



L-Università
ta' Malta

MATSEC
Examinations Board



Examiners' Report

SEC Graphical Communication

Main Session 2025

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A. STATISTICAL INFORMATION

The total number of candidates who registered to sit for Graphical Communication was **431**.

Table 1 shows the distribution of levels of the Main 2025 Session of the examination.

Level	Number of Candidates
1	4
2	52
3	287
na	88
Total	431

Table 1: Distribution of Levels

B. GENERAL REMARKS

General Remarks on the Written Examination

Sixty one percent of the candidates who sat for the Graphical Communication exam achieved a grade of between 1 and 5. Twenty one percent attained a grade of between 6 and 8, while sixteen and a half percent failed this examination. Four and a half percent of the candidates were absent.

Paper 1-2 consisted of eleven questions that covered the following topics:

1. Labelling of instruments.
2. Parts of the circle and 2D shapes.
3. Triangle construction and areas.
4. Oblique and isometric.
5. Orthographic projection and auxiliary views.
6. Graphic design.
7. Image editing and computer graphics.
8. Loci mechanisms.
9. Solid geometry.
10. Surface developments.
11. Circles in contact and ellipse.

Paper 2-3 consisted of eight questions that covered the following topics (including the average attainment score relative to the total marks):

1. Circles in contact and ellipse (69.7%).
2. Charts and pictograms (70.8%).
3. Vectors (54.7%);
4. Surface developments (51.1%).
5. Sectioning (66.2%);
6. Assembly (39.8%);
7. Two-point perspective (45.5%).
8. Cad and graphic design (42.6%).

This year, candidates performed particularly well in the charts and pictograms question, achieving an average score of 70.8%. Strong results were also observed in the circles in contact and sectioning questions. While performance in the vectors question was slightly lower, candidates still scored well, with results hovering around or just above average.

On the other hand, candidates showed only average performance in the surface developments, two-point perspective, and CAD and graphic design questions. The assembly question ranked lowest overall, with many candidates finding it especially challenging. Notably, although surface developments have traditionally been a weak area, an improvement was observed this year.

The assembly question included a true-shape element, which proved to be the most problematic part. Many candidates either omitted it entirely or constructed it incorrectly. There was strong evidence to suggest that a significant number of candidates did not read the question thoroughly, as numerous non-attempts were recorded for this section.

Paper 1-2-3 consisted of six questions that covered the following topics (including the average attainment score relative to total marks):

1. Triangles, idea generation and project work (85.2%).
2. Oblique and isometric (82.9%).
3. Graphic design and ideograms (68.8%).
4. Desktop publishing, image editing and idea generation techniques (48.8%);
5. Orthographic projection and computer graphics (73.3%).
6. Conic sections, intersections and surface developments (66.1%).

Private candidates sitting for Paper 1-2-3 performed very well in this session, with many achieving high marks. However, their weakest area was the desktop publishing, image editing, and idea generation techniques question, where the average score fell below 50%.

It is important to interpret these results with caution due to the small sample size ($n=15$), which limits the reliability of broader inferences. Nonetheless, these candidates appeared well-prepared overall and demonstrated strong performance across most areas of the examination.

C. COMMENTS ON PAPER 1-2, PAPER 2-3 AND PAPER 1-2-3**Paper 1-2**

The following table shows the distribution of grades for Paper 1-2.

GRADE	1	2	3	4	5	6	7	8	U	ABS	TOTAL
PAPER 1-2	-	-	-	-	-	0	2	3	0	6	11

There weren't enough candidates to draw any statistical conclusions. Comments on individual questions' performance by candidates cannot be provided to protect their privacy.

Paper 2-3

The following table shows the distribution of grades for Paper 2-3.

GRADE	1	2	3	4	5	6	7	8	U	ABS	TOTAL
PAPER 2-3	27	54	65	60	49	33	50	-	69	13	420

Question No. 1 - Circles in contact and ellipse (15 marks)

In this question, candidates were tested on their knowledge of tangential arcs and ellipse. The questions consisted of the profile of a lock which was to be constructed using tangential arcs and the profile of a key bow which was in the form of an ellipse.

All candidates attempted this question with only a few not managing to draw the circles A, B, C, D and E whose radius and centre were given. Drawing the external and internal tangential arcs was a little more difficult and quite a few candidates lost marks because of accuracy in this part of the question. Some candidates tried to guess where the required centres were or instead tried to guess where the points of tangency of the circles were and then attempted to use those guessed points of tangencies for construction, thus losing marks.

With regards to the ellipse, most of the candidates opted for the concentric circles' method. Most of them managed to construct the ellipse successfully. Nevertheless, there were many instances of the freehand curve of the ellipse being very shaky or dirty. A considerable number of candidates left the focal points completely out or were inaccurate when using drawing instrument to locate them. Some tried to locate the focal points by bisecting the radius of the major axis which is incorrect.

