

# 8202-20 Level 2 Technical Certificate in Electrical Installation

2024

Qualification Report

# Contents

Introduction .....	3
Qualification Grade Distribution .....	4
Theory Exam .....	5
8202-020/520 – Electrical Installation.....	5
Grade Boundaries.....	5
Chief Examiner Commentary .....	7
Synoptic Assignment .....	10
8202-021 – Electrical Installation .....	10
Grade Boundaries.....	10
Principal Moderator Commentary.....	11

# 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.

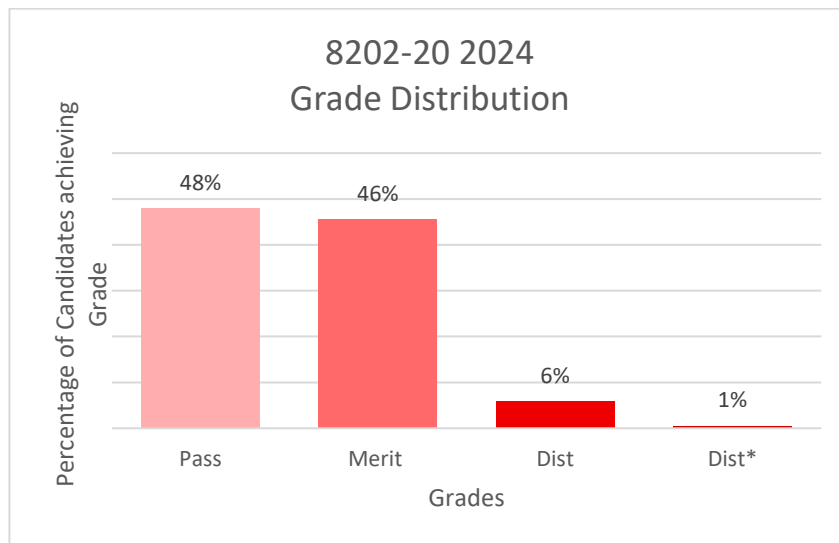
This report provides general commentary on candidate performance in both the synoptic assignment and theory exam. It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments in the 2024 academic year. It will explain aspects which caused difficulty and potentially why the difficulties arose.

The document provides commentary on the following assessments:

- 8202-020/520 Level 2 Electrical Installation – Theory Exam
  - March 2024 (Spring)
  - June 2024 (Summer)
- 8202-021 Level 2 Electrical Installation - Synoptic Assignment

# 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

## 8202-020/520 – Electrical Installation

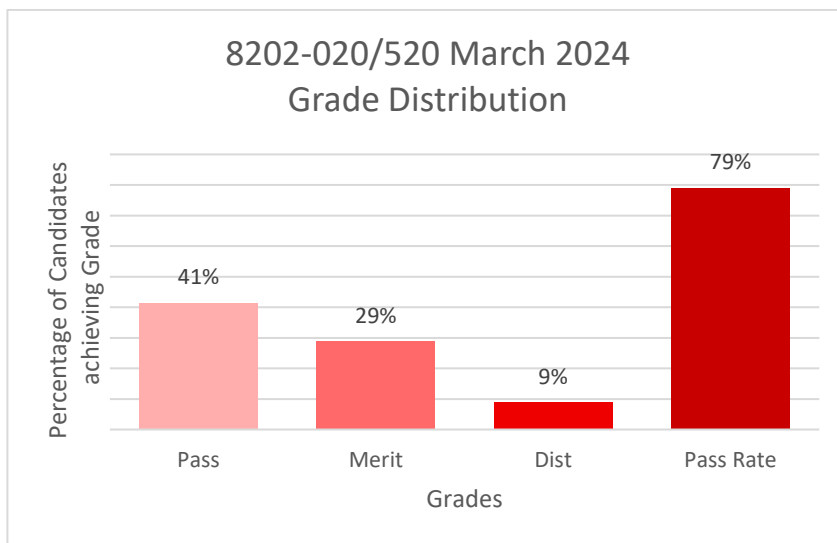
### Grade Boundaries

Assessment: **8202-020/520**  
Series: **March 2024 (Spring)**

This series was completed on both the paper-based platform and online. Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

<b>Total marks available</b>	<b>59</b>
Pass mark	26
Merit mark	34
Distinction mark	43

