

436-421 Power Generation Systems

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| Credit Points: | 12.500 |
| Level: | Undergraduate |
| Dates & Locations: | This subject is not offered in 2008. |
| Time Commitment: | Contact Hours: Forty hours of lectures and 8 hours of laboratory classes Total Time Commitment: Not available |
| Prerequisites: | 436-432 Thermofluids 4 (or knowledge of equivalent thermodynamics content). |
| Corequisites: | None |
| Recommended Background Knowledge: | None |
| Non Allowed Subjects: | None |
| Core Participation Requirements: | <p><p>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.</p> <p><p>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: http://services.unimelb.edu.au/disability</p></p> </p> |
| Subject Overview: | <p>Upon completion, students should be able to analyse and design a range of energy conversion equipment and to appreciate the directions in which the technology and operating economics will evolve towards energy sustainability through improved performance and alternative fuels' Â application.</p> <p>The content of this course will compromise the selections from steam turbines, boiler design and control characteristics; cycle optimisation; economics of plant operation; gas turbines; cycle performance; stationary and aircraft gas turbines; working with fluids in open and closed cycles; component matching and off-design operation; engines; ideal air and fuel-air cycles; effect of fuel composition dissociation and heat transfer on efficiency; characteristics of spark ignition and diesel engines; advanced engine simulation abnormal combustion; unsteady gas dynamics; isentropic and non-isentropic wave propagation; one-dimensional unsteady compressible flow; pressure exchangers and exhaust systems; turbocharging; compressor and turbine characteristics; turbine performance and turbocharged/engine matching; properties of alternative fossil and bio fuels compared with conventional fuels in engine applications including their storage, supply, combustion, emissions and life cycle environmental impacts.</p> |
| Assessment: | One 3-hour examination at the end of semester (65%). 3 assignments each not exceeding 5 pages (15%) and 2 laboratory reports (20%) each not exceeding 8 pages, including analysis, diagrams and tables, due throughout the semester. |
| Prescribed Texts: | None |
| Recommended Texts: | Information Not Available |
| Breadth Options: | This subject is not available as a breadth subject. |
| Fees Information: | Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees |
| Generic Skills: | Information Not Available |
| Related Course(s): | Bachelor of Engineering (EngineeringManagement)Mechanical&Manufacturing Bachelor of Engineering (Mechanical &Manufacturing)& Bachelor of Science Bachelor of Engineering (Mechanical &Manufacturing)/Bachelor of Commerce |

**Bachelor of Engineering (Mechanical and Manufacturing Engineering)
Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science**