The most common mistakes were:

- 1) Inaccuracies in tangential arcs
- 2) Drawing freehand on a circle to make it more visible but making it untidy
- 3) Not completing the ellipse
- 4) Not attempting the focal points (suggesting candidates didn't read the question properly)

	0	1 - 7	8 - 14	Full marks	Abs	Total
Q1	0	110	243	54	13	420

Table 2: The performance of candidates in question 1

Question No. 2 – Charts and pictograms (12 marks)

In this question, candidates were provided with data that needed to be converted into degrees to complete a pie chart. They were also required to fill in a given legend and transform the pie chart into a 3D representation by adding a height of 20mm. Additionally, they were asked to produce sketches and then draw two pictograms—one representing news and the other music.

Some candidates focused solely on the pictograms, leaving the pie chart section entirely blank. In several cases, it was evident that candidates lacked access to colour media and instead used varying shades of grey to fill the pie chart and legend, which resulted in lost marks.

Most of those who attempted the pie chart successfully converted the data into degrees and completed both the chart and legend. However, very few managed to convert the pie chart into a planimetric view, and many did not attempt this part at all. A number of candidates mistakenly used the data to draw a bar graph, which was not required.

The pictograms were attempted with mixed success. While most candidates engaged with this part of the question, the effort put into the preparatory sketches was often equal to that of the final pictogram, resulting in crude, rushed, and freehand-drawn submissions. Furthermore, many candidates drew company logos instead of the requested pictograms, indicating a misunderstanding of the task.

Most common mistakes were:

- 1) Not converting the pie chart into a Planimetric
- 2) Not attempting the sketches and drawing the final pictograms immediately
- 3) Not drawing the pictograms with drawing instruments, drawing everything freehand.

	0	1 - 6	7 - 11	Full marks	Abs	Total
Q2	1	66	314	26	13	420

Table 3: The performance of candidates in question 2

Question No. 3 – Vectors (10 marks)

The candidates were given a space diagram of four cables pulling on a closed bolted hook. They were asked to draw a vector diagram to determine and state the magnitude and direction of the resultant force.

About one third of the candidates did not attempt this question. Another third of the candidates attained 9 marks and 17% attained full marks. Marks were lost for the following reasons:

- Some candidates just copied the space diagram.
- Others just added the forces as if these were pulling in one direction.
- Quite a few started the solution correctly but got confused along the way.
- Many candidates completed the solution correctly except for the direction of the resultant arrow.

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	0	1 - 4	5 - 9	Full marks	Abs	Total
Q3	123	48	165	71	13	420

Table 4: The performance of candidates in question 3

Question No. 4 – Surface developments (12 marks)

Orthographic views and a pictorial view of a virtual assistant were provided. The design of the virtual assistant was based on two intersecting cylinders. Candidates were required to:

- Construct the curve of intersection between the two cylinders on the end elevation,
- Use simple block letters to label the end elevation,
- Draw the third angle orthographic projection symbol,
- Construct the development of the cylindrical component.

This question assessed candidates' understanding of key principles, including third angle orthographic projection, the intersection of cylinders, and surface development. However, the following common weaknesses were noted:

- The hidden detail of the intersection curve on the end elevation was often omitted.
- Some candidates incorrectly divided the intersected cylinder, leading to errors in both the intersection curve and the development.
- Several candidates did not draw the third angle orthographic projection symbol correctly.
- Some candidates labelled the view simply as "end" instead of "end elevation".

	0	1 - 6	7 - 11	Full marks	Abs	Total
Q4	15	223	145	24	13	420

Table 5: The performance of candidates in question 4

Question No. 5 – Sectioning (10 marks)

A pictorial view of a cast iron machine block was provided. Along with it, the plan view, end elevation, and the outline of the sectional front elevation along the cutting plane X–X were given. Candidates were required to:

- Complete the sectional front elevation along the cutting plane X–X;
- Add the missing centre lines and finalise the drawing.

Most candidates attempted this question, but many issues were observed and are worth highlighting:

- Many candidates mistakenly depicted the web as a hidden detail located behind the sectioned cylinder containing a through-hole.
- A considerable number of candidates included hidden details behind hatched areas.
- Some candidates hatched the ribs and web, despite the section being longitudinal. According to BS308 standards, webs and ribs should not be hatched when they are cut longitudinally.
- Few candidates drew small notches approximately 5 mm below the sectional elevation to guide hatching lines, resulting in an untidy presentation.
- Many candidates failed to distinguish between centre lines and hidden detail lines.
- Several candidates did not apply the standard 45-degree angle for hatching lines.

