**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 423** | Course Title: **Topics in Sustainability** | | | Academic Year/Level: **4th** year / **8th** semester |
|---|---|---|---|---|
| Specialization: **Architecture** | No. of Instructional Units | | | Prerequisite |
| | Credit **2** | Lecture **1** | Tutorial **3** | **None** |

## 2- Course Aim

The course reviews concepts and theories of sustainability and how the term has developed and embraced change and shift in policies and global commitment. Students are encouraged to think of developing principles and consider the design process with sustainable principles at the forefront. Innovative ideas and international examples are explored.

**The course aims to:**

- Provide students with knowledge about concepts and theories of sustainability.
- Enhance the student's engagement with practical implications on various scales.
- Encourage the student to suggest local contextual interpretations in the field of sustainability.

## 3- Intended Learning Outcomes

| | |
|---|---|
| **a- Knowledge and Understanding** | **Through knowledge and understanding, students will be able to:**<br>• Define sustainability concept.<br>• Demonstrate awareness of the influence on the contemporary built environment and the responsibility of the architect in the development of sustainable built environments.<br>• Demonstrate understanding of the principles of sustainability, in relation to: the welfare of future generation, human well being, the natural world, use of materials, process of assembly and structural principles, etc. |
| **b- Intellectual Skills** | **Through intellectual skills, students will be able to:**<br>• Produce a conceptual design project that demonstrates each student's capacity to make sustainable design decisions. |
| **c- Professional Skills** | **Through professional and practical skills, students will be able to:**<br>• Design sustainable projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations. |
| **d- General Skills** | **Through general and transferable skills, students will be able to:**<br>• Write reports in accordance with appropriate academic and scientific standards.<br>• Present reports in seminars, discuss results, defend their ideas, and communicate effectively in writing, verbally and through evaluation of different sustainable projects.<br>• Independently seek knowledge, set aims, targets, objectives and plan to meet them with a deadline (time management). |

## 4- Course Content

**Week No.**1 Introduction to the field of Sustainability

**Week No.**2 Sustainable site: Selection

**Week No.**3 Sustainable site: Orientation

**Week No.**4 Sustainable site: Landscaping

**Week No.**5 Sustainability and Construction Methodology

**Week No.**6 Sustainability and Materials Selection

**Week No.**7 Continuation of the previous lecture and evaluation.

**Week No.**8 Renewable energy: Solar Energy

**Week No.**9 Renewable energy: Wind Energy

**Week No.**10 Renewable energy: Water and Geothermal Energy

**Week No.**11 Water Consumption

**Week No.**12 One-day Project

**Week No.**13 Waste Management

**Week No.**14 Indoor Environmental Quality

**Week No.**15 Revision.

## 5- Teaching and Learning Methods

The course comprises a combination of:
Lectures, case study analysis, research, discussion sessions and 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

| Asses No. | Procedures used | | Start Week No. | Subm. Week No. | Weighting of Asses. |
|---|---|---|---|---|---|
| | Type | To assess | | | |
| 1 | Oral presentation. | Practical and transferable skills. | 1 | 14 | 10% |
| 2 | Written exam. | Knowledge and understanding skills | 7 | 7 | 30% |
| 3 | One day project | Intellectual and Practical skills. | 12 | 12 | 20% |
| 4 | Final exam. | All skills | 15 | 15 | 40% |
| **Total** | | | | | 100% |

## 8- List of References:

| | |
|---|---|
| **a- Course Notes** | Notes are handed out to students regularly. |
| **b- Required Books** (Textbooks) | N/A |
| **c- Recommended Books** | • John Blewitt, *Understanding Sustainable Development*, Sterling VA, London, 2008.<br>• Daniel E. Williams, David W. Orr and Donald Watson*, Sustainable Design: Ecology, Architecture, and Planning*, Canada, Wiley, 2007.<br>• STEEL, J., *Sustainable Architecture* - principles, paradigms, and case studies, 1997. |
| **d- Periodicals, Web Sites, etc.** | N/A |