



SAMPLE ASSESSMENT OUTLINE

ENGINEERING STUDIES – MECHANICAL

ATAR YEAR 12

Acknowledgement of Country

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

Copyright

© School Curriculum and Standards Authority, 2024

This document – apart from any third-party copyright material contained in it – may be freely copied, or communicated on an intranet, for non-commercial purposes in educational institutions, provided that the School Curriculum and Standards Authority (the Authority) is acknowledged as the copyright owner, and that the Authority's moral rights are not infringed.

Copying or communication for any other purpose can be done only within the terms of the *Copyright Act 1968* or with prior written permission of the Authority. Copying or communication of any third-party copyright material can be done only within the terms of the *Copyright Act 1968* or with permission of the copyright owners.

Any content in this document that has been derived from the Australian Curriculum may be used under the terms of the [Creative Commons Attribution 4.0 International licence](#).

Disclaimer

Any resources such as texts, websites and so on that may be referred to in this document are provided as examples of resources that teachers can use to support their learning programs. Their inclusion does not imply that they are mandatory or that they are the only resources relevant to the course. Teachers must exercise their professional judgement as to the appropriateness of any they may wish to use.

Sample assessment outline

Engineering Studies – ATAR Year 12 (Mechanical)

Unit 3 and Unit 4

Assessment type (from syllabus)	Assessment type weighting (from syllabus)	Assessment task weighting	When/due date/start and submission date	Assessment task
Design	30%	12%	Semester 1 Weeks 1–3	Task 1 Part A: Design Project 1 – Focus: dynamic vehicles, mechanisms and/or energy harvesting devices <ul style="list-style-type: none"> develop a comprehensive design brief in response to a problem, need or opportunity (student and/or teacher-directed) conduct research to identify and assess existing solutions or similar products research and critique materials and components relevant to the design brief consider different ways to supply energy for efficient and effective functioning of the design
			Semester 1 Weeks 4–8	Task 1 Part B: Devising – sketches <ul style="list-style-type: none"> produce annotated pictorial sketches and/or drawings of design ideas produce annotated third-angle orthographic sketches of design ideas compare and analyse alternative designs and justify the choice of options to be used as the solution
			Semester 1 Week 14	Task 1 Part C: Evaluation Project 1 <ul style="list-style-type: none"> evaluate the resulting prototype or working model <ul style="list-style-type: none"> meeting the requirements of the design safety, function, fit and finish modifications and changes to the design during production refinements and changes for future development
		5%	Semester 1 Week 13	Task 3: Test – Materials; Effects on society, the environment and industry; Energy, work and power; Dynamics (Unit 3 [50%] and Unit 4 [50%]) Multipart questions requiring short answers and calculations to solve specific scenarios in any of the following syllabus content: <ul style="list-style-type: none"> Types and classification Properties Processes Factor of safety

Assessment type (from syllabus)	Assessment type weighting (from syllabus)	Assessment task weighting	When/due date/start and submission date	Assessment task
				<ul style="list-style-type: none"> Stress and strain Energy Constant acceleration in straight line motion
		8%	Semester 2 Weeks 1–3	Task 5 Part A: Project 2 – Investigation and design sketches (Focus: static structures or analysis of results from prototype/Project 1) <ul style="list-style-type: none"> define nature of problem and develop a brief and research for Project 2 develop sketches and working drawings for manufacture of Project 2 develop a timeline for manufacture
			Semester 2 Week 13	Task 5 Part B: Evaluation Project 2 <ul style="list-style-type: none"> evaluate the resulting prototype or working model <ul style="list-style-type: none"> meeting the requirements of the design safety, function, fit and finish modifications and changes to the design during production refinements and changes for future development
		5%	Semester 2 Week 10	Task 7: Test – Mechanisms; Effects on society, the environment and industry; Statics; Trusses (Unit 3 [50%] and Unit 4 [50%]) Multi-part questions requiring short answers and calculations to solve specific scenarios in any of the following syllabus content: <ul style="list-style-type: none"> Simple machines and mechanisms Calculations Unfamiliar formula Beams Deflection of beams Method of sections Life cycle analysis of engineered products

Assessment type (from syllabus)	Assessment type weighting (from syllabus)	Assessment task weighting	When/due date/start and submission date	Assessment task
Production	30%	5%	Semester 1 Weeks 9–10	<p>Task 2 Part A: Produce specifications for the selected solution for Project 1</p> <ul style="list-style-type: none"> • present specifications for the selected solution • create annotated pictorial drawings • create orthographic drawings and sketches that are third-angle projections that comply with the accepted standards for <ul style="list-style-type: none"> ▪ lines – outlines, hidden detail and centrelines ▪ dimensioning – linear, radii, circles, spheres and part spheres, through holes and partial depth with flat base • select materials with justification of choices • present a parts lists • present costing of the project, i.e. the prototype or working model
		10%	Semester 1 Weeks 11–13	<p>Task 2 Part B: Production of Project 1</p> <ul style="list-style-type: none"> • display project management skills for timely development and testing of project • construct a prototype or working model by selecting and using appropriate tools and machines, and by following safe work practices • test those aspects of the prototype or working model that have been completed for correct function and document using checklists and test data • keep a production journal detailing practical tasks, issues and solutions
		5%	Semester 2 Week 4	<p>Task 6 Part A: Produce specifications for the selected solution for Project 2 (or development of Project 1)</p> <ul style="list-style-type: none"> • present specifications for the selected solution • create dimensioned pictorial and orthographic drawings • create orthographic drawings and sketches that are third-angle projections that comply with the accepted standards for <ul style="list-style-type: none"> ▪ lines – outlines, hidden detail and centrelines ▪ dimensioning – linear, radii, circles, spheres and part spheres, through holes or partial depth holes with flat base • select materials with justification of choices • present a parts lists • present costing of the project, i.e. the prototype or working model

Assessment type (from syllabus)	Assessment type weighting (from syllabus)	Assessment task weighting	When/due date/start and submission date	Assessment task
		10%	Semester 2 Weeks 10–13	<p>Task 6 Part B: Production of Project 2 (or development of Project 1)</p> <ul style="list-style-type: none"> display project management skills for timely completion and testing of project construct the prototype or working model by selecting and using appropriate tools and machines, and by following safe work practices test the prototype or working model for correct function and document using checklists and test data keep a production journal detailing practical tasks, issues, and solutions
Examination	40%	10%	Semester 1 Week 15	<p>Task 4: Semester 1 examination based on Unit 3 content Three hours using the examination design brief from the ATAR Year 12 syllabus</p> <p>Section One: Core content (50% of the total examination)</p> <ul style="list-style-type: none"> 5–8 short answer questions, without parts (10%) 4–6 questions, each with parts (40%) <p>Section Two: Specialist engineering field – Mechanical (50% of the total examination)</p> <ul style="list-style-type: none"> 5–8 short answer questions, without parts (10%) 4–6 questions, each with parts (40%)
		30%	Semester 2 Week 15	<p>Task 8: Semester 2 examination based on Unit 3 (33%) and Unit 4 (67%) content Three hours using the examination design brief from the ATAR Year 12 syllabus</p> <p>Section One: Core content (50% of the total examination)</p> <ul style="list-style-type: none"> 5–8 short answer questions, without parts (10%) 4–6 questions, each with parts (40%) <p>Section Two: Specialist engineering field – Mechanical (50% of the total examination)</p> <ul style="list-style-type: none"> 5–8 short answer questions, without parts (10%) 4–6 questions, each with parts (40%)
Total	100%	100%		