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	0	1 - 4	5 - 9	Full marks	Abs	Total
Q5	16	68	260	63	13	420

Table 6: The performance of candidates in question 5

Question No. 6 – Assembly (14 marks)

Most candidates attempted this question and demonstrated varying levels of understanding regarding how the different parts assembled to form the toy truck. However, many lost marks due to missing hidden details and inaccuracies in drawing specific components. A common issue was the omission or incorrect construction of the true shape of the windshield, indicating a lack of familiarity with this concept.

Neatness remains an important aspect of presentation. Several responses were completed using soft, unsharpened pencils, with little attention paid to smudging or overall tidiness. Candidates are also encouraged to make proper use of the centre lines provided by the examiner. Many drew directly over these lines instead of using them correctly as reference guides.

	0	1 – 6	7- 13	Full marks	Abs	Total
Q6	28	225	142	12	13	420

Table 7: The performance of candidates in question 6

Question No. 7 – Two-point perspective (12 marks)

Two-point perspective (12 marks)

The candidates were given two orthographic views and a small isometric illustration of a toy desk. They were asked to draw an estimated two-point perspective view of the desk. They were also asked to render in colour the given small isometric drawing, giving it a wooden texture.

The average mark of this question was 5.5/12. A number of candidates did not attempt this question while eight candidates attained full marks. The following is a list of errors noticed by the examiners:

- Incorrect foreshortening of the crate.
- Incorrectly foreshortened measurements.
- Drawing a planimetric drawing instead of a perspective drawing.
- Drawing to a scale of 1:2, indicating lack of awareness that a perspective drawing which is partly below and partly above the eye level can be produced.
- Incomplete drawings.
- Insensitive and untidy rendering of the isometric drawing.
- Rendering of the perspective drawing instead of the given isometric drawing.

	0	1 – 6	7 - 11	Full marks	Abs	Total
Q7	18	212	169	8	13	420

Table 8: The performance of candidates in question 7

Question No. 8 – Cad and graphic design (15 marks)

Almost all candidates attempted this question. However, it was common for many to write extensively without providing meaningful or accurate information. This suggests that while candidates may not have fully understood the content, they still tried to gain marks. Although this is a commendable approach, it highlights gaps in understanding.

Many candidates demonstrated limited knowledge of layout/paper space and the appropriate use of the trim command. Regarding the mirror command, a frequent misconception was that it serves the same purpose as the copy command. While both duplicate elements, mirroring produces a symmetrical reflection, not a direct copy. It appears that candidates understood the function of the mirror command but struggled to express it clearly in writing.

In terms of file-saving methods, two responses—*Save As* and *Plot*—were accepted, as both can be used to save a file in PDF format. Most candidates answered this part correctly.

It was encouraging to note that many candidates responded well to the question on vector and raster images. Several correctly explained that vector graphics are not composed of pixels like raster images and therefore retain quality when scaled or zoomed in.

	0	1 – 7	8 - 14	Full marks	Abs	Total
Q8	21	236	150	0	13	420

Table 9: The performance of candidates in question 8

Paper 1-2-3

Question No. 1 - Triangles, idea generation and project work (18 marks)

This question tested the candidates on their knowledge of properties and construction of triangles. They were also asked to design a drawing and then evaluate and suggest amendments.

- In this part, candidates had to write down whether a set of (6) given triangles were an Equilateral, Isosceles or Scalene. All candidates attempted this part successfully with the main problem being dirty handwriting
- In this second part, candidates were asked to state whether a number of statements (6) were True or False. All candidates attempted this part successfully with just a few not knowing that it is possible to construct a triangle given its perimeter and ratio of sides.
- In this question, candidates had to draw 4 triangles from a set of given data. Most of the candidates answered this question successfully. The main mistake encountered was untidy construction work which didn't result in many marks being lost since each triangle had a weight of 1 mark.
- Construction of a triangle given perimeter and ratio of the sides. Not all candidates attempted this question with some leaving it completely empty. Some of those who attempted the question did not know the correct method to follow. Others improvised or made careless mistakes (like dividing the perimeter into the wrong number of parts) which resulted in drawing the wrong triangle or not being able to complete the question.
- In this part of the question, candidates had to draw a freehand sketch of an attractive design which had to include at least 2 triangles, ideally including some shading too. Most candidates worked this part

successfully. However, there were instances where candidates attempted to design an object which was not what was required of them.

- f) Candidates were asked to describe the importance of self-evaluation in the context of part (f). Most candidates attempted this question however only a few made a connection between their design and the success criteria requested of them.

In the second part of this question, candidates were requested to suggest amendments to their design in part (e). Here some attempted to suggest the use of better material as an amendment or lowering the production costs. However, amendments were not accepted as valid answers since that was not the kind of 'design' asked for in the question.

