



<b>Program and Degree: BSc in Aerospace Engineering</b>	
<b>Course Description</b>	
<b>Course Title</b>	<b>Thermodynamics and heat transfer Lab</b>
<b>Prerequisites</b>	Heat Transfer
<b>The course aims</b>	<p>Students' acquaintance with the principles of thermodynamics and the rules and methods for examining the effects of temperature</p> <p>1- Ability to perform and design standard thermodynamics test. 2- Understand the basic Thermodynamics rules.</p>
<b>Contents</b>	<p>1- Two stage compressor, Reciprocating compressor, Intercooler and aftercooler, Measuring speed and power of a compressor.</p> <p>2- Single cylinder internal combustion engine, Measuring speed and power and flow rate, heat transfer, and lost power. Heat balancing.</p> <p>3- Heat pump and refrigerator: measurement of compressor power consumption, Hot and cold sources of heat, performance diagram and cooling load and heating load.</p> <p>4- Ram Jet test: measurement of thrust and fuel consumption in different speeds, measuring air pressure and speed in the engine.</p> <p>5- Gas Turbine test: measurement of air and fuel flow rate in different RPMs.</p> <p>6- Heat transfer coefficient: measuring heat transfer coefficient in free and forced convection.</p>
<b>Duration</b>	<b>1 Semester (16 weeks)</b>
<b>Course Hours</b>	<b>3 hours/week</b>
<b>Course Type</b>	<b>Required</b>