

# Aerospace Systems

## General senior subject

Readiness Criteria  
C in Year 10 Mathematics

General

Students who study Aerospace Systems learn about the fundamentals, history and future of the aerospace industry. They gain knowledge of aeronautics, aerospace operations, safety management systems (including human factors), and systems thinking, enabling them to solve real-world aerospace problems using the problem-solving process in Aerospace Systems.

In this subject, students use systems thinking habits, systems thinking strategies, and aerospace technology knowledge, concepts and principles to explore problems and develop solutions. Students learn to understand and interpret the relationships between and within connected systems and their component parts. They identify patterns in problematic aerospace systems situations and make proposals concerning solutions. This learnt ability provides students with the higher order cognitive capacity to engage with problems that exist in an exciting and dynamic technological world. Students develop and use skills that include analysis, decision-making, justification, recognition, comprehension and evaluation to develop solutions to aerospace problem situations. Students become self-directed learners and develop beneficial collaboration and management skills as they solve aerospace systems problems.

Students learn transferrable 21st century skills that support their life aspirations, including critical thinking, creative thinking, communication, collaboration and teamwork, personal and social skills, and information & communication technologies (ICT) skills. Students become adaptable and resilient through their problem-solving learning experiences, improving their ability to interpret events, analyse situations and comprehend cause-and-effect relationships. Through their study of Aerospace Systems, students appreciate that short-term fixes may have long-term implications. Students recognise the complexity of global, national

and local community problem situations and understand the challenges faced in generating sustainable and durable solutions.

## Pathways

A course of study in Aerospace Systems can establish a basis for further education and employment in the fields of aviation management, flying streams, engineering and aerospace technical disciplines. The study of Aerospace Systems will also benefit students wishing to pursue post-school pathways in diploma and advanced diploma courses in the technical and paraprofessional areas of customer relationship management, workplace health and safety, engineering, human resource management, systems analysis and technology-related areas.

## Objectives

By the conclusion of the course of study, students will:

- recognise and describe aerospace systems problems, knowledge, concepts and principles
- symbolise and explain ideas, solutions and relationships
- analyse problems and information
- determine solution success criteria for aerospace problems
- synthesise information and ideas to propose possible solutions
- generate solutions to provide data to assess the feasibility of proposals
- evaluate and refine ideas and solutions to make justified recommendations
- make decisions about and use mode-appropriate features, language and conventions for particular purposes and contexts.

## Structure

Unit 1	Unit 2	Unit 3	Unit 4
<b>Introduction to aerospace systems</b> <ul style="list-style-type: none"> <li>• Solving aerospace problems</li> <li>• Aerospace industries</li> <li>• Aerodynamics</li> <li>• Aircraft systems</li> <li>• Aerospace weather systems</li> </ul>	<b>Aerospace technologies</b> <ul style="list-style-type: none"> <li>• Operational assets</li> <li>• Operational environments</li> <li>• Operational control systems</li> <li>• Future applications</li> </ul>	<b>Aerospace ecosystems</b> <ul style="list-style-type: none"> <li>• Aerospace regulatory systems</li> <li>• Human performance</li> <li>• Safety management systems and human factors</li> <li>• Operational accident and incident investigation processes</li> <li>• Airport and airline operation systems</li> </ul>	<b>Aircraft performance systems and human factors</b> <ul style="list-style-type: none"> <li>• Airspace management</li> <li>• Aircraft performance</li> <li>• Aircraft maintenance</li> <li>• Aircraft navigation and radio communication technologies</li> <li>• Human performance and limitations</li> </ul>

## Assessment

Schools devise assessments in Units 1 and 2 to suit their local context.

In Units 3 and 4 students complete *four* summative assessments. The results from each of the assessments are added together to provide a subject score out of 100. Students will also receive an overall subject result (A–E).

### Summative assessments

Unit 3		Unit 4	
Summative internal assessment 1 (IA1): • Aerospace solution	25%	Summative internal assessment 3 (IA3): • Aerospace solution	25%
Summative internal assessment 2 (IA2): • Examination — combination response	25%	Summative external assessment (EA): • Examination — combination response	25%