

1145-520 Level 2 Engineering – Theory Exam

March 2024

Examiner Report

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Introduction

This document has been prepared by the Chief Examiner, it is designed to be used as a feedback tool for centres to use in order to enhance teaching and preparation for assessment. It is advised that this document be referred to when preparing to teach and then again when candidates are preparing to sit examinations for City & Guilds Technical qualifications.

This report provides general commentary on candidate performance and 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 the **March 2024** examination series. It will explain aspects which caused difficulty and potentially why the difficulties arose, whether it was caused by a lack of knowledge, incorrect examination technique or responses that failed to demonstrate the required depth of understanding.

The document provides commentary on the following assessment;

1145-520 – Level 2 Engineering – Theory Exam

Theory Exam – March 2024

Grade boundaries and distribution

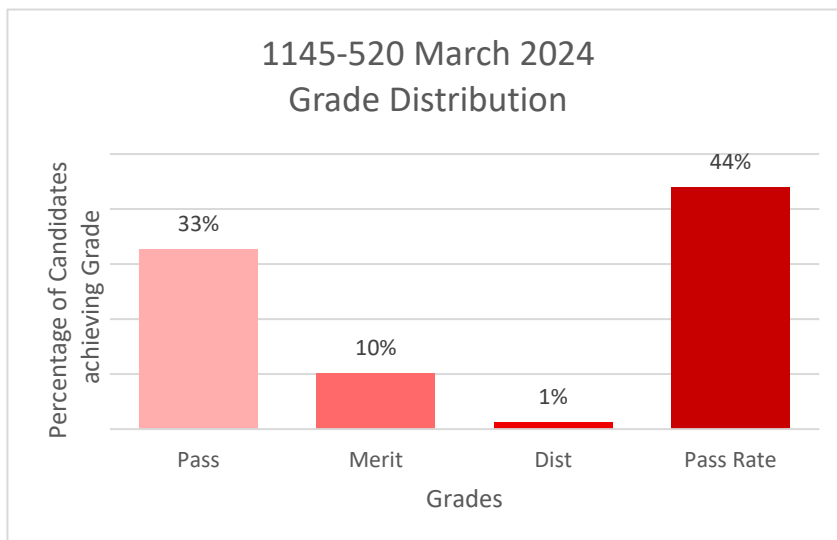
Assessment: **1145-520**

Series: **March 2024**

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

Total marks available	60
Pass mark	22
Merit mark	31
Distinction mark	41

The graph below shows the approximate distribution of grades and pass rates for this assessment:



Chief Examiner Commentary

General Comments on Candidate Performance

Assessment component: 1145-520

Series 1 (March 2024)

The paper as a whole and the individual questions met the requirements of the specification and were pitched appropriately for this level. The paper was comparable with the previous series in terms of the number of questions assessing knowledge recall (AO1), understanding (AO2) and extended responses. There was a mixed response to this paper with some clear areas of strength shown and some clear areas of weakness present. Most questions assessing basic knowledge recall were answered well. Responses to questions assessing understanding were more varied, with limitations in breadth and depth shown.

With Principles in Engineering (Unit 203), candidates showed competence in applying mathematical principles to engineering contexts, especially in performing calculations accurately. The ability to suggest materials and outline manufacturing processes for practical scenarios indicates a strong understanding of materials science and the ability to apply theoretical knowledge practically. Weaknesses were identified in some areas; there was a general misunderstanding of thermodynamics concepts, including specific heat and methods of heat transfer. Responses to material testing and the effects of annealing on metals were weak, with a notable gap in understanding the causes of oxidation. In addition, confusion in basic calculations regarding gear ratios and efficiency suggests areas that need further exploration and practice.

When focusing on Developing Engineering Workshop Practice (Unit 204), candidates demonstrated understanding of practical applications for tools (e.g. punch, chisels). However, significant confusion about the responsibilities under the Electricity at Work Regulations 1989 shows a need for improved instruction in regulatory knowledge. In addition, it was noted that candidates often confused response types between explaining control measures and providing examples. The understanding of infrared thermometer applications was also weak, suggesting a specific area for enhanced practical training or demonstration.

In regard to Working in Engineering Businesses (Unit 205), responses to written communication forms in a business context were mostly well-answered, indicating a strength in recognising and utilising formal communication methods. It is noted that candidates struggled with identifying GDT and electrical symbols, foundational knowledge areas in engineering drawing and electrical engineering. There was a mixed understanding of commercial aspects of engineering, with some candidates failing to grasp broader business contexts. Many candidates were unable to recall specific business improvement methodologies, pointing to a need for better integration of these concepts into the curriculum.

Performance on extended response questions (ERQs) highlighted mixed results. While ERQs were answered well in some cases, showing a good level of understanding and the ability to articulate comprehensive responses, a significant portion of the cohort showed confusion between the correct terminology and therefore demonstrated a lack of depth in their analysis. Confusion between terms like "shareholders" and "stakeholders" and general misunderstandings in responses indicate gaps in business knowledge and the ability to integrate engineering practice with business concepts. This suggests that while ERQs are effective in differentiating candidates based on their analytical and synthesis skills, there remains a gap in candidates' preparedness to answer these types of questions. Improving instruction on how to approach ERQs, coupled with reinforcing the interconnectedness of engineering with business and societal contexts, could enhance future performance in this critical area of assessment.

Centres are reminded of the City & Guilds Technicals 'Exam Guides' available here:

[Technicals in Engineering qualifications and training courses | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com/uk/qualifications/1145-520)