

## Fundamentals of Engineering Thermodynamics

Subject Information	
<b>Code</b>	UE3 S2
<b>Credits (ECTS)</b>	4
<b>Semester</b>	1 (mid-September – mid-January)
<b>Time Allocation (Lec. / Prac. / Lab/ Project)</b>	20 h / 30 h / 0 / 0
<b>Lecturer</b>	Pr. Jean-Pierre BEDECARRATS, Dr. Didier HAILLOT.
<b>Pre-requisites</b>	General Thermodynamics
<b>Assessment</b>	2 hours final written examination

*Lec. : Lectures*

*Prac. : Practical works ("small classes")*

*Lab.: Laboratories*

Subject Description	
<b>Introduction</b>	<p>The objectives of this course are:</p> <ul style="list-style-type: none"> <li>to present a thorough treatment of engineering thermodynamics from the classical viewpoint;</li> <li>to prepare students to use thermodynamics in engineering practice.</li> </ul> <p>This part deals with usually encountered processes in energetic systems.</p>
<b>Learning outcomes</b>	After this course the students should be able to correctly size and analyse energetic systems.
<b>Content</b>	<ol style="list-style-type: none"> <li><b>Energy and the First Law of Thermodynamics</b></li> <li><b>Evaluating Properties</b></li> <li><b>Control Volume Analysis Using Energy</b></li> <li><b>The Second Law of Thermodynamics. Using Entropy</b></li> <li><b>Exergy analysis</b></li> <li><b>Vapour power systems</b></li> <li><b>Gas power systems</b></li> <li><b>Refrigeration and heat pump systems</b></li> </ol>
<b>Literature</b>	<p><i>Fundamentals of engineering thermodynamics.</i> Moran J., Shapiro N.M., - 7th ed. - 2010 – John Wiley &amp; Sons</p> <p><i>Thermodynamics: An Engineering Approach.</i> Yunus A. Cengel, Michael A. Boles. - 8th edition – 2014 - McGraw-Hill Professional</p>