

# **GCSE Subject Level Guidance for Engineering**

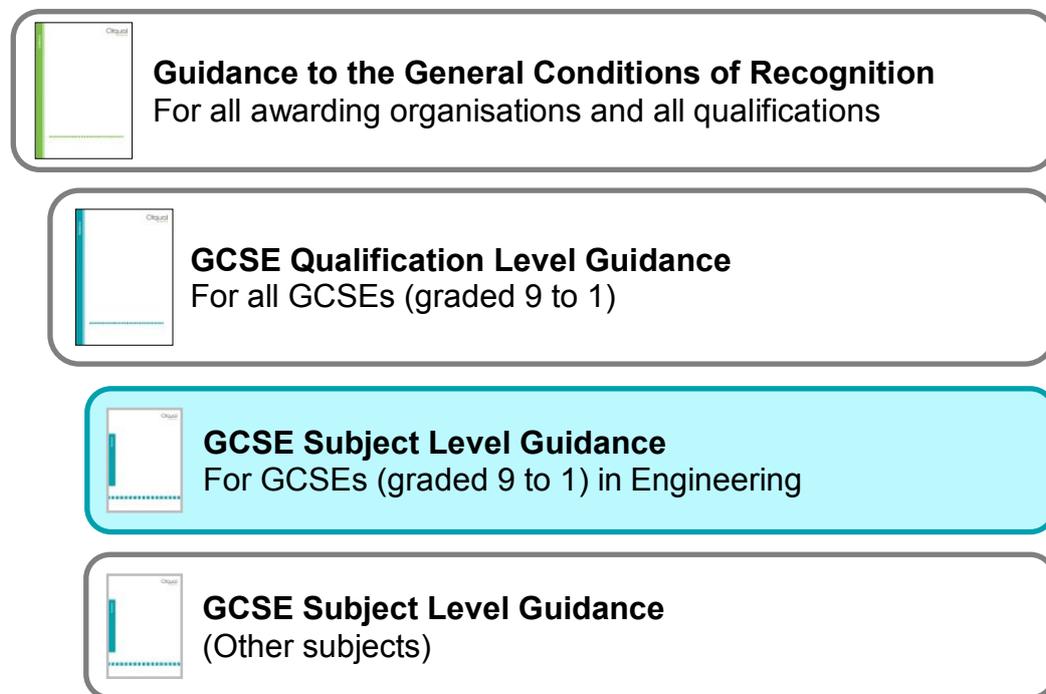
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## Introduction

This document (highlighted in the figure below) is part of a suite of documents which outlines our guidance for awarding organisations offering GCSE Qualifications in Engineering.



This document sets out guidance which applies to all GCSE Qualifications (graded from 9 to 1) in Engineering. It supports the *GCSE Subject Level Conditions and Requirements for Engineering*.<sup>1</sup>

This document constitutes guidance for the purposes of section 153 of the Apprenticeships, Skills, Children and Learning Act 2009 (the '2009 Act') and Condition GCSE(Engineering)1.

An awarding organisation has a legal obligation under the 2009 Act to have regard to this guidance, where relevant, in relation to each GCSE Qualification in Engineering that it makes available or proposes to make available. Condition GCSE(Engineering)1 imposes the same obligation in respect of the guidance below which is issued under that Condition.

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<sup>1</sup> [www.gov.uk/government/publications/gcse-9-to-1-subject-level-conditions-and-requirements-for-engineering](http://www.gov.uk/government/publications/gcse-9-to-1-subject-level-conditions-and-requirements-for-engineering)

An awarding organisation should use the guidance in this document to help it understand how to comply with the *GCSE Subject Level Conditions and Requirements for Engineering*.

## **Guidance set out in this document**

This document provides guidance on assessment objectives for GCSE Qualifications (graded 9 to 1) in Engineering.
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## Guidance on assessment objectives for GCSE Qualifications in Engineering

Condition GCSE(Engineering)1.2 allows us to specify requirements and guidance relating to assessment objectives for GCSE Qualifications in Engineering.

We published our requirements in relation to assessment objectives in *GCSE Subject Level Conditions and Requirements for Engineering*, and reproduce them in the table below.

