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OCR-set Assignment

Information for Learners

OCR Level 1 / 2 Cambridge National Award in Principles in
Engineering and Engineering Business

OCR Level 1 / 2 Cambridge National Certificate in Principles in
Engineering and Engineering Business

R102: The engineered business world

Scenario for the assignment

Engineering offers a diverse range of different disciplines and sectors and a variety of pathways and entry routes into engineering careers. Advances in materials and the technologies used to manufacture products and provide services make the world of engineering an exciting and competitive marketplace in which to study and work.

Engineering sectors include:

- aerospace
- automotive
- electronics
- marine
- rail
- metals
- chemical
- process
- civil
- medical
- utilities.

In order to promote and develop interest in engineering and engineering careers, a careers fair is to be held at your place of learning to inform people about the range of sectors, employers and career opportunities in engineering.

You are preparing information which will be used at the careers fair.

Read through all the tasks carefully, so that you know what you will need to do to complete this assignment.

Your Tasks

Task 1 – Engineering sectors, their products and services

Learning Outcome 1, Know about engineering sectors, their products and services, is assessed in this task.

Select **three** engineering sectors of your choice. Research these sectors, their products and services.

You should produce evidence of:

- the researched sectors
- the services/products provided by each of these.

Task 2 – Engineering innovation and technical advances

Learning Outcome 4, Understand innovation and technical advances in engineering, is assessed in this task.

Innovation, and advances in materials and engineering processes are contributing to the technical advances employed by engineering companies. The aim is to improve efficiency in producing engineering products and services.

Using **one** engineering sector, your task is to produce a case study of one recent application of an engineering innovation or technical advance, and the impact of this innovation or technical advance in respect of:

- materials/resources
- design and production methods
- sustainability of processes
- product efficiency
- costs to producers and users of products.

Task 3 – How engineering companies operate

Learning Outcome 2, Understand how engineering companies operate, is assessed in this task.

Engineering companies vary in size, structure, function and scope of operation, and they have differing levels of reliance on relationships within the engineering marketplace. For **one** engineering sector, you will research the characteristics of an engineering company of your choice, and their relationships within the engineering marketplace.

You will need to explain the:

- size and type of staffing structure
- company business functions and scope of operation
- relationships they have with competitors, suppliers and partners in the same market.

Task 4 – Employment within engineering

Learning Outcome 3, Know about employment in engineering, is assessed in this task.

You have been asked to identify an engineering sector that you or a fellow student are interested in working within. Your task is to choose an engineering sector, and to research and produce a summary plan of how you may be able to start a career in that sector.

Your research should include:

- sources of engineering careers information
- the range of career opportunities and engineering business functions
- entry routes into employment within engineering
- employee/employer rights and responsibilities that relate to employment in engineering
- the role of the Engineering Council in supporting careers in engineering.

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Guidance on using this assignment

1 General guidance

- 1.1 OCR assignments are available to download free of charge from our website:
www.ocr.org.uk
- 1.2 OCR assignments are intended to be used for summative assessment of learners. The OCR specification gives more information on the arrangements for assessing internally assessed units.
- 1.3 This assignment has been designed to meet the full assessment requirements of the unit. Learners will need to take part in a planned learning programme that covers the underpinning knowledge, understanding and skills of the unit.

2 Before carrying out the assignment

- 2.1 Learners should be provided with a copy of the *Information for Learners* section of this assignment.
- 2.2 Learners will not need to carry out any preparations prior to undertaking the assessment tasks, such as collating resources to use in the assessment.
- 2.3 We have estimated that it will take approximately 10–12 hours to complete all tasks. Learners would need approximately 2 hours to complete Task 1, 2–3 hours to complete Task 2, 2–3 hours to complete Task 3 and 3–4 hours to complete Task 4. These timings are for guidance only but should be used by the teacher to give learners an indication of how long to spend on each task. Centres can decide how the time can be allocated between each part or individual task. Centres are also permitted to spread the tasks across several sessions and therefore it is permissible for evidence to be produced over several sessions.

3 When completing the assignment and producing evidence

- 3.1 Each learner must produce individual and authentic evidence for each task within the assignment.
- 3.2 Centre staff may give support and guidance to learners. This support and guidance should focus on checking that learners understand what is expected of them and giving general feedback that enables the learner to take the initiative in making improvements, rather than detailing what amendments should be made. It is not acceptable for teachers/deliverers to provide answers, to work through answers in detail or to detail specifically what amendments should be made.
- 3.3 Learners may use information from any relevant source to help them with producing evidence for the tasks.
- 3.4 Learners must be guided on the use of information from other sources to ensure that confidentiality is maintained at all times.

- 3.5 Usually, the type of evidence required may be modified, with the exception of certain types of evidence listed below under '*Permitted changes*'. It is important to note that it is possible to generate the evidence in a variety of formats. Centres must advise learners as to the most appropriate format of evidence. The nature of this assessment means that learners are free to use the format that they feel is most appropriate for the purpose and target audience for each individual task (see Section 6).

4 Presentation of work for marking and moderation

- 4.1 Centres wishing to produce digital evidence in the form of an e-portfolio should refer to the appendix in the specification on guidance for the production of electronic assessment.
- 4.2 Centres may wish to discourage learners from excessive use of plastic wallets for presentation of their evidence as this may hinder the assessment process. Instead centres may wish to encourage learners to present their work so that it is easily accessible, e.g. spiral bound, stapled booklet, treasury tag.
- 4.3 All work must be marked against the marking criteria for the unit. Marks are allocated to learning outcomes rather than tasks. Please see Appendix B Marking criteria for centre assessment and Section 4 The centre assessed units in the specification for this qualification for more information on marking, moderation and submission of work.

5 Scope of permitted set assignment modification

The set assignment is self-contained in its present form. The set of tasks form a coherent whole addressing all the learning outcomes and allowing access to the full range of marks.

You must not change the following:

- the learning outcomes
- the marking criteria
- the requirements for supervision and authentication as described in the specification (Section 4 *The centre assessed units*)
- the maximum duration for completion of the assignment.

Permitted changes:

The set assignment can be modified in terms of the areas described below but centres must be sure that learners still have the opportunity to cover all of the learning outcomes and to access the full range of marks:

- the scenario, which can be contextualised or amended to suit local needs
- each specific task may be appropriately contextualised to match with any permitted changes you have made to the scenario.

OCR has ensured that in the language used and the tasks and scenario provided we have avoided discrimination, bias and stereotyping and support equality and diversity. In the development of qualifications and assessments we use the guidance given in the Ofqual publication *Fair access by design*, notably this includes:

- using language and layout in assessment materials that does not present barriers to learners
- using stimulus and source materials in assessment materials (where appropriate) that do not present barriers to learners.

If centres wish to modify the set assignment, we strongly advise that staff responsible for modifying the set assignment and the quality assurance of it refer to the publication *Fair access by design*.

If modifications are made to the set assignment, whether to just the scenario or to both the scenario and individual tasks, it is up to the centre to ensure that all learning outcomes can still be met and that learners can access the full range of marks.

6 Specific guidance on the task

Task 1

Learners should select **three** engineering sectors and research the services/products provided by these. In Task 2, learners are required to look at innovations or technical advances used in engineering companies, and in Task 3 to examine the characteristics and relationships of one company. They may select one of the sectors chosen in Task 1, so they should keep this in mind when selecting sectors to research.

Task 2

Learners should select **one** engineering innovation or technical advance, which may be from one of the sectors researched in Task 1. They should produce a case study, showing the impact of the application of the engineering innovation or technical advance in respect of:

- materials/resources
- design and production methods
- sustainability of processes
- product efficiency
- costs to producers and users of products.

Task 3

Learners should examine **one** company of their choice which may have been identified within their research used in Task 1 or Task 2. They should research the characteristics of an engineering company, and their relationships within the engineering marketplace.

Task 4

Learners should independently consider an engineering sector which they, or a fellow student, may have an interest in working within. They should produce a plan identifying sources of engineering careers information and the range of career opportunities. They will examine entry routes into employment, the role of the Engineering Council, and information regarding employee/ employer rights and responsibilities.

Total marks for assignment: 60