1145-32 Level 3 Advanced Technical Extended Diploma in Engineering

2019

Qualification Report

Contents

Introduction

This document has been prepared by the Chief Examiner and Principal Moderator; it is designed to be used as a feedback tool for centres in order to enhance teaching and preparation for assessment. It is advised that this document is referred to when planning delivery and when preparing candidates for City & Guilds Technical assessments.

This report provides general commentary on candidate performance in both the synoptic assignment and theory exam. It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments in the 2019 academic year. It will explain aspects which caused difficulty and potentially why the difficulties arose.

The document provides commentary on the following assessments:

- 1145-530 Level 3 Engineering - Theory exam (2)
  - March 2019 (Spring)
  - June 2019 (Summer)
- 1145-532 Level 3 Engineering - Theory exam (2)
  - March 2019 (Spring)
  - June 2019 (Summer)
- 1145-031 Level 3 Engineering - Synoptic assignment (1)
- 1145-034 Level 3 Engineering - Synoptic assignment (1)

Qualification Grade Distribution

The approximate grade distribution for this qualification is shown below:

1145-32 2019
Grade Distribution

Percentage of Candidates achieving Grade

33%	50%	0%	17%
Pass	Merit	Dist	Dist*
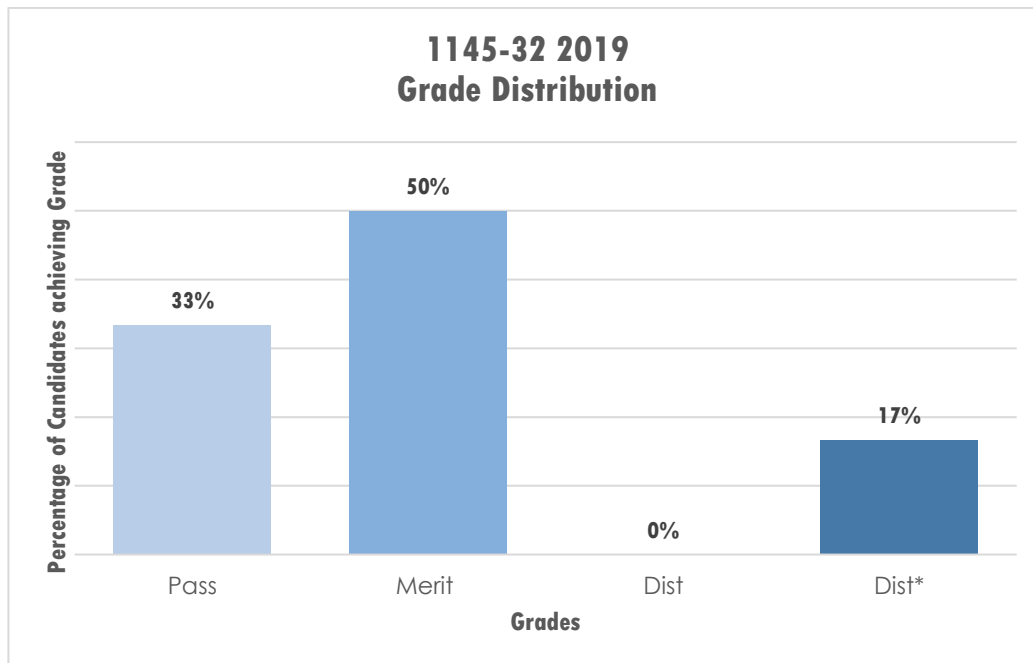
Grades

