

VCE Systems Engineering: 2021 School-Assessed Task (SAT)

Using criteria to make on-balance
judgements to rank student
cohort: Criteria 1 –3

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Criteria 1–3

- Criteria 1–3 are about planning how the students will go about:
 - designing
 - prototyping
 - planning
 - scheduling
 - sourcing equipment
 - sourcing tools
 - sourcing components
 - and so on.

- The criteria are mandated; the indicators are guidance.
- You can use the indicators to be able to form a judgement in ways that are appropriate to particular students in a particular circumstances, in a particular year of the study that you are teaching them in.

- You need to make sure that you tie all of your considerations for criteria with the systems engineering process.
- The Systems Engineering process is one that is iterative.
- So it's not a 'one-shot-type' project.

- It is important, however, that you use the same indicators for each of the students in your particular class, so that you can be fair with respect to how you're going to arrive at the judgement.
- Although not all indicators must be used, those that you do use must be applied for all the students.
- The way to think about this is what indicators are reasonable to be applied to all students in this particular year and these circumstances fairly.

Note that the indicators are quite broad, and that's because in any ordinary year, your interpretation of those indicators will change, depending on your cohort and their unique circumstances.

Developing an intention

Essentially, criteria 1–3 are concerned with the student developing an intention for their project

Outcomes	Assessment tasks
<p>Unit 3 Outcome 1</p> <p>Investigate, analyse and apply concepts and principles, and use components to design, plan and commence production of an integrated and controlled mechanical and electrotechnological system using the systems engineering process.</p>	<p>A record of investigation, design, planning and production. AND Preliminary production work to create a mechanical and electrotechnological integrated and controlled system.</p>
<p>Unit 4 Outcome 1</p> <p>Finalise production, test and diagnose a mechanical and electrotechnological integrated and controlled system using the systems engineering process, and manage, document and evaluate the system and processes, as well as their use of it.</p>	<p>Completion of production work accompanied by a record of progress and modifications (images and text material). AND A record of diagnostic testing and performance data. AND A report that evaluates and suggests improvements to the system with reference to the factors that influenced its creation and to the student's use of the systems engineering process.</p>

VCE Systems Engineering: School-assessed Task Assessment Sheet 2021

Assessment criteria	Levels of performance									
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)			
1. Investigation of a problem/situation/opportunity/need and develop a design brief for an integrated controlled system including evaluation criteria	<ul style="list-style-type: none"> • identifies problem/situation/opportunity/need • develops design brief for an integrated controlled system • responds to design brief • develops evaluation criteria • references factors that influence the creation and use of system 	Insufficient evidence	Identifies a problem/situation/opportunity/need and develops a design brief for an integrated controlled system, identifies its context, constraints and/or considerations	Identifies a problem/situation/opportunity/need and develops a design brief for an integrated controlled system, identifies its context, constraints and considerations	Identifies a problem/situation/opportunity/need and develops a design brief for an integrated controlled system, outlines its context, constraints and considerations	Identifies a problem/situation/opportunity/need and develops a design brief for an integrated controlled system, describes its context, constraints and considerations	Identifies a problem/situation/opportunity/need and develops a design brief for an integrated controlled system, explains its context, constraints and considerations			
			Develops evaluation criteria and identifies factors that influence the creation and use of the system	Develops evaluation criteria and outlines how the evaluation criteria relate to the requirements of the design brief and factors that influence the creation and use of the system	Develops evaluation criteria and describes how the evaluation criteria relate to the requirements of the design brief and factors that influence the creation and use of the system	Develops evaluation criteria and explains how the evaluation criteria relate to the requirements of the design brief and factors that influence the creation and use of the system	Develops evaluation criteria and justifies how the evaluation criteria relate to the requirements of the design brief and factors that influence the creation and use of the system			
		0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>

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Assessment criteria	Levels of performance									
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)			
2. Researching, devising, designing and modelling design options	<ul style="list-style-type: none"> • conducts research including modeling of components, subsystems, systems • generates design ideas • produces feasible design options • selects preferred option 	Insufficient evidence	Undertakes research, including modeling, of components, subsystems and/or processes to generate design ideas using diagrams, to identify feasible design options and the preferred option	Undertakes research, including modeling, of components, subsystems and processes to generate design ideas using diagrams and/or technical data to identify feasible options and the preferred option	Undertakes research, including modeling, of components, subsystems and processes to generate design ideas using diagrams and technical data to describe feasible options and the preferred option	Undertakes research, including modeling, of components, subsystems and processes to generate design ideas using diagrams and technical data to explain feasible options and the preferred option	Undertakes research, including modeling, of components, subsystems and processes to generate design ideas, using diagrams and technical data to justify feasible options and the preferred option			
			0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>

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Assessment criteria	Levels of performance						
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)
3. Planning the creation of the system	<ul style="list-style-type: none"> devises workplan (timeline, sequence of steps and associated equipment, components, materials, and processes) references materials, components and processes describes safety and risk assessment for materials, components and processes 	Insufficient evidence	Develops a work plan by identifying steps, timeline, materials, components, processes and tools for the creation of the preferred option, as well as identifying safety and risk assessment.	Develops a work plan by identifying a sequence of steps and timeline, materials, components, processes and tools for the creation of the preferred option, and describing safety and risk assessment.	Develops a work plan by identifying a sequence of steps and timeline, and describes how materials, components, processes and tools will be used for the creation of the preferred option as well as describing safety and risk assessment.	Develops a work plan by identifying a sequence of steps and timeline, and explaining how materials, components, processes and tools will be used for the creation of the preferred option, as well as describing safety and risk assessment.	Develops a work plan by identifying a sequence of steps and timeline, and analysing how materials, components, processes and tools will be used for the creation of the preferred option, as well as describing safety and risk assessment.
		0 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/>	3 <input type="checkbox"/> 4 <input type="checkbox"/>	5 <input type="checkbox"/> 6 <input type="checkbox"/>	7 <input type="checkbox"/> 8 <input type="checkbox"/>	9 <input type="checkbox"/> 10 <input type="checkbox"/>

For further information

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