# 436-459 Advanced Control and Automation

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| **Credit Points:** | 12.500 |
| **Level:** | Undergraduate |
| **Dates & Locations:** | 2008,<br>This subject commences in the following study period/s:<br>Semester 2, - Taught on campus. |
| **Time Commitment:** | Contact Hours: Thirty hours of lectures and seminars, and 18 hours of tutorials, practical work and industrial contact Total Time Commitment: Not available |
| **Prerequisites:** | 436-470 Control Systems 2. (Prior to 2005, 436-433 Mechanical Systems) |
| **Corequisites:** | None |
| **Recommended Background Knowledge:** | None |
| **Non Allowed Subjects:** | None |
| **Core Participation Requirements:** | 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. 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: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a> |
| **Coordinator:** | Dr C Manzie |
| **Subject Overview:** | This subject is concerned with multivariable and nonlinear control theory, and applications of control theory in a variety of complex automated systems. On completion, students should have sufficient knowledge and understanding to make effective use of the relevant research literature, have gained practical experience in the design and implementation of advanced control systems using state-of-the-art development tools, and be familiar with a number of industrial applications.<br>Advanced control topics will be selected from linear quadratic optimal control and estimation, loop shaping methods, feedback linearisation, backstepping, sliding mode and adaptive control, and fuzzy/neural systems. Applications will be drawn from industrial, medical and transport automation (eg., robots, machine tools, production machines, laboratory automation, automotive and aerospace by-wire systems). |
| **Assessment:** | One 3-hour end of semester examination (50%) and three assignments of up to 5000 words each (50%) 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 (Mechanical &Manufacturing)& Bachelor of Science<br>Bachelor of Engineering (Mechanical &Manufacturing)/Bachelor of Commerce<br>Bachelor of Engineering (Mechanical and Manufacturing Engineering) |

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| | Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science |