Please note City & Guilds will only report qualification grades for candidates who have achieved all of the required assessment components, including Employer Involvement, optional units and any other centre assessed components as indicated within the Qualification Handbook. The grade distribution shown above could include performance from previous years.
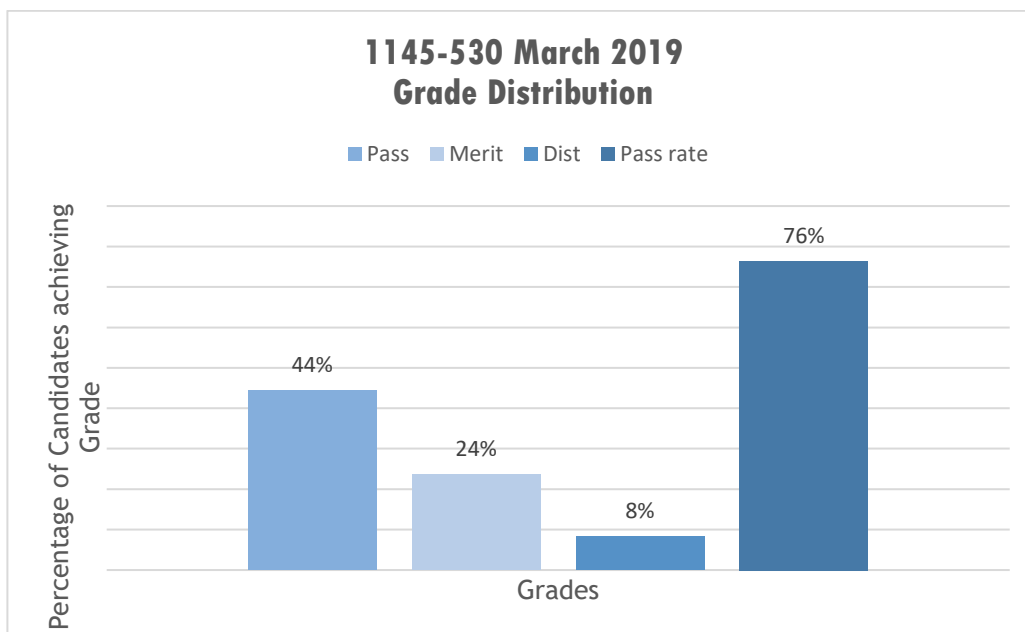
Theory Exam

Grade Boundaries

Assessment: **1145-530 Level 3 Engineering – Theory exam**
Series: **March 2019**

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Total marks available	100
Pass mark	40
Merit mark	55
Distinction mark	70

The graph below shows the approximate distributions of grades and pass rate for this assessment:
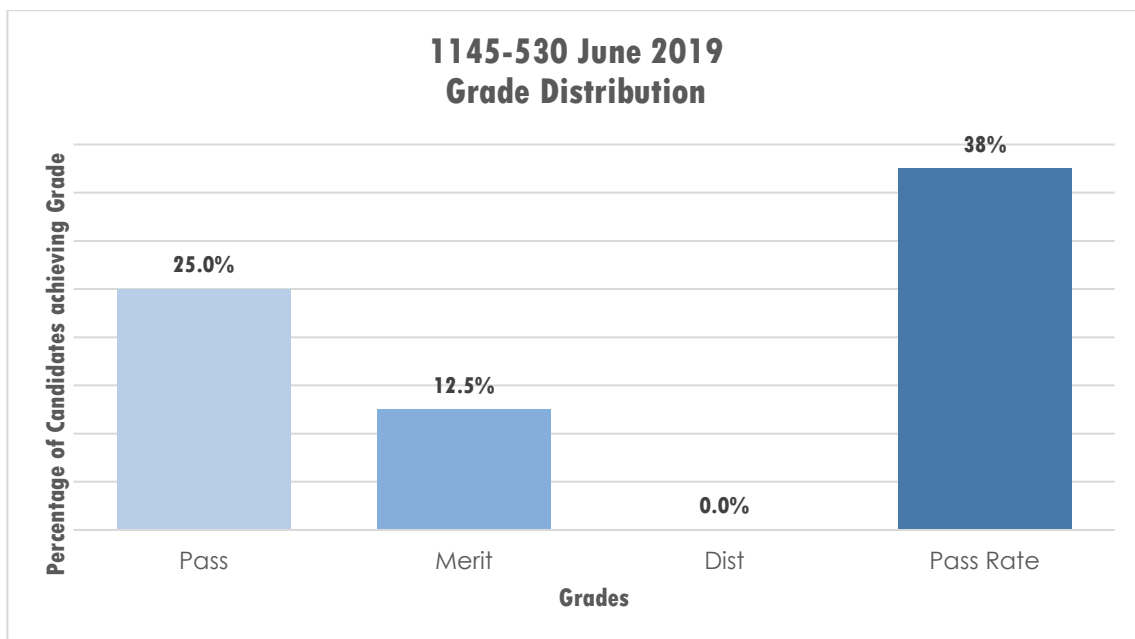
Assessment: **1145-530 Level 3 Engineering – Theory exam**
Series: **June 2019**

