

# ENGR90029 Analysing Energy Systems

<b>Credit Points:</b>	12.50									
<b>Level:</b>	9 (Graduate/Postgraduate)									
<b>Dates &amp; Locations:</b>	This subject is not offered in 2013.									
<b>Time Commitment:</b>	Contact Hours: 36 hours Total Time Commitment: 120 hours									
<b>Prerequisites:</b>	Admission to a Masters level program.									
<b>Corequisites:</b>	None									
<b>Recommended Background Knowledge:</b>	None									
<b>Non Allowed Subjects:</b>	<table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEN20007 Chemical Process Analysis 1</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>CHEN20008 Chemical Process Analysis 2</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	CHEN20007 Chemical Process Analysis 1	Semester 1	12.50	CHEN20008 Chemical Process Analysis 2	Semester 2	12.50
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CHEN20008 Chemical Process Analysis 2	Semester 2	12.50								
<b>Core Participation Requirements:</b>	<p>&lt;p&gt;For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.&lt;/p&gt; &lt;p&gt;It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>									
<b>Contact:</b>	<b><a href="mailto:dcshal@unimelb.edu.au">dcshal@unimelb.edu.au</a> (mailto:dcshal@unimelb.edu.au)</b>									
<b>Subject Overview:</b>	<p>This subject introduces material and energy balances used in energy system calculations, including the following -</p> <ul style="list-style-type: none"> <li>• thermodynamic properties</li> <li>• equations of state</li> <li>• the conservation of energy in and around energy processing systems</li> <li>• evaluation of enthalpy changes with and without phase change</li> <li>• simplified energy balances for batch, steady-state and adiabatic systems</li> <li>• estimation of heats of combustion, solution and dilution</li> <li>• simultaneous material and energy balances</li> <li>• entropy, the Second Law of Thermodynamics and Carnot's principle</li> <li>• simple thermodynamic cycles</li> <li>• exercises in process optimisation and the solution of ill-defined process problems</li> </ul>									
<b>Objectives:</b>	<p>On completion of this subject students should be able to -</p> <ul style="list-style-type: none"> <li>• draw flowsheets for appropriate energy systems</li> <li>• calculate energy flows within such systems</li> <li>• appreciate the theoretical limits on device performance</li> <li>• perform process optimisation and solve ill-defined process problems</li> </ul>									
<b>Assessment:</b>	<ul style="list-style-type: none"> <li>• Four assignments spread throughout the semester, each of no more than 5 pages (10% each)</li> <li>• One written two-hour end-of-semester examination (60%). A mark of 40% or more in the end of semester examination is required to pass the subject.</li> </ul>									
<b>Prescribed Texts:</b>	None									

<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<ul style="list-style-type: none"><li>• Ability to apply scientific fundamentals</li><li>• Ability to communicate effectively with the community at large</li><li>• Ability to undertake problem identification, formulation and solution</li><li>• Ability to use a systems approach to the analysis of operational performance</li><li>• Understanding of the social, cultural, global and environmental responsibilities of a professional, and the need for sustainable development</li><li>• Understanding of the principles of sustainable design and development</li></ul>
<b>Related Course(s):</b>	Master of Energy Systems