



MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering



Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401550	Electrical Wiring & Illumination	3	3 T

INSTRUCTOR/COORDINATOR

Name	Dr. Ziyad Almajali
Email	ziyad@mutah.edu.jo

TEXTBOOK

Title	Handbook of Advanced Lighting Technology
Author/Year	Obert Karlicek, Ching-Cherng Sun, Georges Zissis, Ruiqing Ma, 2017

Other Supplemental Materials

Title	Illumination fundamentals
Author/Year	Alma E. F. Taylor, 2010
Electronic Materials	

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

Basic concepts, definitions, units and light sources; calculation of illumination; interior lighting; exterior lighting; sweets and roads; basic electrical installation; calculations of electrical loads and installations; electric installations for space heating and air conditioning.

B. Pre-requisites (P) or Co-requisites (C)

Electrical circuits (2) (0401212) (P)

C. Course Type (Required or Elective)

Elective

SPECIFIC GOALS

A. Course Learning Objectives (CLOs)

By the end of this course, the student should be able to:

CLO1: Understand the concept of illumination and luminance. [1]

CLO2: Be able to calculate the number of light sources required for a certain space [1].
CLO3: Be able to calculate electrical loads and installations [1].
CLO4: Be able to understand the wiring diagrams [1].

B. Student Learning Outcomes (SOs) Addressed by the Course

1	2	3	4	5	6	7			
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BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Basic concepts of illumination, Light and Color, The Eye and Vision, definitions and units	1	3
Lighting Terminologies Introduction, Lighting Concepts, Basic laws, cosine law and square inverse law	2	6
Light sources: types and characteristics, applications		
Fluorescent Lamp , High Intensity Discharge (HID) Lamps , Light-Emitting Diodes, Energy-Efficient Fluorescent Ballast	2	6
Luminaires Definition, Function and Classification, Types of Luminaire Design and Characteristics	1	3
Interior lighting: standards, calculations of interior lighting, Calculations of illumination from different shapes of light sources	2	6
Exterior lighting, Point-by-Point Method		
Design Factors, Average Illuminance Equation	2	6
Streets and roads lighting	2	6
Calculations of electrical loads and installations, Electric wiring basics, diagrams and symbols	2	6
<i>Total</i>	<i>14</i>	<i>42</i>

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Homeworks, Quizzes, Projects, ...etc.)	One week after being assigned	20

Final Exam	According to the university calendar	50
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ABET's Students Learning Outcomes (Criterion # 3)		
	Relationship to program outcomes	
ABET 1-7	Engineering Student Outcomes	
1	√	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2		an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3		an ability to communicate effectively with a range of audiences.
4		an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