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

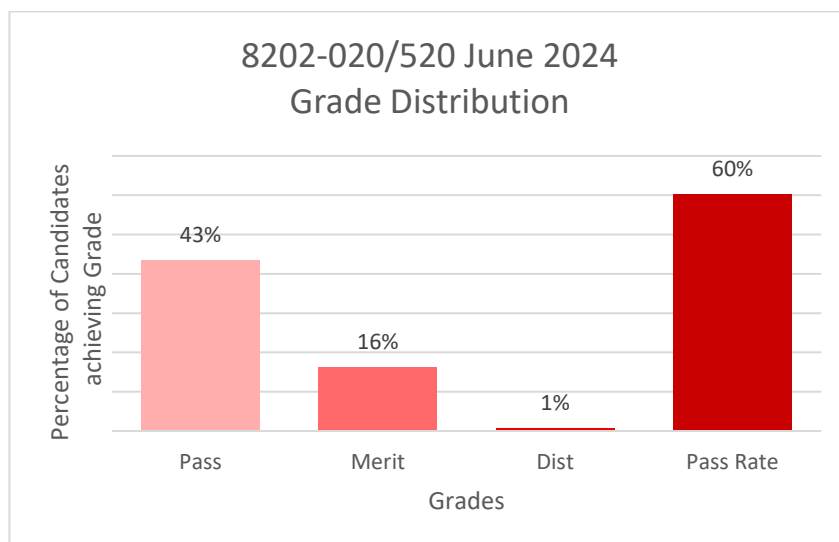


Assessment: 8202-020/520  
Series: June 2024 (Summer)

This series was completed on both the paper-based platform and online. Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

<b>Total marks available</b>	<b>60</b>
Pass mark	27
Merit mark	35
Distinction mark	44

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



# Chief Examiner Commentary

## 8202-020/520 – Level 2 Electrical Installation – Theory Exam

### Series 1 – March 2024

The March 2024 multiple choice question (MCQ) paper was comparable to all series taken in 2023 and covered a good range across the specification. There was one question which contained a technical error and, as a result, was omitted from the assessment. The base mark was lowered by one and this was taken into consideration when the grade boundaries were discussed and set. Overall, the statistics indicate an improvement on previous series.

Most candidates demonstrated good levels of recall across the question paper including recall of formula. Questions based on understanding and applied knowledge seemed to provide more of a challenge to candidates in this series but, even then, responses indicated some improvement in these areas.

Areas of strength by candidates included subjects linked to health and safety, such as identifying responsibilities. Items involving mathematical calculations were also responded to well. These included indices, drawing scale, and Pythagoras' theorem. Identifying tools and atomic theory also indicated areas of strength in general. Areas of strength for high-scoring candidates included recall of transmission voltages, electrical components, basic protection and earthing arrangements.

Areas of weakness for all candidates included technical language skills for earthing and bonding arrangements, and some science and principles subjects such as Fleming's rules and sine waves. These are areas of weakness that commonly feature in this exam. Most candidates also seemed to be confused with SI units of flux with that for flux density, and this too is a regular weakness across many series.

All candidates demonstrated weakness in identifying common electrical support components and electrical terminations, as well as knowledge of ADS, protective devices and system earthing or bonding. Fixing devices/methods and external influences also proved a challenge for many candidates. Principles relating to series and parallel circuits proved to be a challenge for low-scoring candidates, but less so for high-scoring candidates.

Centres are encouraged to introduce candidates to as many fixing and supporting systems as possible, especially during practical sessions. These could be visual aids or examples for candidates to see rather than install.

Centres are encouraged to pay particular attention to the correct terminology of tools, materials or components, as slang or colloquial terms could often be used in workshop environments leaving candidates poorly prepared for examinations that use the correct term. Candidates are often confused, referring to low voltage when they mean extra-low voltage as one example. Reinforcing terms such as 'open' and 'closed' instead of 'on' and 'off' will also help this.

Candidates generally seem to favour practical learning so linking some of the understanding into a practical environment can help reinforce learning in areas that are traditionally challenging. This could include calculating cable resistances before measuring them on installed circuits or measuring the effects of series and parallel conductors.

**Candidates should be reminded that the Permitted Reference Materials for this examination are: BS 7671 and IET On-site Guide.**

**Centres are reminded of the City & Guilds Technicals 'Exam Guides' available here**  
[Technicals in Building Services Engineering qualifications and training courses | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com/Technical-Exam-Guides)





## Series 2 – June 2024

The June 2024 multiple choice question (MCQ) paper was very comparable to the Spring 2024 paper and all series taken in 2023. The statistics indicate that the overall performance has improved when compared to the same series in June 2023.

Good areas of recall were shown in questions relating to access equipment, roles in industry, general mathematical formulae and properties of materials. Areas of the test specification where good recall was demonstrated by high scoring candidates included identification of wiring systems, protection against electric shock and the application of Pythagoras' theorem.

In contrast to this, areas where lower scoring candidates indicated better recall than higher scoring candidates included the identification of safety signs, electron theory and earthing arrangements.

Areas of strength when demonstrating understanding were shown in subjects such as suitability of wiring accessories, terminations, renewable energy sources and the consumer unit (CU) inspections.

Candidates need to ensure they use all key words in a question. As an example, one question requiring the Line to Earth voltage for a Reduced Low-Voltage system commonly used on sites attracted more responses to the Live-to-Live voltage of 110 V instead of 55 V.