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Total marks available	100
Pass mark	40
Merit mark	55
Distinction mark	70

The graph below shows the approximate distributions of grades and pass rate for this assessment:

Assessment: **1145-532 Level 3 Engineering – Theory exam (2)**
Series: **March 2019**

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Total marks available	60
Pass mark	23
Merit mark	31
Distinction mark	40

The graph below shows the approximate distributions of grades and pass rate for this assessment:

1145-532 March 2019
Grade Distribution

■ Pass   ■ Merit   ■ Dist   ■ Pass rate

- 12%
- 35%
- 53%
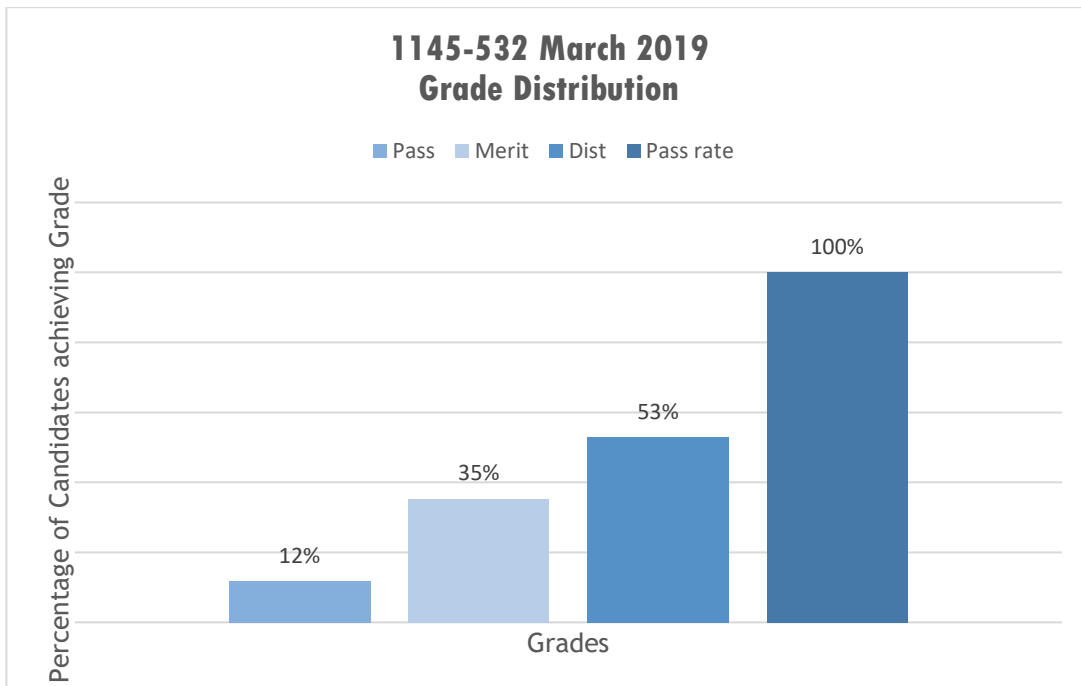- 100%

Percentage of Candidates achieving Grade

Grades

Assessment: **1145-532 Level 3 Engineering – Theory exam (2)**
Series: **June 2019**

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Total marks available	60
Pass mark	23
Merit mark	31
Distinction mark	40

