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Department of Building Engineering	
Environmental Systems I - Illumination (68330)	
Total Credits	**3**
major compulsory	
Prerequisites	P1 : Fundamentals of Ele.&Illumination Sys. For Buil. (68311) OR Electrical and Lighting Systems for Building (68342)

Course Contents

Vision and Perception, Properties of Light, Quantities, Units and Measurements, Natural Light in Buildings, Color systems, Lighting Sources (Electric Light), Light and Form, Lighting Calculation Methods, Lighting Design Process.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Be able to apply knowledge of physics, mathematics and engineering science to understand light, vision, color theory and light sources	A	30 %
2	Be able to implement a complete but simple design by specifying all components of systems and providing a proper light system layout (natural and/or artificial) using manual calculations on simple typical examples.	C	40 %
3	Be able to conduct proper and simple analysis of an existing lighting system in order to assess its performance, and to evaluate its ability to meet preset design criteria.	E	30 %

Textbook and/ or Refrences

* Benjamin Stein, John S. Reynolds et al., Mechanical and Electrical Equipment for Buildings, 11th Edition, 2010, John Wiley &Sons. * Mark Karlen &James R.Benya Lighting design basic, 2008, John Wiley &Sons.

Assessment Criteria	Percent (%)
First Exam	20 %
Second Exam	20 %
Homeworks	5 %
Projects	15 %
Final Exam	40 %

Course Plan

Week	Topic
1	Vision &perception
2	Properties of Light, Quantities, Units and Measurements
3-4	Color systems
5-7	Natural Light in Buildings
8-10	Lighting Sources (Electric Light)
11	Light and Form
11-13	Lighting Calculation Methods
14-15	Lighting Design Process
16	Final exam