knowledge and understanding	1	3	5%
2	Assignment	Knowledge and understanding	3	4	5%
3	Assignment	Knowledge and understanding.	4	5	5%
4	Exam. of studio project work	Knowledge and transferable skills.	7	7	15%
5	Assignment	Knowledge and practical skills	8	11	5%
6	Exam. of studio project work	Knowledge and understanding.	12	12	15%
7	Assignment	Knowledge and understanding Knowledge and practical skills	13	15	10%
8		Knowledge and understanding Knowledge and transferable skills	16	16	40%
Total					100%

8- List of References:

a- Course Notes	Notes are handed out throughout the semester.
b- Required Books (Textbooks)	• KIM Lee, *Inside 3D STUDIO MAX*, New Riders Press, 2001. • MUDROCK Kelly, *3D MAX 8 BIBLE*, Wiley, Pap/Cdr edition, 2006.
c- Recommended Books	N/A
d- Periodicals, Web Sites, etc.	http://www.evermotion.org http://www.vray.com http:// www.3dtotal.com