

**F I N A L**



## **GCSE** Engineering Single and Double Award

Our innovative Engineering GCSE offers learners access to 'real-life' aspects of engineering practices and the opportunity to work with a range of materials to manufacture useful, well-engineered and designed products.

The new  
OCR GCSE  
ENGINEERING

# What's happening to GCSEs?

## OCR is offering new GCSEs for first teaching in September 2009\*.

We've taken this opportunity to improve the quality of our GCSEs for teachers and students alike.

We've made improvements in three key areas: updated and relevant content, a focus on developing students' personal, learning and thinking skills, and flexible assessment, so you can choose the best learning approach for the job.

We want to make the introduction of these new GCSEs as easy for you to manage as possible.

### The main changes are:

- Controlled assessment will be introduced for most subjects
- The opportunity will be taken to bring course content up to date
- Examinations should provide opportunity for extended writing and more varied question types
- All GCSEs will meet the requirements of the Disability Discrimination Act.

Our approach is to provide consistency across all our GCSEs by offering the flexibility that unitised qualifications bring, allowing teaching and assessment in either a linear or unitised fashion.

\*Not all GCSEs are changing. There are a few exceptions: the new Science GCSE was introduced in 2006. New English, English Literature, ICT and Maths GCSEs will be offered for first teaching in 2010.



## Improving GCSE Engineering with OCR

We've involved teachers throughout the development process, so the new specifications, support materials and schemes of work should be exactly what you need to teach OCR GCSE Engineering. To ensure accuracy in our content, we've also consulted subject associations, professional membership groups, subject societies and other subject experts.



### Our GCSE Engineering offers:

- A more flexible course that candidates can take as a single or double award
- A facility for candidates to complete online computer-based tests
- Active involvement for candidates in the design, production and evaluation of products and the methods by which these products are engineered.

### Making change easy

We'd like to make these changes as easy for you to manage as possible. To minimise disruption, we will:

- Guide you through the process of moving to OCR
- Bring you the latest information through our Focus on 14–19 magazine and our new website [www.GCSEchanges.com](http://www.GCSEchanges.com)
- Show you approved specifications one year ahead of first teaching, so you have plenty of preparation time
- Offer you a range of OCR support materials, including schemes of work and sample assessment materials, as we did with A Levels
- Make OCR's publisher partner resources – tailored to the new specifications – available from January 2009
- Endorse a variety of published resources, giving you a wider choice of quality support materials.

We're also running extra INSET and training courses across the UK, so now it's even easier to discover how OCR has developed its specifications.

## Controlled assessment

While reviewing GCSEs, QCA looked into the coursework element of the current qualifications and decided to introduce controlled assessment as a replacement to coursework. This will address some of the issues raised in recent coursework reviews, such as plagiarism.

Controlled assessment has to be done in a supervised environment. However, if the task has a research element, the student may complete this without supervision.

The benefits of controlled assessment include:

- More straightforward marking – for most subjects, students are provided with worksheets to submit their work on
- Improved reliability and validity
- Varying levels of control, to help you manage the assessments and your time more easily
- Greater confidence in authenticating students' work as their own
- Greater ease in fitting assessments into your normal teaching programmes.

For GCSE Engineering, controlled assessment means:

- Task setting – OCR will provide a number of product-based tasks for centres to choose from.
- Task taking – Candidates will complete all work for assessment under direct teacher supervision.
- Task marking – All controlled assessment units will be internally assessed and moderated by an external moderator. Centres can either send portfolio evidence for postal moderation, or save digital evidence and upload it to OCR's Repository.

We will review our controlled assessment tasks every two years.



## Flexible assessment

The assessment for the new OCR GCSEs is organised into units which can either all be taken at the end of the course in a linear fashion, or be used to complement a more unitised approach to teaching and learning. This gives you the flexibility to choose the assessment approach best suited to your centre and your students. A unitised structure gives you the flexibility to co-teach short and full courses.

We already offer assessments that are organised into units at A Level and for some existing GCSEs. For many subjects, assessments will be available twice a year. Flexible assessment means:

- You will have a choice of learning approaches – linear or unitised
- The assessment can be timed to match the point of learning within the course, making it easier for candidates to show what they know, understand and can do
- Students can re-sit a unit rather than repeat the entire assessment
- Some students are motivated by ongoing feedback and this helps them identify their learning needs
- A unitised approach makes it easier for students to stay on track with their studies and manage their time effectively
- The pressure of an 'all or nothing' assessment is removed
- Examination stress is reduced by permitting assessment over a longer period so that not all assessments are concentrated in a narrow window at the end of two years

- With a similar format to A Levels and Diplomas, GCSEs will help prepare students for the next phase of their education.

To ensure that the assessment supports the coherence of the GCSEs and there is no over-assessment, QCA has put two rules in place: 40% of the assessment must happen at the end of the course and only one re-sit of each assessment unit is allowed.

**You may know 'unitised' as modular.**

Single Award

Unit title and description	Assessment including duration	Weighting
<b>Unit A621: 1A Engineering Product Analysis</b> <ul style="list-style-type: none"> <li>Impact of modern technologies</li> <li>Production details (materials and components; available technology)</li> <li>Engineering processes and design solutions.</li> </ul> <b>Unit A621: 1B Engineering a Product</b> <ul style="list-style-type: none"> <li>Generate design solutions for engineered products</li> <li>Analyse and revise the completed product, taking into account how it could be improved.</li> </ul>	Controlled assessment	60%
<b>Unit A622: Engineering Processes</b> <ul style="list-style-type: none"> <li>Engineering materials and their properties</li> <li>The properties, characteristics and features of materials</li> <li>Quality control techniques.</li> </ul>	Computer-based test or written examination 1 hour	40%

