

BA114- Physics (2)

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2; Lab: 2

TEXT BOOK

T. D. Eastop and A. Mcconkey, *Applied Thermodynamics for Engineering Technologists*, Prentice Hall, latest edition.

COURSE DESCRIPTION

This course is concerned with the investigation of the behavior of the fluid under different conditions to calculate the net work done on or by the system.. It is also concerned with standing the first and second law of thermodynamics. Heat, work and internal energy of the fluids (liquid and gas) should be calculated for different processes under different condition. Heat transfer is also studied through this course.

PREREQUISITE:

BA113

RELATION OF COURSE TO PROGRAM

Required

COURSE INSTRUCTION OUTCOMES

The student will be able to understand the relation between heat, work and the conservation of energy through thermodynamic cycle. Also, the student must know the relation between the different units used through this Course.

TOPICS COVERED

- Introduction to thermodynamics.
- Reversibility and reversible work.
- First law of thermodynamics' Non-flow equation.
- Steady flow equation.
- Working Fluid (steam, perfect gas).
- Reversible processes.(constant volume, constant pressure & constant temperature, adiabatic & polytropic).
- Second law of thermodynamics.
- Heat transfer.

CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF CRITERION 5:

Professional component Content			
Math and Basic Sciences	Engineering Topics	General Education	Other
✓			

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

Student Outcomes		Course aspects
A	An ability to apply knowledge of mathematics, science, and engineering	a ₁ a ₂
B	An ability to design and conduct experiments, analyze and interpret data.	b ₁ b ₂ b ₃ b ₄
C	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health, and safety, manufacturability, and sustainability	
D	An ability to function on multi-disciplinary teams.	d ₁ d ₂ d ₃ d ₄
E	An ability to identify, formulate, and solve engineering problems	
F	An understanding of professional and ethical responsibility	
G	An ability to communicate effectively	g ₁ g ₂ g ₃
H	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and social 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.	