



# THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

## *Department of Architecture*

### **ARC 409 – Building Services II**

**Course Code:** ARC 409

**Course Title:** Building Services II

**No. of Units:** 2

**Course Duration:** One hour of theory and Three hours of practical/visits per week for 15 weeks.

**Status:** Compulsory

**Course Email Address:** [arc409@gmail.com](mailto:arc409@gmail.com)

**Course Webpage:**

**Prerequisite:** NIL

### **COURSE INSTRUCTORS**

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and

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### **COURSE DESCRIPTION**

This course introduces the student to the basic principles of artificial lighting. Space geometry and light service distribution. Electricity; general principles, generation and transmission, service units and ring main, voltage drops and rising main distribution. Direct and alternating current supply. Three-phase and Single-phase supply. Basic domestic wiring systems, circuit breakers fuses, switches, relays and safety precautions. Earthing, and lighting protectors. Wiring for industrial installations; telephone and communication systems. Gas and its distribution for domestic buildings. An understanding of illumination principles and standard light distributors.

## COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the relevance of lighting and illumination in environmental control considerations and their implications in the architectural design activities; and
- provide students with understanding in basic electrical service distribution and building electrical installations.

## COURSE LEARNING OUTCOMES / COMPETENCIES

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

*(Knowledge based)*

- know all that is required to consider given standard lighting to a designed space in the living environment

*(Skills)*

- students will be able to handle architectural design considering the implications involved with space lighting and electrical installation:

## GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Practicals (Industrial and sites visit/Report)	40%
Test(s)	15%
<u>Final Examination</u>	<u>40%</u>
<b><u>TOTAL</u></b>	<b><u>100%</u></b>

## GENERAL INSTRUCTIONS

**Attendance:** It is expected that every student will be in class for lectures. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

**Academic Integrity:** Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in

accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

**Assignments and Group Work:** Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

All students are expected to be part of the arranged industrial visit within the semester.

**Code of Conduct in Lecture Rooms and Laboratories:** Students are prohibited from engaging in other activities (such as phoning, texting, watching videos, *etc.*) during lectures.

## READING LIST

<sup>1</sup>Givioni, B. (1976). *Man, Climate and Architecture*. Applied Science Publishers Ltd., London.

<sup>1</sup>Evans, M. (1980). *Housing Climate and Comfort*. The Architectural Press, London.

### **Legend**

- 1- Available in the University Library
- 2- Available in Departmental/School Libraries
- 3- Available on the Internet.
- 4- Available as Personal Collection
- 5- Available in local bookshops.

## COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Overview <ul style="list-style-type: none"> <li>• Natural Lighting</li> <li>• Artificial lighting - Illumination -Electrical Installation</li> </ul>	During this first class, the expectation of the students from the course will also be documented.
2	Principles of Artificial lighting	
3	Illumination standards	
4	Lighting distributors	
5 & 6	Space geometry and light service distribution	
7 & 8	Mid Semester Test and Industrial Visit(s)	
9 & 10	Electrical Installation General principle, generation and transmission	
11 & 13	Communication systems and Gas distribution in buildings	
14 & 15	ASSESSMENT & REVISION(S)	This is the period preceding the semester examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met and final class assessment.