

Mechatronics Systems

Year and Campus:	2016															
Coordinator:	Professor Chris Manzie															
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Overview:	<p>The proposed major provides a focused pathway for students wishing to build a career in the area of mechatronics, automation science and/or robotics. Students will develop strong skills in mathematical modelling of the behaviour, response, and control of mechanical systems that can perform physical tasks. This modelling is matched with sensing of the environment via electronic sensors and the instrumentation required to support them. The fundamental knowledge of the machine performance and sensing of the both the environment and performance can then be coupled using strong computer programming skills that are directed at interfacing the computers with machines.</p> <p>The primary pathway this creates for students is to a master of engineering, although students with these skills at the completion of the BSc would also find career possibilities in a range of technical enterprises seeking strong problem solving skills in machine-computer interaction.</p>															
Learning Outcomes:	<p>Knowledge base in Mechatronics Systems</p> <ul style="list-style-type: none"> # Demonstrate a broad knowledge of the mathematics and physics of electro-mechanical systems <p>Demonstrate capacity of rigorously applying knowledge of mathematics and science of electric-mechanical system behaviour to solve problems in areas such as monitoring, automation, and robotics.</p> <p>Scientific Enquiry and Critical Thinking</p> <ul style="list-style-type: none"> # Demonstrate capacity of scientific understanding of electrical and physical phenomena as a basis for mathematical modelling and abstraction in analysis and design; # Demonstrate problem-solving and design skills # Demonstrate ability to construct simulations and laboratory experiments. <p>Communication of Engineering Systems Knowledge</p> <ul style="list-style-type: none"> # Demonstration good communication skills whereby the students are able to communicate effectively engineering science and systems concepts and theories to professional and lay audiences in both written, schematic and oral formats. <p>Professional Development and the application of engineering science knowledge</p> <ul style="list-style-type: none"> # Apply systems principles to develop work and study habits that sharpen readiness for employment and/or further study, including enhancing skills for reflective thinking, the giving and receiving feedback, and for effective collaboration with people from diverse backgrounds and cultures. 															
Structure & Available Subjects:	Completion of 50 points of study at Level 3.															
Subject Options:	<p>All four of:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ELEN30014 Analog and Digital Electronics Concepts</td> <td>Semester 1</td> <td>12.5</td> </tr> <tr> <td>ENGR30003 Numerical Programming for Engineers</td> <td>Semester 2</td> <td>12.5</td> </tr> <tr> <td>MCEN30019 Mechatronic Systems Design</td> <td>Semester 2</td> <td>12.5</td> </tr> <tr> <td>MCEN30020 Systems Modelling and Analysis</td> <td>Semester 2</td> <td>12.5</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ELEN30014 Analog and Digital Electronics Concepts	Semester 1	12.5	ENGR30003 Numerical Programming for Engineers	Semester 2	12.5	MCEN30019 Mechatronic Systems Design	Semester 2	12.5	MCEN30020 Systems Modelling and Analysis	Semester 2	12.5
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Related Course(s):	Bachelor of Science
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