The graph below shows the approximate distributions of grades and pass rate for this assessment:
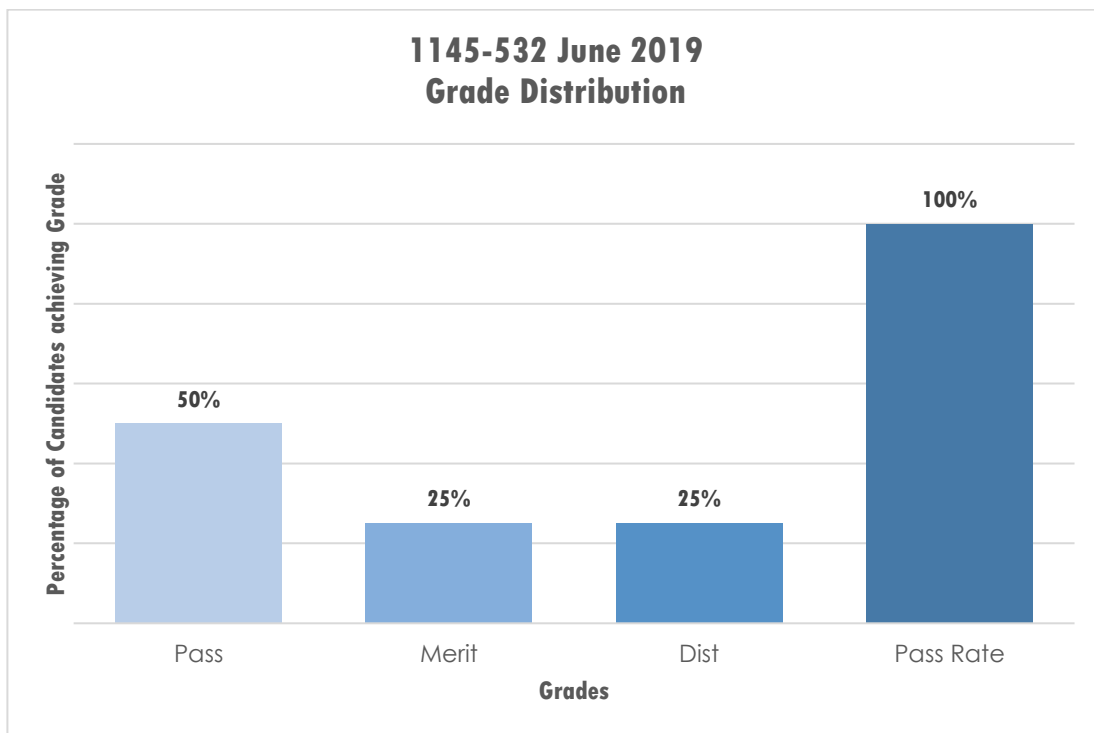
Chief Examiner Commentary

General Comments on Candidate Performance

Assessment component: 1145-530 Level 3 Engineering – Theory exam

Series 1 (March)

The paper as a whole and the individual questions met the requirements of the specification and were pitched appropriately for this level. In general, the paper was well answered by the candidates; the breadth of knowledge and understanding demonstrated by this cohort was considerably improved relative to the previous series.

Similar to the previous series, candidates generally showed good breadth and depth of knowledge when answering questions on the use and benefits of computer-based technologies, such as robotics and 3D printing modelling. However, gaps in knowledge and understanding were present in questions relating to composites, design criteria and any mathematical based questions. A significant number of candidates did not answer some of the maths questions.

There was a mixed response to the extended project questions. For the short question relating to material selection, generally this was answered well, although a notable proportion of candidates suggested a process that was not appropriate for the material they had recommended. The question covering the social and economic impact of the internet was very well answered, with many candidates detailing both direct and indirect implications and discussing their effects. In contrast, there was a weaker response to the longer question on materials selection. Many candidates demonstrated knowledge and understanding of the mechanical properties required by the application, and a proportion of candidates suggested appropriate materials. However, where it was present, the discussion was very limited. Very few candidates covered a variety of different types of consideration and there was typically very limited discussion of the relative effects of different considerations. All candidates would have benefited from producing more detailed supporting evaluations and conclusions to the points that were made.

General Comments on Candidate Performance

Assessment component: 1145-530 Level 3 Engineering – Theory exam

Series 2 (June 2019)

Similar to the previous series, candidates demonstrated significant gaps in knowledge and understanding in questions relating to composites, design criteria and any mathematical based questions. A significant number of candidates did not attempt to answer some or all of maths questions.

There was a mixed response to the extended response questions. For the short question relating to material selection, generally this was answered well, although a notable proportion of candidates suggested a material that was not appropriate or just named a generic class of material. The question covering the social and economic impact of mass production had a mixed, but typically good, response. A substantial proportion of candidates addressed both the social and economic impacts; however, very few candidates detailed indirect implications and discussed their effects. In contrast, the response to the longer question on materials selection was varied, although in general these tended towards the weaker side. Many candidates stated the requirements of the application and indicated the direct implications of these requirements. However, very few candidates covered a variety of different types of consideration, and in particular manufacturing considerations were rarely taken into account. Further, there was typically very limited discussion or consideration of the relative effects of different considerations. All candidates would have benefited from producing more detailed supporting evaluations and conclusions to the points that were made.