	Objective	Weighting
AO1	Demonstrate knowledge and understanding of engineering principles and processes	25%
AO2	Apply knowledge, understanding and skills in different contexts, including through the use of a range of tools, equipment, materials, components and manufacturing processes	50%
AO3	Analyse and evaluate evidence in relation to a range of engineering contexts	25%

We set out below our guidance for the purposes of Condition GCSE(Engineering)1.2. This guidance explains how we expect awarding organisations to interpret these assessment objectives in terms of:

- the discrete ‘elements’ within each assessment objective that questions and tasks could target and/or seek to credit – our expectation is that each and every question/task should target or seek to credit at least one of these elements, and may target or seek to credit multiple elements across one or more assessment objectives;
- the coverage expectations, such as in relation to the different elements within each assessment objective and how those elements should be sampled over time; and
- the key areas of emphasis in each assessment objective and the particular meaning for the subject of any key terms and phrases used; defined terms are shown in bold text, followed by their definitions.

In line with the obligations set out in Condition GCSE(Engineering)1.2, we expect awarding organisations to be able to demonstrate how they have had regard to this

guidance. For example, an awarding organisation could map how it has regard to the guidance as it:

- develops its sample assessment materials;
- delivers the qualification;
- develops and applies its approach to sampling the elements into which the assessment objectives are divided; and
- monitors the qualification to make sure it addresses all elements appropriately.

AO1: Demonstrate knowledge and understanding of engineering principles and processes.			25%
Strands	Elements	Coverage	Interpretation and definitions
n/a	1a – Demonstrate knowledge of engineering principles and processes	<ul style="list-style-type: none"> <li>■ Full coverage in each set of assessments<sup>2</sup> (but not in every assessment).</li> <li>■ A reasonable balance between the elements within this assessment objective.</li> <li>■ Awarding organisations should justify the balance between elements in their assessment strategies.</li> </ul>	<ul style="list-style-type: none"> <li>■ <b>Engineering principles and processes</b> means the knowledge and understanding specified in paragraphs 9 to 14 of the document published by the Secretary of State entitled ‘Engineering GCSE subject content’, document reference DFE-00196-2015 (the ‘Content Document’).</li> </ul>
	1b – Demonstrate understanding of engineering principles and processes		

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<sup>2</sup> For the purposes of this guidance, a ‘set of assessments’ means the assessments to be taken by a particular Learner for a GCSE Qualification in Engineering. For clarity, the assessments taken by Learners may vary, depending on any possible routes through the qualification.

AO2: Apply knowledge, understanding and skills in different contexts, including through the use of a range of tools, equipment, materials, components and manufacturing processes.			50%
Strands	Elements	Coverage	Interpretation and definitions
n/a	This assessment objective is a single element	<ul style="list-style-type: none"> <li>■ Full coverage in each set of assessments (but not every assessment).</li> </ul>	<ul style="list-style-type: none"> <li>■ <b>Knowledge, understanding and skills</b>, are aspects of subject content. Awarding organisations should explain and justify their approach to targeting them in their assessment strategy.</li> <li>■ The emphasis within this assessment objective is on the application of knowledge, understanding and skills in practical contexts. This includes: <ul style="list-style-type: none"> <li>□ the application of the practical engineering skills specified in paragraph 15 of the Content Document, and</li> <li>□ the application of knowledge and understanding in practical contexts in the Assessments by Examination.</li> </ul> </li> </ul>

AO3: Analyse and evaluate evidence in relation to a range of engineering contexts			25%
Strands	Elements	Coverage	Interpretation and definitions
n/a	1a – Analyse evidence in relation to a range of engineering contexts.	<ul style="list-style-type: none"> <li>■ Full coverage in every assessment.</li> <li>■ A reasonable balance between elements in every assessment.</li> <li>■ Awarding organisations should justify the balance between elements in their assessment strategies.</li> </ul>	<ul style="list-style-type: none"> <li>■ In the context of this assessment objective:               <ul style="list-style-type: none"> <li>□ <b>analyse</b> means deconstructing information and/or issues to find connections and provide logical chain(s) of reasoning,</li> <li>□ <b>evaluate</b> means appraising and/or making judgements with respect to information and/or issues, and</li> <li>□ analysis and evaluation should draw on underpinning knowledge and understanding.</li> </ul> </li> <li>■ <b>Engineering contexts</b> should be construed widely. It includes, but is not limited to, engineering products, activities, materials, manufacturing processes and systems.</li> </ul>
	1b – Evaluate evidence in relation to a range of engineering contexts.		

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