

ME 520 – Thermal Plant Engineering

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2

COURSE COORDINATOR

Dr Mahmoud Abdel Rasheed

TEXT BOOK:

M.M El-Wakil, "Power Plant Technology", McGraw-Hill, 1984, 1st edition.

COURSE DESCRIPTION:

Thermodynamics Review. Steam Plant Components. Modifications of Steam Plant Cycle. Design of Feedwater Heater. Gas Turbine Power Plant. Modifications of Gas Turbine Cycle. Combined Cycle. Nuclear Power Plant . Pressurized Water Reactors. Boiling Water Reactors

PREREQUISITE:

ME423

RELATION OF COURSE TO PROGRAM:

Required

COURSE INSTRUCTION OUTCOMES:

The student gains knowledge on the performance of different thermal plants. He/ She is able to evaluate this performance, compare and choose between different types of thermal power plants.

TOPICS COVERED:

- Thermodynamics Review
- Steam Plant Components
- Steam Plant Cycles
- Modifications of Steam Plant Cycle
- Design of Feed water Heater
- Gas Turbine Power Plant
- Gas Turbine Cycles
- Modifications of Gas Turbine Cycle
- Application of Gas Power Plant
- Combined Cycle
- Combined Cycle Application

- Nuclear Power Plant
- Pressurized Water Reactors
- Boiling Water Reactors

CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF CRITERION 5:

Professional Component Content			
Math and Basic Sciences	Engineering Topics	General Education	Engineering Design
	✓	✓	✓

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

Student Outcomes		Course Outcomes
a.	An ability to apply knowledge of mathematics, science, and engineering.	
b.	An ability to design and conduct experiments, analyze and interpret data.	
c.	An 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.	An ability to function on multi-disciplinary teams.	
e.	An ability to identify, formulate, and solve engineering problems.	✓
f.	An understanding of professional and ethical responsibility.	✓
g.	An ability to communicate effectively.	
h.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal content	✓
i.	A recognition of the need for, and an ability to engage in life-long learning.	
j.	A knowledge of contemporary issues within and outside the electrical engineering profession.	✓
k.	An ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice.	