

# PHYS 7002 SPACE INSTRUMENTATION, TECHNOLOGY AND COMMUNICATION

**Credit Points** 10

**Legacy Code** 301248

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

**Description** The Space Instrumentation, Technology and Communication subject is focussed on the application of space technology in industrial settings. Its main objective is to provide a sound knowledge of the underlying principles which form a thorough basis for careers in space technology, satellite communications and related fields. This subject gives the student grounding in the technologies used in space science. By considering the underlying scientific principles and case studies of the instrumentation used in space, students will not only understand the current state of the art in space science, but also the foundations of the field in order to be able to stay current in this fast-moving field. Content includes but is not limited to: Imaging, Detectors, Principles of Communication, and Principles of Space Technology.

**School** Science

**Discipline** Astronomy

**Student Contribution Band** HECS Band 2 10cp

**Level** Postgraduate Coursework Level 7 subject

**Restrictions**

Student must be enrolled in a postgraduate program.

**Assumed Knowledge**

Knowledge of Mathematics equivalent to 2-unit HSC, and experience with the use of computer software such as Excel or Word would be beneficial. Previous experience of statistics or computer programming will be an advantage but is not essential.

## Learning Outcomes

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

1. Appraise spacecraft, satellite communications, the space environment, space operations and space project management in a line of the future space exploration.
2. Evaluate the present optical and microwave transmission technologies, and of communication systems modelling.
3. Apply integrated knowledge of a range of subjects relating to spacecraft technology and satellite communications.
4. Critique the effectiveness of various types of space instrumentation and space communications including our future endeavours in this area.

## Subject Content

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also the foundations of the field in order to be able to stay current in this fast-moving field. Content includes but is not limited to: Imaging, Detectors, Principles of Communication, and Principles of Space Technology.

-Technologies used in space science.

oImaging

oDetectors

oSatellites

oTransport ? including Rockets and Shuttles

-Principles of Communication

-Principles of Space Technology

-Case studies of the instrumentation used in space

-Evolution of the use of technology in space- past and potential

-Adaptability- tools for further 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.

Type	Length	Percent	Threshold	Individual/ Group Task
Quiz	1 hour	20	N	Individual
Critical Review (Written Report)	1,300 to 1,500 words	50	N	Individual
Quiz	1 hour	30	N	Individual

Teaching Periods