Date	**2020-2021**	**Credits**	**3**
Course Title	**Illumination & Indoor Wiring**	**Course Number**	**EEE471**
Pre-requisite (s)	**-**	**Co-requisite (s)**	**-**
Hours	**42**	**Out of Class Work Hours**	**70 (5 ECTS)**

Place and Time of Class Meeting

Engineering Building Class Online, Every Monday 10:00 - 11:00

Name and Contact Information of Instructor

Dr. Ömer Cihan Kıvanç

cihan.kivanc@okan.edu.tr

Book required

Text Book :
Aydınlatma Tekniği (Lighting Techniques), Prof.Dr. Muzaffer Özkaya, Prof.Dr. Turgut Tüfekçi, 2011 İstanbul, Birsen Yayınevi

Classroom expectations for students

Attendance Policy

Students are expected to attend all scheduled Institutional classes for the courses that they are registered for and to achieve the goals set forth by each class instructor. Attendance is taken daily. Enrolled students are permitted no more than **30%** absences in one semester.

Student Tardiness Policy

A student is considered tardy/late if he/she comes to class 15 minutes late.

NOTE: Plagiarism is defined as the use, without proper acknowledgment, of the ideas, phrases, sentences, or larger units of discourse from another writer or speaker. Plagiarism includes the unauthorized copying of software and the violation of copyright laws. Students who commit plagiarism will obtain a grade of "Failure" on their exam or assignment.

Course Description

Introduction to illumination systems / The Spectrum, The Light / Illumination Laws / Illumination Design and Applications / Indoor wiring / Circuits and Circuit Elements, Voltage drops / One Phase Systems / Three Phase Systems / Power System Calculations / Reactive Power calculations and Economy / Lighting Systems Design according to regulations / Lighting Project Evaluation

Learning Objectives

1) Will be able to Identify, Formulate, And Solve Illumination Problems
2) Will be able to Analyze the Applications of Illumination Systems
3) Will be able to Recognize Practical Applications of Illumination Systems
4) Will be able to Understand the Power Calculations of Lighting Systems
5) Will be able to Understand the Basic Concepts of Lighting, Power Analysis and Illumination Systems
6) Will be able to Design an Illumination Project

Topical Outline and Schedule

DATE	**WEEK 1**
SPECIFIC OBJECTIVES	Learning course content Learning Simple Lighting Principles, Examples, Fundamental Quantities Emphasizing the importance of the topic
TOPIC (S)	• Introduction the content of the course.
LEARNING ACTIVITIES	Describe the content of the course, discussing the applications and importance of the topic.
OUT OF CLASS WORK ASSIGMENT	Reading textbook and other relevant documents.
DATE	**WEEK 2**
SPECIFIC OBJECTIVES	Learning Simple Lighting Principles, Examples, Fundamental Terms
TOPIC (S)	• The Light Spectrum, • The Light • The Luminous intensity • A point Source • A uniform point Source • Unit Solid Angle

LEARNING ACTIVITIES	Learning the components, properties and objectives of illumination systems Discussions with student participation
OUT OF CLASS WORK ASSIGMENT	• Read Textbook and Slides , and other relevant materials
DATE	**WEEK 3**
SPECIFIC OBJECTIVES	Learning Simple Lighting Principles, Examples, Fundamental Terms
TOPIC (S)	• The luminous flux • The mean spherical luminous intensity • The illuminance
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	• Read textbook and slides and, • Solve example problems in text book.
DATE	**WEEK 4**
SPECIFIC OBJECTIVES	Fundamental Lighting Laws
TOPIC (S)	• The inverse square law of illuminance • The cosine law of illuminance • The luminance • Summary of terms and laws
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	• Read textbook and slides, • Solve example problems.
DATE	**WEEK 5**
SPECIFIC OBJECTIVES	Exercises on lighting design and illumination
TOPIC (S)	• Solved exercises on lighting design, • Spacing/height ratio, • Lumen, intensity exercises
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	• Read textbook • Solve example problems.

