

Cambridge Technicals

Engineering

Level 3 Cambridge Technical Extended Certificate in Engineering **05823**

Level 3 Cambridge Technical Diplomas in Engineering **05824, 05825**

OCR Report to Centres August 2017

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This report on the examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the examination.

OCR will not enter into any discussion or correspondence in connection with this report.

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Level 3 Cambridge Technical Engineering 05823-05825 (from 2015)

1. Overview:

These qualifications were available for first teaching from September 2015 and include examinable units as part of the DfE requirements for eligibility for the performance tables.

For the examined units please refer to the separate Examiners' report published each series.

There are four qualifications in this suite:

The Certificate in Engineering Principles (180glh) is 100% examined.

The Extended Certificate in Engineering (360glh) which has the following optional moderated units available:

Unit number	Unit title
5	Electrical and electronic design
9	Mechanical design
10	Computer Aided Design (CAD)
11	Materials science
17	Computer Aided Manufacturing (CAM)
20	Business for engineering
22	Engineering and the environment

The Foundation Diploma (540glh) and Diploma (720glh) require moderated units to be taken in the correct combination to achieve at least one of the following endorsed pathways (please refer to the Diploma Qualification Handbook):

- Electrical and Electronic Engineering
- Mechanical Engineering and Design
- Automation, Systems and Control
- Manufacturing

A further requirement for the diploma suite is for Centres to secure Meaningful Employer Involvement (MEI). There is a Centres plan under 'Planning Resources' on the OCR website: <http://www.ocr.org.uk/Images/261292-meaningful-employer-involvement-centre-plan.pdf> and further guidance in the Diploma Qualification Handbook. Centres are reminded that the plan must be presented to the moderator at the moderation visit and that meaningful employer involvement must relate to the delivery and/or assessment of the units.

It was evident that Centres had adequate physical and human resources to be able to deliver the units they were offering. A range of forms of evidence were presented which generally demonstrated that candidates could meet the grading criteria at all threshold levels (PASS, MERIT, DISTINCTION). Evidence included reports, practical exercises and activities, annotated photographs etc. There were isolated exceptions where candidates had failed to address all the PASS criteria to be able to pass the unit overall. There was a wide range of quality and quantity of evidence with some candidates barely clearing threshold levels, while others had produced ample evidence (perhaps at the expense of moving onto the higher criteria).

Centres should ensure candidates are reminded that work should be fully referenced to avoid plagiarism.

Witness statements are a useful way to support and corroborate candidate-generated evidence. Centres are reminded to use the template available from the OCR website:

<http://www.ocr.org.uk/Images/266788-witness-statement.doc>

Unit Recording Sheets should be completed for each candidate portfolio. Centres should note that the URS commentary, including page numbers where evidence was found, assists with the moderation process.

It was apparent that some Centres had devised their own assessments, and not used the Model Assignments, where available, on the OCR website. There was evidence of good practice, however, there were cases where the assignment was unclear or did not provide the opportunity to access all grading criteria. Centres are reminded about the assignment checking service available at a fee where a Centre's assignment can be reviewed by a member of the team and constructive feedback provided.

Standard of record keeping was generally good. There were several cases where candidates did not have a completed and signed Candidate Authentication Statement (CAS) which is required.

<http://www.ocr.org.uk/Images/261146-candidate-authentication-statement-for-ocr-cambridge-technical.pdf>

There was variable evidence of feedback to candidates, with some Centres providing copious feedback and some none at all. Centres are encouraged to provide feedback to candidates within the guidance provided on the Model Assignments and within the Qualification Handbooks. Feedback can be useful for learners to attempt or re-attempt aspects of the assignment to secure or improve their performance.

2. Comments on Individual Units

The following units were claimed this academic year:

Unit number	Unit title
5	Electrical and electronic design
6	Circuit simulation and manufacture
8	Electrical operations
9	Mechanical design
10	Computer Aided Design (CAD)
11	Materials science
13	Mechanical operations
14	Automation control and robotics
15	Electrical, mechanical, hydraulic and pneumatic control
16	Systems and programming
17	Computer Aided Manufacturing (CAM)
18	Lean and quality
19	Inspection and testing
20	Business for engineering
21	Maintenance
22	Engineering and the environment

Due to the relative low claims seen for most of the units this academic year, comments relating to individual units are limited to Units 9 and 10.

Unit 9: Mechanical Design

Candidates should be encouraged to produce further design ideas using both 2D and 3D sketching before exploring their final design in more detail. P7 which requires the use of maths or stats could be more convincingly attempted in some cases by for example considering weight, strength or mass of components.

Unit 10: Computer Aided Design (CAD)

Care needs to be taken with evidence generated for P3, as this was only implicit from the patterning done for some parts. For P5 candidates need to convincingly show how constraints were applied to drawings, evidence could be improved through further step-by-step annotated screenshots. Candidates need to present clearer evidence of using mathematics to solve geometry problems.

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