



**The Hashemite University
Faculty of Engineering
Course Syllabus**

Course Title:	MECHANICAL and ELECTRICAL SYSTEMS	Course Number:	110402450
Department:	Mechanical Engineering	Designation:	Compulsory
Prerequisite(s):	402222		
Instructor:	Dr. Salem D. Nijmeh	Instructor's Office:	E3117

Course description: Thermal comfort, Inside and outside design conditions. Ventilation and infiltration. Heating load calculations. Solar radiation, cooling load calculations. Water heating systems layout and design. Cold water supply. Fire Protection systems. Hot water systems. drainage systems. Rain water disposal systems. Introduction to electrical and lighting systems in buildings.

Textbook

1. M. Alsaad and M. Hammad, Heating and Air Conditioning for Residential Buildings, Sixth Edition, 2016.
2. W Tao and R. Janis, Mechanical and Electrical Systems in Buildings, Prentice Hall, Second Edition, 2001
3. F. Hall, Plumbing-Cold Water Supplies, Drainage and Sanitation, Longman Scientific and Technical, Third Edition

Other required material:

Jordanian Codes and ASHRAE Handbooks

Course Objectives

By the end of this course students should be able to:

- Understand the processes in air conditioning. (a),(e),(k)
- Appreciate the influence of external and internal conditions on the design of air conditioning systems and comfort.(e)
- Be familiar with the different types and applications of air conditioning systems. (PO5, PO8)(e),(i)
- Carry out detailed calculations of heating and cooling loads in buildings. (a),(e),(k)
- Carry out design calculations of water and air heating systems. (PO3, PO5) (a),(c),(e),(k)
- Carry out simple design calculations of hot and cold water systems(a),(e),(k)
- Familiar with different types of fire control systems(e),(k)
- Understand the different type of drainage systems and carry out simple calculations(c),(e),(k)
- Understand the different type of rain water disposal systems and carry out simple calculations(c),(e),(k)

Class/laboratory schedule:

3 class sessions each week; 50 minutes each

Grading Plan:

Mid-term Exam	(30 Points)
Project and Classwork	(30 Points)
Final Exam	(40 Points)

ABET a-k		ME Program Outcomes
	√	
a	√	Graduates must have the ability to apply knowledge of mathematics and science to solve engineering problems.
b		Graduates must have the ability to design and conduct experiments as well as to analyze and interpret data.
c	√	Graduates must have the ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d		Graduates must have the ability to function on multidisciplinary teams
e	√	Graduates must have the ability to identify, formulate, and solve fundamental engineering problems.
f		Graduates must have an understanding of professional and ethical responsibility
g		Graduates must have the ability to communicate effectively.
h		Graduates must possess the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
i	√	Graduates must recognize the need for, and possess an ability to engage in, life-long learning.
j		Graduates must possess knowledge of contemporary issues.
k	√	Graduates must have the ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

Prepared by:

Dr. Salem Nijmeh

Date:

10/9/ 2020