



Arab Academy for Science, Technology & Maritime Transport  
College of Engineering & Technology  
Mechanical Engineering (Mechatronics) Program

**University/Academy:** Arab Academy for Science, Technology & Maritime Transport  
**Faculty/Institute:** College of Engineering & Technology  
**Program:** B.Sc. Mechanical Engineering

**Form no. (12)**  
**Course Specification**

**1- Course Data**

Course Code: <b>ME 333</b>	Course Title: <b>Thermodynamics II</b>	Academic Year/Level: <b>2nd year / 4th semester</b>	
Specialization: <b>Mechanical</b>	No. of Instructional Units <b>3 credits</b>	Lecture <b>2 hrs.</b>	Practical <b>2 hrs.</b>

**2- Course Aim**

To give students of engineering a through grounding in subject of thermodynamics and the design of thermal plant.

**3- Intended Learning Outcomes**

<b>a- Knowledge and Understanding</b>	<p><b>Through knowledge and understanding, students will be able to:</b></p> <p>K1) Concepts and theories of mathematics and sciences, appropriate to the discipline</p> <p>K4) Principles of design including elements design, process and/or a system related to specific disciplines.</p> <p>K5) Methodologies of solving engineering problems, data collection and interpretation</p> <p>K8) Current engineering technologies as related to disciplines.</p> <p>K10) Technical language and report writing</p> <p>K11) Professional ethics and impacts of engineering solutions on society and environment</p> <p>K12) Contemporary engineering topics.</p>
<b>b- Intellectual Skills</b>	<p><b>Through intellectual skills, students will be able to:</b></p> <p>I2) Select appropriate solutions for engineering problems based on analytical thinking.</p> <p>I3) Think in a creative and innovative way in problem solving and design.</p> <p>I4) Combine, exchange, and assess different ideas, views, and knowledge from a range of sources.</p> <p>I5) Assess and evaluate the characteristics and performance of components, systems and processes.</p> <p>I7) Solve engineering problems, often on the basis of limited and possibly contradicting information.</p>

<p><b>c- Professional Skills</b></p>	<p><b>Through professional and practical skills, students will be able to:</b></p> <p>P1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems.</p> <p>P2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services.</p> <p>P3) Create and/or re-design a process, component or system, and carry out specialized engineering designs.</p> <p>P5) Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.</p> <p>P12) Prepare and present technical reports.</p>
<p><b>d- General Skills</b></p>	<p><b>Through general and transferable skills, students will be able to:</b></p> <p>G3) Communicate effectively.</p> <p>G6) Effectively manage tasks, time, and resources.</p> <p>G7) Search for information and engage in life-long self learning discipline.</p> <p>G9) Refer to relevant literatures</p>

**4- Course Content**

<p><b>Week No.1</b></p>	<p>Mixtures</p>
<p><b>Week No.2</b></p>	<p>Mixtures</p>
<p><b>Week No.3</b></p>	<p>Psychrometry</p>
<p><b>Week No.4</b></p>	<p>Psychrometry</p>
<p><b>Week No.5</b></p>	<p>Psychrometry</p>
<p><b>Week No.6</b></p>	<p>Refrigeration</p>
<p><b>Week No.7</b></p>	<p>Refrigeration / 7th week evaluation</p>
<p><b>Week No.8</b></p>	<p>Refrigeration</p>
<p><b>Week No.9</b></p>	<p>Refrigeration</p>
<p><b>Week No.10</b></p>	<p>Gas Turbine</p>
<p><b>Week No.11</b></p>	<p>Gas Turbine</p>
<p><b>Week No.12</b></p>	<p>Nozzles / 12<sup>th</sup> week evaluation</p>
<p><b>Week No.13</b></p>	<p>Nozzles.</p>
<p><b>Week No.14</b></p>	<p>Design of a selected topic</p>

<b>Week No.15</b>	Design of a selected topic
<b>Week No.16</b>	Final Examination

**5- Teaching and Learning Methods**

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

**6-Teaching and Learning Methods for Students with Special Needs**

- Lectures
  - Tutorials
  - Reports & sheets
  - Laboratories
  - Seminars
- Academic Support:**
- The general academic advisor appoints an academic supervisor for handicapped students.
  - Continuous follow ups are made for handicapped students after each assessment to evaluate their academic level of achievement

**7- Student Assessment**

<b>a-Procedures used</b>	1-Written Examinations to assess The Intended Learning Outcomes.	
	2-Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills.	
<b>b- Schedule:</b>	Assessment 1	7 <sup>th</sup> Week Assessment
	Assessment 2	12 <sup>th</sup> Week Assessment
	Assessment 3	Continuous Assessments
	Assessment 4	16 <sup>th</sup> Week Final Written Exam
<b>c- Weighing of Assessment</b>	7 <sup>th</sup> Week Evaluation	30 %
	12 <sup>th</sup> Week Evaluation	20 %
	Final-term Examination	40 %
	Oral Examination	00 %
	Practical Examination	00 %
	Semester Work	10 %
	Total	100%

**8- List of References:**

<b>a- Course Notes</b>	N/A
<b>b- Required Books (Textbooks)</b>	• YUNUS, CENGEL. BOLES, MICHEAL A " THERMODYNAMICS: AN ENGINEERING APPROACH"
<b>c- Recommended Books</b>	• Engineering Thermodynamics, B.M. David
<b>d- Periodicals, Web Sites, etc.</b>	N/A

Course coordinator:

Program Manager: