

Unit R107 – Developing and presenting engineering designs

Communicating design proposals

Instructions and answers for teachers

These instructions should accompany the OCR resource ‘Communicating design proposals’ activity which supports OCR Cambridge Nationals in Engineering.



The Activity:

This resource comprises of 2 tasks.



This activity offers an opportunity for English skills development.



This activity offers an opportunity for maths skills development.

Associated materials:

‘Communicating design proposals’ activity sheet

Suggested timings:

Tasks 1 and 2: 2 – 3 hours

Learning Outcome 3: Be able to use Computer Aided Design (CAD) software and techniques to produce and communicate design proposals

Task 1:

In this activity learners have been presented with a product design competition challenge to produce lift landing call button designs. A product design specification has been supplied. The teacher might substitute the product in this activity with another example – or learners could develop designs already produced.



OCR Lifts Ltd – Landing Call Button Product Design Specification

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| <ul style="list-style-type: none"> • Must be an UP and a DOWN push button one above the other (as picture) • Buttons must be a minimum of 20mm in smallest dimension • Buttons must contrast visually with background (to assist visually impaired) | <ul style="list-style-type: none"> • Buttons should be raised to be identifiable by touch (facilitate tactile reading) • Buttons must be damage/vandal resistant • Buttons must be clearly identifiable as UP and DOWN • There must be indicator lights to show if UP or DOWN button has been pressed |
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Learners might work individually, in pairs or in groups to complete the activity.

Learners are required to produce three design proposals that meet the product design specification and to decide on the best of these. This should be decided objectively and teachers might guide learners on how they can compare their designs objectively against the product design specification and against each other. This might be in the form of a matrix with scoring of different features.

Design sketches and drawings might be hand produced or produced using CAD depending on the time allocated to the activity.

Once learners have produced three different design concepts and selected a final design they are required to produce a presentation to the client. This could be in the form of a PowerPoint or poster presentation, or using a display board or videos. If time allows, learners might even produce simple models.

The teacher might need to provide guidance in how to effectively communicate design proposals. Features that the presentation might include are:

Background	Identifies client needs and requirements and purpose of the design activity
Design requirements (product design specification)	Identifies the design requirements of the client (eg product design specification)
Concepts considered	Highlights the concept designs considered to achieve the design requirements – in this case three design proposals
Concept selected	Identifies and justifies final design selected
Product features	Explains selected product features – including how this meets the original design requirements
Economic analysis	Provides a reasonable estimate of costs to design more fully and manufacture the product
Case for continuation	Provides a clear case why this is the best design and what the next stages of this concept design should be (eg business potential)

These features of a typical design presentation could be used as a guide to scoring learner presentations.

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