

Course Outline (Higher Education)

School:	School of Science, Engineering and Information Technology
Course Title:	ADVANCED INDUSTRIAL ROBOTIC SYSTEMS
Course ID:	ENGIN5403
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	030101

Description of the Course :

This course provides the general theories, methodologies, practices and use of armed robotic systems in industry. The course provides a general understanding of the role of robotic technology in industry and allows to develop skills in analysis and synthesis of an articulated robot arm. In addition, use of robotics in industrial automation and trends in robotics will be discussed.

Grade Scheme: Graded (HD, D, C, etc.)

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks..

Program Level:

AQF Level of Program						
	5	6	7	8	9	10
Level						
Introductory						
Intermediate						
Advanced					✓	

Learning Outcomes:

On successful completion of the course the students are expected to be able to:

Knowledge:

Course Outline (Higher Education)

ENGIN5403 ADVANCED INDUSTRIAL ROBOTIC SYSTEMS

- K1.** Annotate and restate advanced knowledge of common terminologies and conventions in industrial robotic systems.
- K2.** Research the most important concepts in the selection of robotic systems.
- K3.** Appraise the theories and mathematics underpinning the mobility of robot systems.

Skills:

- S1.** Calculate performance parameters of industrial robotic systems.
- S2.** Design models using mathematical tools for industrial robotic systems.
- S3.** Examine and compute real time realisation of industrial robotic systems.

Application of knowledge and skills:

- A1.** Apply mathematical and theoretical knowledge to design and model industrial robotic systems.
- A2.** Interpret theories to analyse industrial robotic systems.
- A3.** Analyse and troubleshoot industrial robotic systems as part of mechatronic systems and automation.

Course Content:

Topics may include:

- Automation technology in industry
- Mathematical skills for analysis and synthesis of an articulated robots
- Selection and application of robots for industrial applications
- Social and financial implementation of robotics
- Future trends in robotics and innovation

Values:

- V1.** Appreciate the value of engineering theories for design and development of industrial robotic systems.
- V2.** Appreciate the importance of industrial robotics in modern engineering applications

Graduate Attributes:

FedUni graduate attributes statement. To have graduates with knowledge, skills and competence that enable them to stand out as critical, creative and enquiring learners who are capable, flexible and work ready, and responsible, ethical and engaged citizens.

Attribute	Brief Description	Focus
Knowledge, skills and competence	Engineering is a fast-changing technological area, which affects our every-day life. Students will demonstrate the acquisition of all the knowledge, skills and competence needed to be a successful engineer.	High
Critical, creative and enquiring learners	Demonstration of the skills needed to be an independent, critical, and creative learner is an essential feature of engineering education. Within their studies, students will demonstrate an advanced ability to be creative, critical and enquiring.	High

Course Outline (Higher Education)

ENGIN5403 ADVANCED INDUSTRIAL ROBOTIC SYSTEMS

Attribute	Brief Description	Focus
Capable, flexible and work ready	Engineering is inherently interdisciplinary in nature. It requires a teamwork approach to execute tasks to achieve common objectives. Training for this engagement is built in to the academic year through a demonstration of the detailed attention to detail that will be needed within the engineering workplace.	High
Responsible, ethical and engaged citizens	Through the breadth of learning the academic year of the engineering programmes delivers, a student will demonstrate a detailed understanding of the engineering needed for the advancement of humanity.	High

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1 - K3, S1 - S3, A1 - A3	Experimental work and / or projects to verify students ability to apply knowledge and skills acquired in the course.	Reports, demonstrations	15% - 25%
K1 - K3, S1 - S3, A1 - A3	Relevant tasks and problems to enforce understanding of the students and help in gradual development of knowledge and skills throughout the course.	Assignments, quizzes	15% - 25%
K1 - K3, S1 - S3, A1 - A3	Questions and problems related to the materials covered in the course.	Mid and / or End of semester examination	50% - 70%

Adopted Reference Style:

Other (IEEE)