City & Guilds

A City & Guilds Group Business

# 1145-30 Advanced Technical Certificate 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.

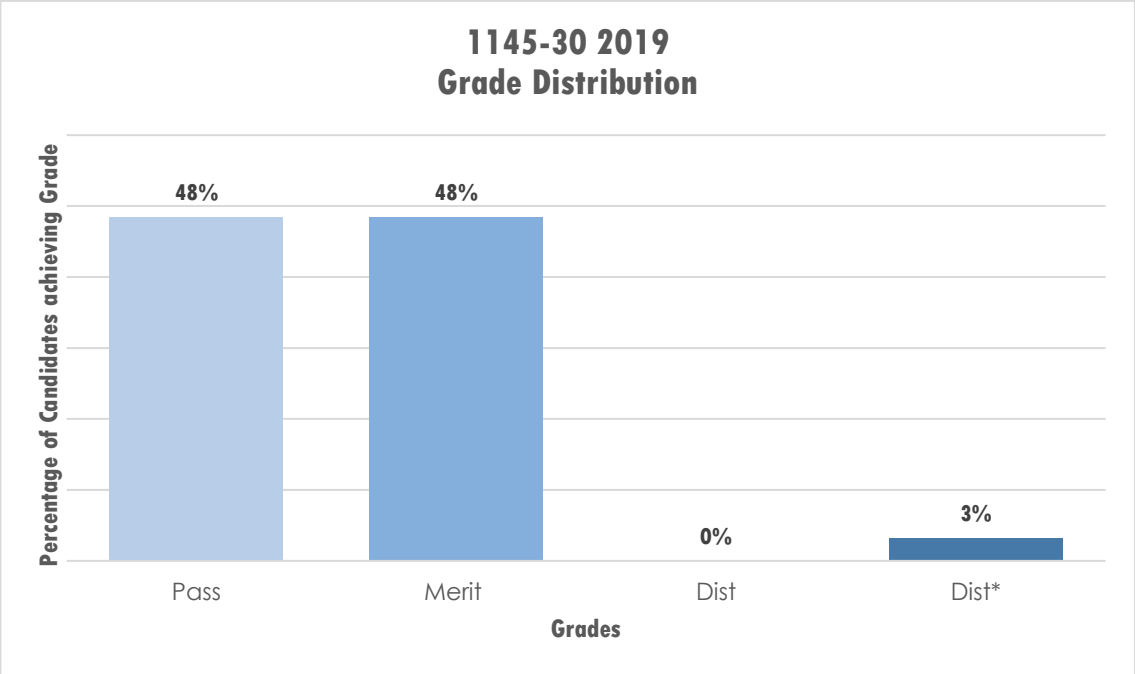
This report provides general commentary on candidate performance in both the synoptic assignment and theory exam. It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments 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 (1)
  - March 2019 (Spring)
  - June 2019 (Summer)
- 1145-031 Level 3 Engineering - Synoptic assignment (1)

# Qualification Grade Distribution

The approximate grade distribution for this qualification is shown below:




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

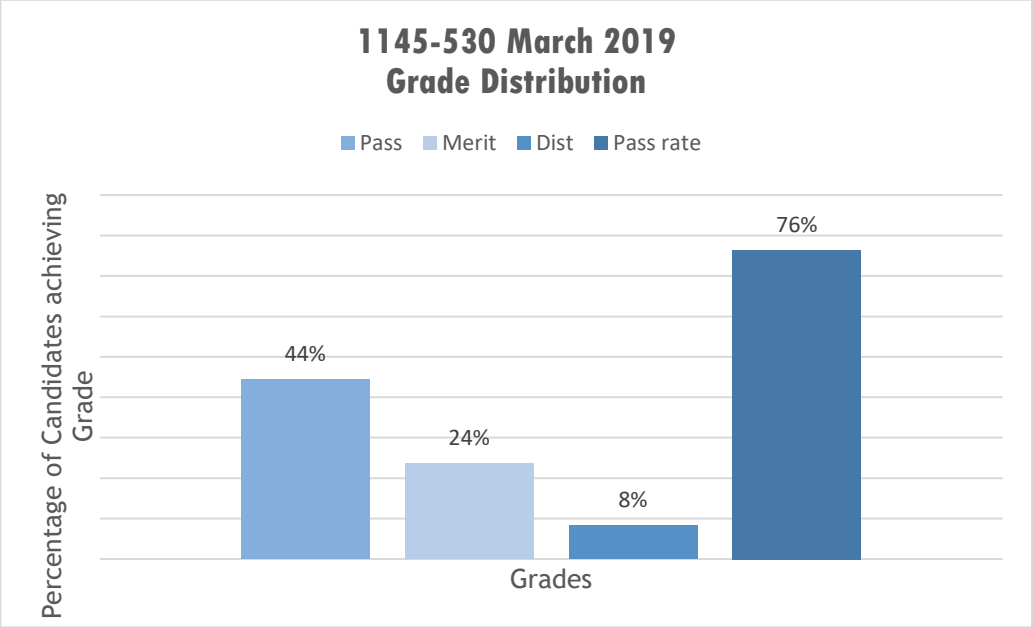
## Grade Boundaries

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:

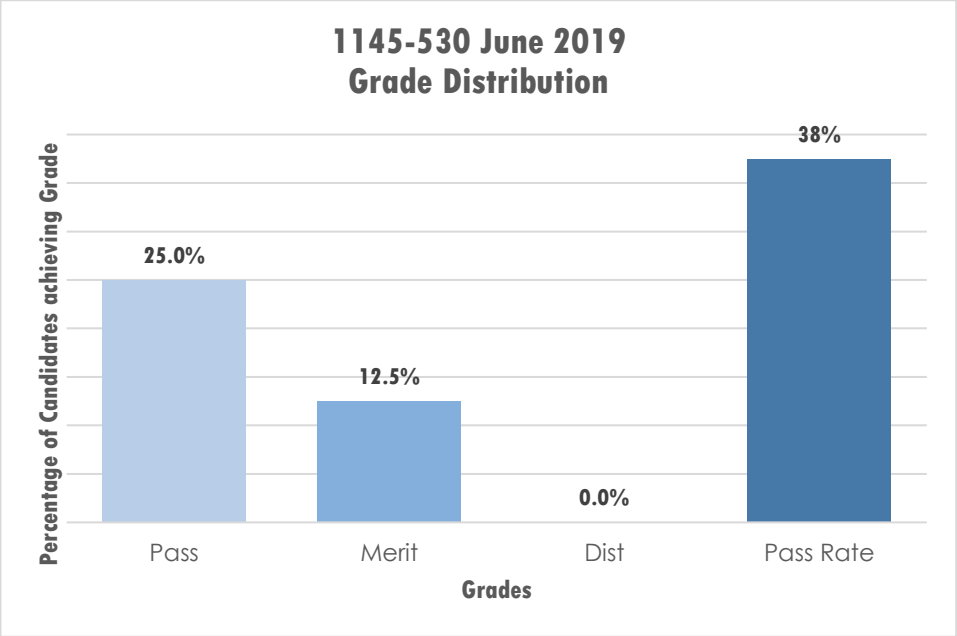


Assessment: **1145-530 Level 3 Engineering – Theory exam**
Series: **June 2019**

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:



## 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 response 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.

# Synoptic Assignment

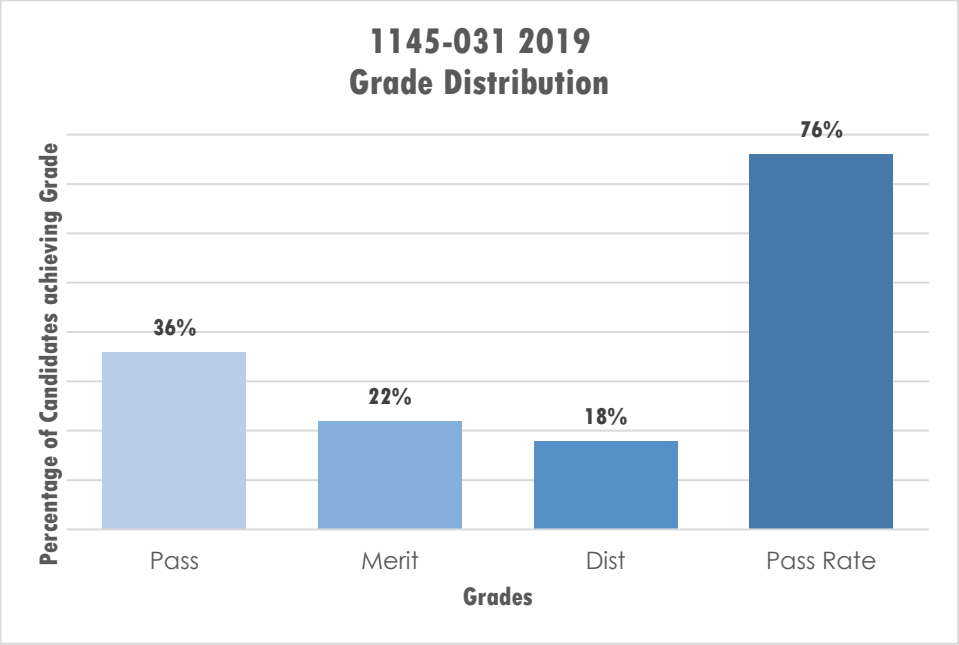
## Grade Boundaries

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

Most candidates made a reasonable attempt at all tasks in the assignment and many demonstrated knowledge recall and understanding spanning the full range of the specification. However, it was possible to distinguish between the performance of different candidates. The main differentiators were the level of understanding shown, particularly in justifying the choices of components, the explanation of the programming methodology and the depth of the evaluation of the final outcome.

A proportion of candidates missed the opportunity to provide supporting evidence for understanding by fully annotating and explaining their programmes.

Almost all 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.