Double Award

Unit title and description	Assessment including duration	Weighting
<b>Unit A621: 1A Engineering Product Analysis</b> <ul style="list-style-type: none"> <li>Impact of modern technologies</li> <li>Production details (materials and components; and available technology)</li> <li>Engineering processes and design solutions.</li> </ul> <b>Unit A621: 1B Engineering a Product</b> <ul style="list-style-type: none"> <li>Generate design solutions for engineered products</li> <li>Analyse and revise the completed product, taking into account how it could be improved.</li> </ul>	Controlled assessment	30%
<b>Unit A622: Engineering Processes</b> <ul style="list-style-type: none"> <li>Engineering materials and their properties</li> <li>The properties, characteristics and features of materials</li> <li>Quality control techniques.</li> </ul>	Computer-based test or written examination 1 hour	20%
<b>Unit A623: 3A Real World Engineering</b> <ul style="list-style-type: none"> <li>Stages in engineering a product</li> <li>Production details, Material and constraints</li> <li>Systems and control technology</li> <li>Modern technologies.</li> </ul> <b>Unit A623: 3B Making an Engineered Product</b> <ul style="list-style-type: none"> <li>Production planning</li> <li>Engineering prototyping</li> <li>Health &amp; safety and quality control.</li> </ul>	Controlled assessment	30%
<b>Unit A624: Impact of Modern Technologies on Engineering</b> <ul style="list-style-type: none"> <li>Sustainability design for the environment</li> <li>Engineering materials and their properties</li> <li>The properties, characteristics and features of materials</li> <li>Quality control techniques</li> <li>Impact of modern technologies</li> <li>Designing and engineering products.</li> </ul>	Computer-based test or written examination 1 hour	20%

## What changes, and what stays the same?

	What changes?	What stays the same?
Structure	<ul style="list-style-type: none"><li>• There are now four mandatory units in the double award instead of two units</li><li>• Candidates can study this course as a single or double award.</li></ul>	<ul style="list-style-type: none"><li>• The course is unitised.</li></ul>
Content & assessment	<ul style="list-style-type: none"><li>• There is more emphasis on sustainability: candidates understand their responsibility to reduce waste in the engineering system</li><li>• An online computer-based assessment has been introduced</li><li>• Assessments are more straightforward and logical to apply.</li></ul>	<ul style="list-style-type: none"><li>• Candidates can study a broad range of materials</li><li>• Content has updated topics that reflect the use of modern materials and processes.</li></ul>

### Assessment objectives

The assessment objectives are designed to reflect the non-statutory guidelines for Engineering.

Candidates are expected to demonstrate the following in the context of the content described:

#### AO1

- Recall, select and communicate their knowledge and understanding of a range of contexts.

#### AO2

- Apply skills, knowledge and understanding, including quality standards, in a variety of contexts and to plan and carry out investigations and tasks, involving a range of tools, equipment, materials and components.

#### AO3

- Analyse and evaluate evidence, make reasoned judgements and present conclusions.

## Support for GCSE Engineering teachers

OCR offers a range of support materials, developed following extensive research and consultation with teachers. We've designed them to save you time when preparing for the new specifications and to support you while teaching them.

Our support materials and events include face-to-face training courses, schemes of work that you can customise, endorsed publisher partner resources, access to teacher and examiner networks (both online and offline), plus an extensive past-papers service.

### OCR's online resources include:

- E-communities – online networks of subject specialists for sharing knowledge, views and ideas
- Interchange – a completely free and secure website that helps you carry out the administrative tasks associated with examinations quickly and easily
- Past examination papers
- Marking schemes
- Subject e-alerts – for teachers who register for updates.

We offer a wide range of training courses in the UK, so you have easy access to information about our new specifications – direct from the experts. See over for more details.



## Training for OCR GCSE Engineering

Our Get Ready events offer a taste of the new specification. You can book your place now at [www.GCSEchanges.com/keydates.asp](http://www.GCSEchanges.com/keydates.asp).

### **Get Ready – introducing the new specification (first teaching from September 2009)**

This course is for all teachers – new and experienced – who are interested in finding out more about the new specification. It's open to you, even if you don't teach the current OCR specification.

It's a **FREE** half-day session, including refreshments, a light finger buffet and course materials, offering an overview of the new OCR specification in GCSE Engineering.

Key features include:

- A look at the new structure, content and assessment methods
- A comparison between old and new specification content
- An introduction to the support and resources available from OCR
- A summary of the benefits of choosing the new OCR specification.

### **Get Started – towards successful delivery of the new specification**

This course will help you, whether you are a new or experienced teacher or a centre assessor who will be teaching this Engineering specification.

It's a full-day course which will provide essential information, guidance and practical support for newly qualified teachers or teachers new to the OCR GCSE in Engineering.

It will:

- Explain the requirements of the specification
- Review the assessment criteria and their application
- Explain the requirements of the assessment process
- Review the Chief Examiner's report from the 2008 session
- Consider the collation of appropriate evidence for portfolio building
- Discuss the presentation of learner portfolios
- Review exemplar candidate work
- Offer advice on preparing learners for external assessments
- Explain the administrative procedures.

## Publishing support for GCSE Engineering teachers

We're working with publisher partner Hodder Education to provide the following further resources to support the new specifications.

Hodder Education will be publishing new resources for this revised qualification by an OCR-specific team of experienced authors and examiners, to ensure best fit and guidance for teachers and students.

Resource	ISBN No
Teacher's Resource	978 0340 985083



To find the latest information on published resources, please visit [www.ocr.org.uk/engineering/newgcse](http://www.ocr.org.uk/engineering/newgcse) and choose published resources from the right-hand menu.



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**[www.ocr.org.uk](http://www.ocr.org.uk)**

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