

# TEAC 7152 APPLIED ROBOTICS AND PROGRAMMING IN SECONDARY STEM EDUCATION

**Credit Points** 10

**Legacy Code** 102763

**Coordinator** Nathan Berger ([https://directory.westernsydney.edu.au/search/name/Nathan Berger/](https://directory.westernsydney.edu.au/search/name/Nathan%20Berger/))

**Description** This unit develops in-service teachers' knowledge and skills in the application of robotics and coding in the STEM (science, technology, engineering and mathematics) disciplines. The unit content and assessments are designed to firstly build teachers' foundational skills in robotics/coding, and secondly, build teachers' professional skills in the implementation of robotics/coding in their classrooms. A particular focus of the unit is how robotics/coding can be used to authentically integrate curriculum content from and across the different STEM disciplines through inquiry- and problem-based learning, with the ultimate aim of enhancing student engagement and achievement in the STEM disciplines.

**School** Education

**Discipline** Teacher Education: Secondary

**Student Contribution Band** HECS Band 1 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Postgraduate Coursework Level 7 subject

## Restrictions

Students must be enrolled in 1882 Graduate Certificate in Secondary STEM Education, 1847 Master of Education (STEM), 1911 Master of Education or 1714 Master of Teaching (Secondary).

## Assumed Knowledge

Students are assumed to be qualified secondary school teachers with classroom experience in delivering the NSW or Australian curriculum.

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Demonstrate foundational knowledge and skills in both robotics and programming languages.
2. Design teaching and learning sequences which apply robotics and programming languages as part of integrated STEM units in secondary school contexts.
3. Critically appraise the role of robotics and programming languages in creating authentic learning experiences for students in secondary school contexts, through both inquiry- and problem-based learning.

## Subject Content

- Robots and other programmable autonomous systems and their application in educational contexts.
- programming languages for The Creation of computer programs and The control of robotics and other autonomous systems.
- using robotics and coding to Create authentic learning experiences for school students.
- inquiry- and Problem-based learning with robotics/coding in integrated STEM Teaching and learning.

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Applied Project	2,000 words	50	N	Individual
Professional Task	2,000 words	50	N	Individual

Teaching Periods

## Autumn

### Online

### Online

**Subject Contact** Nathan Berger ([https://directory.westernsydney.edu.au/search/name/Nathan Berger/](https://directory.westernsydney.edu.au/search/name/Nathan%20Berger/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=TEAC7152\\_22-AUT\\_ON\\_O#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=TEAC7152_22-AUT_ON_O#subjects))