Areas of weakness in science and principles included the direction of electron flow as opposed to conventional current flow, the output voltage of cells in parallel forming a battery, identifying types of transformers and calculating the force acting on a current carrying conductor in a magnetic field.

Areas in science and principles that seem to always prove a challenge to candidates include methods of increasing the magnetic strength of a coil/solenoid and identifying electronic components. One surprising area of weakness was identifying the SI unit of inductance which attracted very poor responses.

Normally, candidates perform well in areas linked to practical aspects of the specification, but areas of weakness linked to these subjects included fixing systems, situations where wiring needs mechanical protection and means of basic protection, where most candidates opted for circuit breakers to provide basic protection.

One area that seems to constantly attract a mixture of responses is questions linked to insulation displacement connections.

Applied knowledge (AO4) questions that candidates gave mixed responses to included subjects such as selectivity of RCDs, calculating the volume of a room, purpose of main protective bonding conductors, and calculating design current.

The subjects that attracted good responses from the applied knowledge questions included selection of wiring systems for a given location, and what an earthing conductor links together.

**Candidates should be reminded that the Permitted Reference Materials for this examination are: BS 7671 and IET On-Site Guide.**

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# Synoptic Assignment

## 8202-021 – Electrical Installation

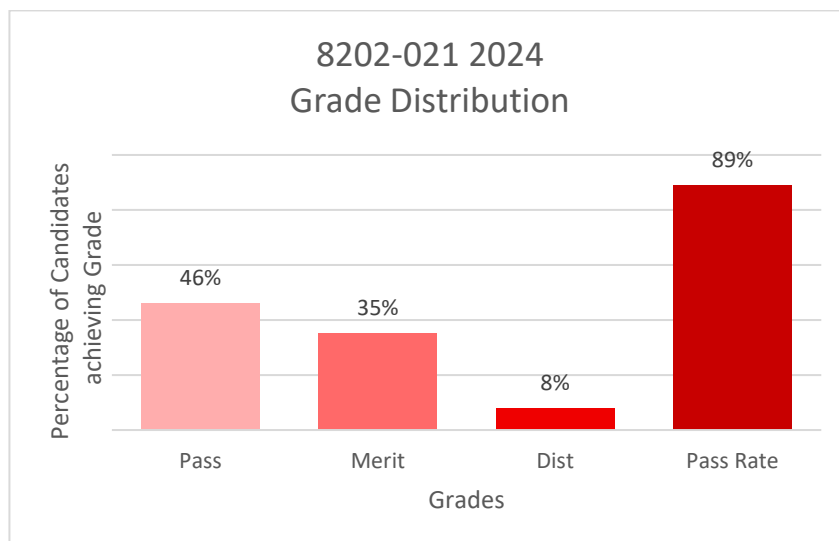
### Grade Boundaries

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

Assessment: 8202-021  
Series: 2024

<b>Total marks available</b>	<b>60</b>
Pass mark	27
Merit mark	38
Distinction mark	49

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



## Principal Moderator Commentary

The synoptic assessment for 2024 was seen as very comparable to those taken in 2023 and 2022. The performance was seen as slightly better to last year in terms of the candidates.

Centres sometimes had used documentation from previous assessment series which, while this did not affect the validity of the work and marking, it made it more time-consuming to review. Centres must always use the most up to date documentation for each series, and also read the centre guidance to identify the forms of evidence that require submission, and when and how photographic evidence is taken.

Candidates generally performed well across the assessment objectives (AOs) and the following points were noted:

- Recall (AO1) was demonstrated well by use of technical language in materials lists and use of reference materials, such as the IET On-Site Guide (OSG), when selecting cable conductor sizes. Many more candidates than normal were undertaking the design calculations rather than selecting from table 7.1. Many candidates responded to the task relating to bonding by recalling the detail from the OSG with little interpretation.
- Understanding (AO2) was not demonstrated so well across task 1 with many candidates simply reciting from the OSG rather than making an interpretation to the scenario, for the task relating to supplementary bonding. Understanding was demonstrated in part by calculating circuit conductor sizes rather than recalling from table 7.1 from the OSG.
- Performance (AO3) was a clear strength with candidates demonstrating good skills across all practical tasks, especially task 4 which was the full 6-hour installation task.
- Opportunities to evidence understanding in performance (AO4) is still a challenge for many centres despite indicative evidence in the marking grids. Many centres seem to have difficulties marking this AO, with many centres incorrectly citing evidence that demonstrated AO2 understanding from task 1, rather than noting evidence of understanding being linked to performance during practical tasks. This includes undertaking things in a logical order, planning, considering circuit layout when pulling in conductors through containment, amongst other examples. If examples of AO4 are not captured on PO forms during performance, the opportunities are lost.
- Attention to detail (AO5) is an AO that is well-evidenced and well-documented on all forms of evidence.