

CAMBRIDGE TECHNICALS LEVEL 3 (2016)

Moderators' report

ENGINEERING



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Introduction

Our Moderators' reports are produced to offer constructive feedback on centres' assessment of moderated work, based on what has been observed by our moderation team. These reports include a general commentary of accuracy of internal assessment judgements; identify good practice in relation to evidence collation and presentation and comments on the quality of centre assessment decisions against individual Learning Outcomes. This report also highlights areas where requirements have been misinterpreted and provides guidance to centre assessors on requirements for accessing higher mark bands. Where appropriate, the report will also signpost to other sources of information that centre assessors will find helpful.

General overview

It is important that centres liaise with their moderator early in the year to discuss potential visit dates and agree deadlines for work to be completed.

At each visit, centres are required to provide a complete Unit Recording Sheet (URS) for each candidate that clearly shows where the candidate has gained each grading criteria along with the final grade that is entered on Interchange. The URS should also include clear page referencing to show where work against the particular grading criteria has been awarded. This can be supported with suitable annotation in the candidate's portfolio.

Internal verification and standardisation

Centres are encouraged to conduct internal verification of assignment briefs, if they are set by the centre. They should also conduct internal standardisation when marking. Where this was done it clearly showed verification and standardisation across units was useful in eliminating any errors or inconsistencies.

Authentication

It is important that each candidate provides a completed authentication statement for their work and understand the importance of authenticity in the evidence they are presenting. Centres only need to supply one authentication statement per candidate covering all units they are submitting.

Witness statements

Centres are encouraged to use witness statements to support candidates work - noting that these cannot be used as a single source of evidence against grading criteria. An example of where this is effective is in Unit 13 when using a range of hand tools safely and effectively (P5). Witness statements can be used to support and corroborate evidence such as confirming safe or independent working.

Referencing

All candidates must be encouraged to reference their work. This could be as simple as footnotes on each page showing the source material used along with numbered annotation within the work.

Unit 5

Candidates were able to demonstrate general understanding of electrical and electronic principles. Centres that encourage candidates to be explicit about Kirchhoff's laws clearly showed their understanding and applied the laws effectively.

This unit has a number of synoptic assessments links to Unit 2 and 4 referenced in the grading criteria, however there are further opportunities in this unit to relate theory from both of these units to demonstrate understanding. One example being for D2, where candidates need to evaluate the performance of a motor and generator with reference to electrical theory. This theory could be taken from both this unit's content and that for Unit 4.

Unit 6

Candidates that provided clear evidence did this by presenting various photographic evidence and screen captures of their work along with clear step-by-step annotation. This is an effective method due to the practical nature of this unit requiring evidence of circuit simulation and manufacture of circuits.

To allow all candidates to gain marks and understanding of fault finding for Learning Outcome 4 at all grading levels centres could provide a number of circuits that allow them to demonstrate different fault-finding techniques.

Unit 8

Candidates provided a range of evidence for this unit to demonstrate their understanding – often using tables with images of electronic components and devices along with a description. Centres must remind candidates that their evidence for the items they explain must be supported with technical data and/or at least referenced to the sources they have used.

Learning Outcomes 2, 3 and 4 were most clearly presented when candidates provided annotated photographic evidence along with witness statements rather than them just trying to explain what they did.

Unit 9

All candidates provide a range of diagrams and drawings to demonstrate their understanding in this Unit and it was good to see that they could explicitly provide synoptic evidence to support P7.

Centres must encourage candidates to make sure that all the formal drawings they supply use British Standard conventions where possible, not just one of them. There is no need to supply every drawing they did if a handful clearly demonstrate their design ideas.

Unit 10

Centres have taken onboard previous feedback and candidates were able to demonstrate evidence for P3 that is synoptic to Unit1. This demonstrated that the candidates understood, mathematically, the geometry for their designs.

It was good to see a number of images of animation of 3D CAD assemblies where moderators were not given access to candidate's simulation files. This was good practice and did not rely on technology during moderation.

Care needs to be taken when providing dimensions and annotations to make sure that there is sufficient information that someone can actually make the product.

Unit 11

Candidates provided evidence in the form of written reports with some images to demonstrate their understanding of material science required the descriptive learning outcomes. When it comes to the testing of materials a witness statement would support candidates' evidence along with their photographic evidence with annotation.

Some centres used either a local university or employer to carry out the testing. This clearly gave candidates a better understanding of how testing takes place in a research/industrial environment.

Unit 13

This unit lends itself to the use of photographic evidence and annotation from candidates that can be supported with centre witness statements due to the practical nature of the unit.

Candidates that created production plans that had columns for tooling, equipment and safety practices covered many of the grading criteria in one place. This was not the only evidence but showed a greater understanding of previous knowledge they had covered such as safety considerations.

Unit 17

This unit also lends itself to the use of photographic evidence and annotation from candidates that can be supported with centre witness statements due to the practical nature of aspects of the unit.

This unit also lends itself to using a production planning template approach to plan the production of a CNC machine component, and that supports an understanding of the processes involved.

Most common causes of centres not passing

Centres should take care to make sure that the assessment criteria is looked at alongside the unit specifications content to make sure that elements of assessment are not missed. Also evidence supplied which is implicit must be made explicit for it to be graded.

Common misconceptions

Candidates are allowed to use templates where appropriate to complete tasks. The use of structured writing frames is not permitted. Templates for undertaking planning and risk assessments however are acceptable.

Avoiding potential malpractice

Centres are reminded that witness statements on their own provide insufficient independent evidence for candidates to be given a particular grading criterion. Where limited evidence is provided to satisfy Merit and Distinction criteria (in addition to the required Pass criteria), centres should be careful not to double count a single piece of evidence as satisfying for both grades. They should make sure that there is clear explanation to satisfy Merit and further evaluation for Distinction.

Helpful resources

Centres should refer to the Delivery Guide for each unit and additional resources available on the OCR website. They should also sign up to free face-to-face events and webinars published on the OCR CPD Hub website.

Additional comments

Centres should always refer to both the Learning Outcomes and Teaching Content for the unit to make sure that their assignments cover the appropriate content and help candidates to access all of the grading criteria.

All candidates must be encouraged to reference their work which could be satisfied through simple footnotes on each page with numbered annotation alongside the work.

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