

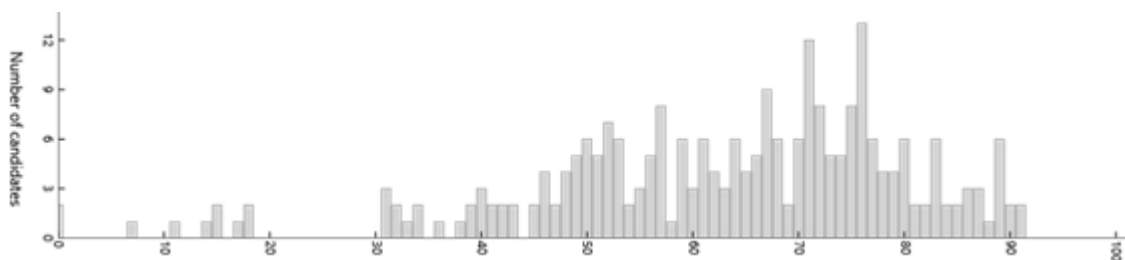


Summary report of the 2024 ATAR course examination report: Engineering Studies

Year	Number who sat	Number of absentees
2024	253	3
2023	223	4
2022	233	4
2021	254	2

The number of candidates sitting and the number attempting each section of the examination can differ as a result of non-attempts across sections of the examination.

Examination score distribution



Summary

Overall, the examination provided significant sampling of the syllabus content with an appropriate level of complexity and difficulty which provided adequate discrimination. Candidates responded strongly to multiple-choice questions in Part A (Multiple-choice) in the Core, Mechanical and Mechatronics sections. In Part B (Extended answer), candidates who selected the Mechanical specialist field achieved a higher mean than those who selected the Mechatronics section.

Attempted by 253 candidates Mean 58.48% Max 92.88% Min 0%

Section means were:

Section One: Core content Part A: Multiple-choice

Mean 68.38%

Attempted by 253 candidates Mean 6.84(/10) Max 10.00 Min 0.00

Section One: Core content Part B: Extended answer

Mean 58.09%

Attempted by 250 candidates Mean 17.43(/30) Max 28.62 Min 0.00

Section Two: Mechanical Part A: Multiple-choice

Mean 58.88%

Attempted by 80 candidates Mean 5.89(/10) Max 9.00 Min 1.00

Section Two: Mechanical Part B: Extended answer

Mean 69.55%

Attempted by 80 candidates Mean 34.78(/50) Max 48.50 Min 1.00

Section Two: Mechatronics Part A: Multiple-choice

Mean 60.18%

Attempted by 171 candidates Mean 6.02(/10) Max 10.00 Min 0.00

Section Two: Mechatronics Part B: Extended answer

Mean 50.57%

Attempted by 166 candidates Mean 25.28(/50) Max 48.00 Min 0.00

General comments

Most candidates had sufficient time to answer all questions, albeit some candidates did not attempt all parts of some questions. The good spread of final scores indicates the examination discriminated among candidate abilities.

Advice for candidates

- Read questions carefully, paying particular note to those requiring correct conversion between units.
- In order to choose the correct answer for multiple-choice questions, relate each of the four options back to the question stem to determine which is the best, most viable option.
- Use the space next to the question to perform any necessary workings for multiple-choice questions that require a numerical answer.
- For answers requiring written explanations or justifications, provide a detailed account which relates to the question. Your answers should be reasonable, practical and plausible.
- Include all relevant formulae and/or equations for questions involving calculations.
- Write neatly and legibly.
- For questions involving drawings, dimensions (including radius), centre lines and hidden details should be shown clearly and follow correct conventions.

Advice for teachers

- Familiarise students with all terminology, formulae and drawing symbols in the syllabus.
- Ensure that students are familiar with the Data Book.
- Encourage students to read all questions carefully before attempting them.
- Stress the importance of showing detailed, well set-out workings for questions requiring calculations.
- Encourage students to write legibly.
- Encourage students to use standardised engineering conventions, especially for drawings, flowcharts, electrical components and stress/strain applications.
- Operation of electrical components (especially voltage dividers and transistors) continues to challenge many candidates, particularly performing correct calculations and providing descriptive answers that demonstrate understanding.

Comments on specific sections and questions

Section One: Core content Part A: Multiple-choice (10 Marks)

The mean for this section was 68.38%. Candidates performed well in questions that related to energy (Questions 2, 5 and 7) and engineering design cycle (Question 1).

Section One: Core content Part B: Extended answer (65 Marks)

Overall, the mean was 58.09%. In every question, there were candidate/s who were awarded maximum marks.

Section Two: Mechanical Part A: Multiple-choice (10 Marks)

The mean for this section was 58.88%. The most challenging questions were Questions 19 and 21 that both required manipulations of information in the Data Book.

Section Two: Mechanical Part B: Extended answer (100 Marks)

The overall mean for this section was 69.55%. The most challenging question was Question 26 (mean 39.33%), which required candidates to calculate and graph bending moments working from the supported end of a cantilever.

Section Two: Mechatronics Part A: Multiple-choice (10 Marks)

The mean for this section was 60.18%. Questions 30, 31 and 32 were the most challenging questions for candidates with less than half of the candidates supplying a correct answer.

Section Two: Mechatronics Part B: Extended answer (100 Marks)

The mean for this section was 50.57%. Questions 40, 44 and 45 proved to be most challenging with mean scores below 50%. Candidates demonstrated a good application of cells/batteries and capacitors (Question 41) and flowcharting (Question 43).