

Department of Building Engineering			
Electrical and Lighting Systems for Building (68342)			
Total Credits	3		
major compulsory			
Prerequisites	P1 : General Physics II (22102)		
Course Contents			
Introduction to electrical concepts, ohms law, DC electrical circuits, AC electrical circuits, Introduction to electronic circuits and basic components. The basics of electrical installation in buildings, low and high voltage circuits, practical installation circuits, design and drawing electrical installation for buildings, earthing system, drop voltage calculation, safety rules			
Intended Learning Outcomes (ILO's)		Student Outcomes (SO's)	Contribution
1	1) Student will be able to demonstrate ,understand and analyze the basics (DC and AC)of electrical circuits and electrical components	E	30 %
2	2) Student will be able to demonstrate ,understand and design the basic electrical installation system for buildings (basic electrical installation circuits, circuit breakers panel, rise up diagram, conductors, drop voltage)	C	60 %
3	3) Student will be able understand and be aware to the safety rules and local governments rules deals with electrical installation in the buildings	F	10 %
Textbook and/ or References			
- Mechanical and Electrical equipments for buildings , Walter T. Grondzik , 11th edition, - Electric circuits fundamentals, Floyed , 7th edition			
Assessment Criteria		Percent (%)	
First Exam		20 %	
Second Exam		15 %	
Projects		15 %	
Final Exam		50 %	
Course Plan			
Wee k	Topic		
1	Electrical circuit components and ohms law, DC circuit analysis		
2	Network analysis methods (nodal and mesh) analysis, DC power calculation		
3	AC circuit analysis		
4	Power calculation of AC circuits and equipments, power factor energy cost		
5	Three phase electrical system, Electric demand, demand factor and diversity factor		
6	Utilizing factor and maintenance factor Depreciation factor		
7	Type of lamps (incandescent, discharge, saving lamps) Calculation of Luminance, Law of Illumination		
8	Midterm exam 1		
9	Conductors, types(copper, aluminum, special cable types), ampcity of the conductors		
10	Electric wiring circuits, electrical wiring design procedure		
11	Branch circuit design, spare capacity, feeder capacity		
12	Drop voltage calculation		
13	Midterm exam 2		

14	Earthing system
15	safety rules and local governments rules deals with electrical installation in the buildings
16	Final exam