

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Course:

This course description provides a brief summary of the most important course characteristics and learning outcomes that the student will achieve, indicating whether the student has achieved the highest grades available to students..

1. Teaching Institution	Al-Ayen University / College of Engineering
2. University Department/Centre	Petroleum Engineering Department
3. Course title/code	Thermodynamics / (GE203)
4. Modes of Attendance offered	classes
5. Semester/Year	First / 2022 - 2023
6. Number of hours tuition (total)	3 hours/week
7. Date of production/revision of this specification	28\10\2022
8. Aims of the Course	

The course aims to provide second stage students with basic knowledge of engineering thermodynamics. even it's happen Study everything related to energy and related concepts such as the first law of thermodynamics and the second law and its applications. The course aims to enable students to gain access to the science of thermodynamics by understanding how engineering analysis is done Correct and how to deal with laws, equations, illustrations and other data and link data To reach the outputs and enable the student to be able to analyze, elicit and draw conclusions

9. Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals .

A1. Define terminology and identify the units concerned with the basic concepts of thermodynamics and explain the basic properties of thermodynamics and units.

A2. Determining the meaning of the state of the work material

A3. Derivation, discussion and application of the first and second laws of thermodynamics

A4. Understand the concepts of heat, work and energy

B. The skills goals special to the course.

B1. The ability to deal with mathematical equations

Teaching and Learning Methods

.discussions
giving lectures

Assessment methods

duties
Daily exams
Participation and discussion during the lecture
final exams

C.Affective and value goals

C1. The student can harness his concepts of thermodynamic processes in practical applications

C2. The student can understand the Carnot cycle and how it works in everyday life.

C3. The student can harness the concepts of heat, pressure and temperature and benefit from them in our daily life

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. verbal communication

D2. The ability to express ideas clearly and confidently in speech

D3. Teamwork

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	To familiarize the student with the concept of heat transfer, the system of units, force, the concept of pressure and its types	Introduction to thermodynamics - books described - units. Important definitions - force - pressure and its types	theoretical	
2	3	Shows the student what the temperature is, temperature scales, and the mechanism of heat formation and internal energy	Temperature: its units, transformations, and methods of measuring it. Zero Law Definition	theoretical	
3	3	The student learns about thermal equilibrium, the phases of matter, and how to switch between these phases and heat transfer	Thermodynamic equilibrium, properties of pure matter and the P-v . diagram	Theoretical	homework + exam
4	3	The student derives the equation for the ideal gas	Ideal Gas Boyle's Law - Charles' Law The equation of state	Theoretical	homework

5	3	The student will know the definition of the first law of thermodynamics and its laws	First law of thermodynamics	Theoretical	Homework+ exam
6	3	The student will know the definition of the second law of thermodynamics and its laws	The second law of thermodynamics and its applications	Theoretical	exam
7	3	The student knows the mechanism of the thermodynamic machine and the Carnot cycle as applications of the second law of thermodynamics	The ideal heat engine - the Carnot cycle	Theoretical	Homework +exam
8	3	To understand the derivation of entropy and its definition of perimeter	Entropy concept	Theoretical	exam

11. Infrastructure	
1. Books Required reading:	1. Thermodynamics an engineering approach Yunus A cengel Michael A boles. 2. 2. Engineering Thermodynamics
2. Main references (sources)	Research and scientific journals in the field
A- Recommended books and references (scientific journals, reports...).	Internet
B-Electronic references, Internet sites...	

12. The development of the curriculum plan