Chief Examiner Commentary

General Comments on Candidate Performance

Assessment component: 1145-532 Level 3 Engineering – Theory exam

Series 1 (March)

This is the third cohort of learners to complete this qualification. The questions and paper as a whole met the requirements of the specification and were of a similar level to the previous paper.

As the cohort was relatively small, it is difficult to draw statistical conclusions regarding candidate performance. However, in general this paper was very well answered by the majority of candidates. Almost all candidates attempted all of the questions and there was an observable variation in the level of responses between different candidates.

In addition to the feedback on the specific questions below, some common themes were also noted. Questions on methods of terminating cables and stakeholders were not well answered. However, most candidates displayed a reasonable breadth of knowledge about health and safety and virtual and augmented reality. When questions asked for explanation of specific points, most candidates demonstrated good understanding.

The extended project questions and questions requiring longer answers were typically answered well and demonstrated the range of candidate abilities. However, similar to previous series, in some cases for the extended project question the candidates did not consider the secondary implications of the subject matter and in many cases they did not draw conclusions when discussing the topic.

Chief Examiner Commentary

General Comments on Candidate Performance

Assessment component: 1145-532 Level 3 Engineering – Theory exam

Series 2 (June)

This is the fourth cohort of learners to complete this qualification. The questions and paper as a whole met the requirements of the specification and were of a similar level to the previous papers.

As the cohort was very small, it is not possible to draw statistical conclusions regarding candidate performance. However, in general this paper was answered well by the majority of candidates. Almost all candidates attempted all of the questions and there was an observable variation in the level of responses between different candidates, indicating that the questions on the paper were appropriate differentiators.

In addition to the feedback on the specific questions below, some common themes were also noted. Questions on augmented reality were answered well, similar to previous series. Most candidates displayed a reasonable breadth of knowledge recall from across the full range of the specification. However, when questions asked for explanations, a notable proportion of candidates did not expand on aims or reasons or consider secondary effects.

The extended project questions and questions requiring longer answers were typically answered well and demonstrated the range of candidate abilities. However, similar to previous series, in some cases the candidates did not consider the secondary implications of the subject matter in the extended project question and in many cases they did not draw conclusions when discussing the topic.
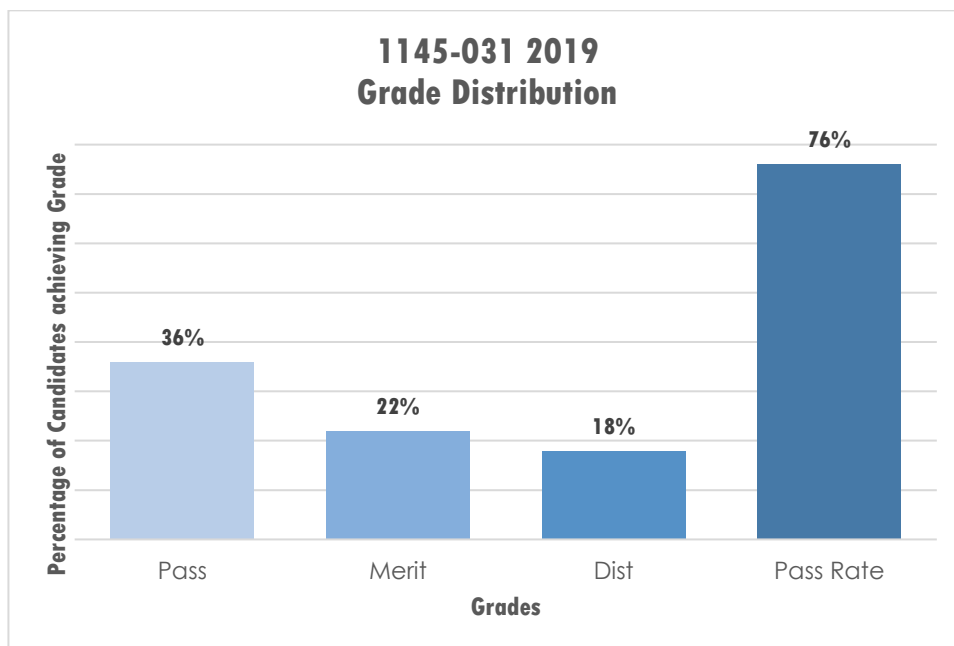
Synoptic Assignment

