

Aerospace Systems 2019 v1.1

Unit 2 sample assessment instrument

June 2018

Project — folio

This sample has been compiled by the QCAA to assist and support teachers in planning and developing assessment instruments for individual school settings.

Schools develop internal assessments for each senior subject, based on the learning described in Units 1 and 2 of the subject syllabus. Each unit objective must be assessed at least once.

Assessment objectives

This assessment instrument is used to determine student achievement in the following objectives:

1. recognise and describe problems, aerospace technology knowledge, concepts and principles, and systems thinking habits and systems thinking strategies in relation to assets and asset-related operational systems
2. symbolise and explain ideas, solutions and relationships in relation to assets and asset-related operational systems
3. analyse problems and information in relation to assets and asset-related operational systems
4. determine solution success criteria for assets and asset-related operational system problems
5. synthesise information and ideas to propose possible asset and asset-related operational systems solutions
6. generate assets and asset-related operational systems solutions to provide data to assess the feasibility of proposals
7. evaluate and refine ideas and solutions to make justified recommendations
8. make decisions about and use mode-appropriate features, language and conventions to communicate development of solutions.

Subject	Aerospace Systems
Technique	Project — folio
Unit	2: Emerging aerospace technologies
Topic	1: Operational assets 2: Operational environments 3: Operational control systems 4: Future applications

Conditions			
Duration	5–7 weeks		
Mode	Multimodal: written, visual	Length	Part A: 7–9 single-sided A3 pages or equivalent digital media Part B: 2–3 single-sided A4 pages or equivalent digital media
Individual/group	Individual	Other	<ul style="list-style-type: none"> The table of contents and reference list are not included in the page count. Schools should implement authentication strategies that reflect QCAA guidelines.
Resources available	—		
Context			
Remotely piloted aircraft systems (RPASs) are increasingly relied on to perform tasks that were previously too expensive or impossible. For example, RPASs are now being used to check wireless network coverage at sporting events, inspect buildings and large structures for visible flaws, perform search and rescue operations, and deliver goods to remote or inaccessible locations. Aerospace technologists are continually finding new and innovative roles for RPASs.			
Task			
Develop an asset and asset-related operational systems solution to a contemporary or future problem that you have identified. Produce a folio that: <ul style="list-style-type: none"> documents the problem-solving process in Aerospace Systems to propose a solution provides a summary report to a key stakeholder associated with the identified problem. 			
To complete this task, you must:			
Part A			
<ul style="list-style-type: none"> recognise and describe the characteristics of the identified contemporary or future problem in relation to aerospace systems, subsystems and system components symbolise and explain the incorporated aerospace systems, the development of ideas and the solution with visual frameworks, causal and feedback loops, flow charts, diagrams, sketches and/or pictures analyse aerospace systems, technology and research information, contributing factors and areas of weakness to identify the elements, components, and features of the problem, and their relationship to the structure of the identified contemporary or future problem determine solution success criteria considering the identified elements, components and features, and their relationship to the structure of the identified contemporary or future problem 			

- synthesise aerospace systems, technology and research information and ideas to propose a possible solution to the identified contemporary or future problem
- generate the proposed solution to the identified contemporary or future problem and test, simulate or hypothesise to provide data (e.g. pictures, tables, surveys, interview recordings, audio-visual recordings) for evaluation including (if applicable), annotated photographs or screen captures of the solution before and after testing, simulating or hypothesising
- evaluate and refine ideas and a solution to the identified contemporary or future problem in relation to solution success criteria
- recommend and justify future modifications or enhancements to ideas and the solution to the identified contemporary or future problem
- communicate the development of ideas and the solution for an identified contemporary or future problem using written and visual features, e.g. PMI (plus–minus–interesting) charts, tables, pictures, bubble diagrams, feedback loops
- communicate data using diagrams, tables and/or spreadsheets.

Part B

- develop a summary report for an identified stakeholder drawn from Part A documentation. The summary report includes key visual frameworks, feedback loops, flow charts, diagrams, sketches or pictures that provide a concise account of the preferred solution for the contemporary or future problem, including key features and any recommendations made.

Stimulus

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Checkpoints

- Week 3: Submit a draft during the allocated assessment time, which explores the contemporary or future problem, develops ideas and proposes a solution.

Feedback

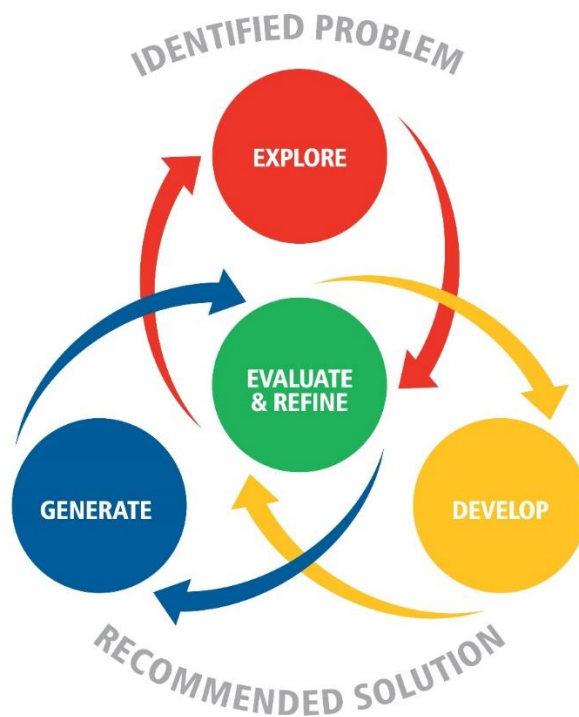
Authentication strategies

- The teacher will provide class time for task completion.
- Students will produce sections of the final response under supervised conditions.
- Students will each produce a unique response through teacher monitoring of student problem identification and problem-solving.
- Students will provide documentation of their progress at indicated checkpoint.
- The teacher will conduct interviews or consultations with each student as they develop the response.
- Students must acknowledge all sources.
- Students must submit a declaration of authenticity.
- The teacher will ensure class cross-marking occurs.

Scaffolding

In Aerospace Systems, students are required to document in a folio how they apply a problem-solving process in response to an identified real-world aerospace problem.

The problem-solving process in Aerospace Systems



The response will include the following folio and referencing conventions:

- headings that organise and communicate the student's thinking through the iterative phases of the problem-solving process in Aerospace Systems
- a table of contents page
- a reference list and a recognised system of in-text referencing.