DATE	WEEK 6
SPECIFIC OBJECTIVES	Exercises on lighting design and illumination
TOPIC (S)	• The mean spherical luminous intensity • Principal installation techniques on florescent lamps
LEARNING ACTIVITIES	Discuss the common applications
OUT OF CLASS WORK ASSIGMENT	• Read textbook and technical data of relevant armatures. • Solve example problems. • Examine different applications
DATE	**WEEK 7**
SPECIFIC OBJECTIVES	MIDTERM EXAM*
TOPIC (S)	
LEARNING ACTIVITIES	
OUT OF CLASS WORK ASSIGMENT	
DATE	**WEEK 8**
SPECIFIC OBJECTIVES	Indoor wiring
TOPIC (S)	• Terms and definitions • Power distribution equipment used in Indoor wiring • Building connection box • Main table • The main power line • Column line • Line • Sortie
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	• Read textbook and related regulations
DATE	**WEEK 9**
SPECIFIC OBJECTIVES	Indoor wiring calculations
TOPIC (S)	• Conductor cross section calculations

	• Voltage drop calculations • One phase systems • Exercise on voltage drops for one phase systems • Three phase systems • Exercise on voltage drops for three phase systems
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	Read textbook and solve example problems. Examine national regulations for related topics.
DATE	**WEEK 10**
SPECIFIC OBJECTIVES	Reactive power calculations
TOPIC (S)	• Active current • Reactive current • Power factor calculations for lighting circuits • Topic exercises
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	Read textbook and solve example problems.
DATE	**WEEK 11**
SPECIFIC OBJECTIVES	Lighting system design and power calculations
TOPIC (S)	• Introduction to term project, defining the working groups • Examining the illuminated place • Line voltage drops and limits • Selecting the critical sortie • Calculating the complete systems voltage drop • Redesigning criteria
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	Read textbook and solve example problems. Definition of Term Project an actual lighting design applications

DATE	WEEK 12
SPECIFIC OBJECTIVES	Term project execution
TOPIC (S)	• Selection of working places • Selection of lighting equipment • Calculation of illumination needs • Calculation of power needs
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	Read textbook and solve example problems. Work on term project.
DATE	**WEEK 13**
SPECIFIC OBJECTIVES	Term project execution
TOPIC (S)	• Reviewing projects • Sampling general solutions • Listing of symbols • Defining project template
LEARNING ACTIVITIES	Use AutoCAD or DIALux (both optional) to apply concepts
OUT OF CLASS WORK ASSIGMENT	Work on term project.
DATE	**WEEK 14**
SPECIFIC OBJECTIVES	Reviewing term projects and course content and future topics of illumination
TOPIC (S)	Discuss what we have learned so far and which topics of illumination and indoor wiring should be learned in the future. Discuss the term project
LEARNING ACTIVITIES	Discuss the above topics Student participations with discussions
OUT OF CLASS WORK ASSIGMENT	Work on term project.

Instructional Methods

1. Lecturing in class
2. Leaving reading and teaching materials in the web page
3. 1 Term Project
4. 1 Midterm Exam
5. 1 Final Exam

Instructional Materials and References

Books:

1. *Aydınlatma Tekniği (Lighting Techniques), Prof.Dr. Muzaffer Özkaya, Prof.Dr. Turgut Tüfekçi, 2011 İstanbul, Birsen Yayınevi*
2. *Hughes Electrical Technology, Sixth Edition revised by McKenzie Smith, 1991, Longman Scientific & Technical*
3. *Handbook of Electric Power Calculations, H. Wayne Beaty, 2001, McGraw Hill*
4. *Electrical Installation Calculations, A.J. Watkins, C. Kitcher, Eight Edition, 2009, Newnes*

Regulations:

1. *Elektrik iç tesis yönetmeliği (regulations for indoor installations) , Elektrik Mühendisleri Odası Yayınları*
2. *Elektrik iç tesisleri proje hazırlama yönetmeliği (regulations for project preparation of indoor installations), Elektrik Mühendisleri Odası Yayınları*
3. *Elektrik kuvvetli akım tesisleri yönetmeliği (regulations for power installations), Elektrik Mühendisleri Odası Yayınları*
4. *Elektrik tesislerinde topraklamalar yönetmeliği (regulations for earthing in electrical installations) , Elektrik Mühendisleri Odası Yayınları*

Assessment Criteria and Methods of Evaluating Students

Grade	Coefficient
AA	4.00
BA	3.50
BB	3.00
CB	2.50

CC	2.00
DC	1.50
DD	1.00
FF	0.00
VF	0.00

Distribution of Grade Elements

In-Term Studies	Quantity	Percentage
Midterm Exam	1	30
Term Project	1	30
Total		60
End-Term Studies	**Quantity**	**Percentage**
Final Exam	1	40
Total		40
Contribution Of In-Term Studies To Overall Grade		60
End-Term Studies		40
Total		100

*Weekly Schedule may shift according to examination calendar declared by the Faculty

Date Syllabus Was Last Reviewed: 20/09/2020