Grade Boundaries

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Assessment: 1145-031
Series: 2019

Total marks available	60
Pass mark	25
Merit mark	35
Distinction mark	45

The graph below shows the approximate distributions of grades and pass rate for this assessment:

Principal Moderator Commentary

The assignment was similar in level to the previous series. It met the requirements of the specification and was pitched appropriately.

In general, this assignment was completed well, with most candidates making a good attempt at all tasks and making a good attempt at satisfying the requirements of the brief. There were several good examples of practical work, supported by technical drawings, circuit diagrams and images of testing.

The main differentiator between the performance of different candidates was the level of explanation and annotation provided during the design activities. Whilst almost all candidates used the correct terminology and demonstrated a broad range of knowledge recall, the higher-achieving candidates demonstrated understanding spanning the full range of the specification, through either commentary or annotation.

Most candidates provided effective and useful pictorial evidence of the completed item, in some cases supported by videos of testing. For a proportion of candidates this could have been supported further by additional 'close up' images showing specific features.

Assessment: 1145-034
Series: 2019

Total marks available	60
Pass mark	26
Merit mark	34
Distinction mark	42

The graph below shows the approximate distributions of grades and pass rate for this assessment:

**1145-034 2019
Grade Distribution**
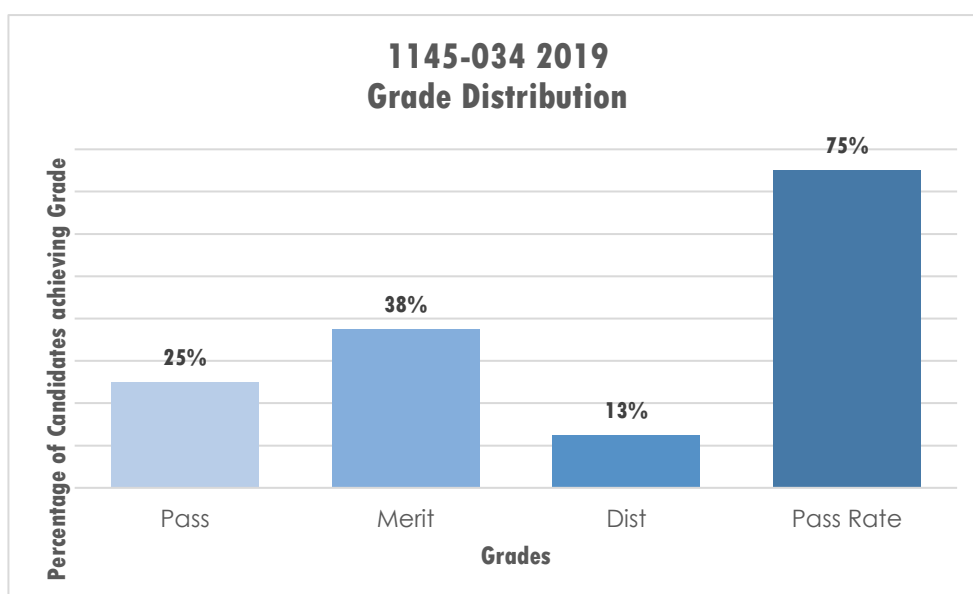
Principal Moderator Commentary

The assignment was met the requirements of the specification and was similar in level to the previous series. It was pitched appropriately for this level.

There was a varied response to this assignment. A proportion of candidates completed it well, making a good attempt at most tasks and satisfying the requirements of the brief. In particular, they used the terminology correctly throughout and there were some good examples of technical drawings, circuit diagrams and practical work (supported by pictorial evidence). However, it was noted that some candidates, whilst demonstrating good knowledge recall, could have provided additional evidence of their understanding, either as commentary or annotation.

Most candidates provided appropriate pictorial evidence of the completed item, in a few cases supported by videos of testing. For a proportion of candidates this could have been supported further by additional 'close up' images and annotation evaluating specific features.