Question No. 2 – Oblique and isometric (18 marks)

In this question, candidates were tested on their knowledge of Cabinet Oblique and Isometric drawing.

- a) Candidates were asked to copy a given Oblique block on a given grid. All candidates attempted this part of the question with only a few mistakes due to lack of neatness or accuracy.
- b) In this part they were given a half-finished sign with letters in Cabinet oblique, and they were requested to finish the design. All candidates attempted this question with good results. Some mistakes included lack of accuracy and copying the letters on the sign in the wrong order.
- c) Here candidates needed to explain what cabinet Oblique is and a practical use for it. Most of the candidates attempted this question with varying results. Most mentioned the fact that the front is to be drawn full size while the depth is halved, however only a few mentioned practical applications.
- d) In this part, candidates had to draw an isometric drawing which included a slope and a curve. Not all candidates managed to draw the isometric correctly. Most managed to draw the base and slope correctly but the circular part proved a little bit more challenging either to construct or to draw smoothly.

Question No. 3 – Graphic design and ideograms (20 marks)

This question was mainly about testing about standards, terms, colours and identifying visual principles.

- a) Candidates were asked to underline the correct answer in a few sentences. All candidates completed this part with very good marks.
- b) In this part, candidates had to identify and label two of the visual principles used in a set of given pictures. Most of the participants answered this question with mixed results with only a few getting the full 6 marks. Some did not read the question properly and only labelled 1 visual principle per picture.
- c) In this question, candidates were asked to analyse a given movie poster and to describe the use of visual principles in it. Most of the candidates correctly identified the use of implied motion and hierarchy in the poster. Contrast on the other hand proved a little harder to identify and explain with many choosing to answer in a vague way.
- d) Candidates were asked to describe the difference between icons and symbols. Although most of the candidates attempted this question, only a few managed to correctly explain the main difference between the two.
- e) Here candidates were asked to draw at least 2 preparatory sketches for a prohibition sign (do not pick flowers) and then to complete a final answer including colouring of the sign according to convention. Most of the candidates attempted this question with positive results with only a few not drawing enough sketches or not drawing an acceptable drawing.

Question No. 4 – Desktop publishing, image editing and idea generation techniques (14 marks)

This question tested candidates on their knowledge of graphic principles and their knowledge of tools, terms and programs used.

- a) Most of the candidates did not correctly define what is meant by 'Vector' in graphics and instead answered vaguely.
- b) Most candidates did not correctly define 'Raster' in graphics and instead answered vaguely.
- c) Here candidates were asked to identify appropriate uses for both 'raster' and 'vector' graphics. Most answered vaguely and sometimes confused the two. Only a few gave a good example of both.
- d) In this question, candidates were asked to describe the function of three image editing tools: the *Crop Tool*, the *Brightness and Contrast Tool*, and the *Hue and Saturation Tool*. While the majority provided satisfactory explanations for the Crop Tool, many struggled with the other two. Confusion was common, particularly in distinguishing between concepts related to colour and lighting, which led to mixed and often inaccurate responses
- e) Although most attempted this question, only a few knew what the letters S, M and E stand for in the term 'SCAMPER'
- f) In this part of the question, candidates had to mark whether the given statements were True or False. All candidates attempted this question with the majority identifying correctly all 4 statements.

Question No. 5 – Orthographic projection and computer graphics (14 marks)

This question was about Orthographic drawing, projection symbols, the use of CAD and Computer Graphics.

- a) In this part, candidates were given an Isometric block. They had to draw the Front elevation, End Elevation and Plan of the block in 3rd angle projection on a given square grid. Although the majority attempted this part, only a negligible number of candidates managed to get the answer correct.
- b) Identifying the 3rd angle projection symbol. All candidates attempted this part but with mixed results.
- c) Candidates were asked to give 3 advantages of using CAD software. Most of the candidates correctly listed 3 advantages. With common answers being the increase in accuracy, the ability to make multiple copies and the advantage of being able to correct mistakes.
- d) In this question, candidates had to draw a design following a set of given commands. All candidates attempted this question with most getting very positive results. Most common mistake was difficulty in mirroring the drawing on the given vertical or horizontal lines.

Question No. 6 – Conic sections, intersections and surface developments (16 marks)

This question was about Solid Geometry.

- a) Candidates had to label 4 Conic Sections which were given to them. Most attempted this question but with varying results.
- b) In this second part, candidates had to identify the correct curves of intersection which would result when 2 given prisms intersected. Although most attempted this question, there were varying results, and some could not identify the curves at all.
- c) Front and End Elevation of a Truncated Cylinder. Most of the candidates that attempted this question managed to complete it rather successfully. The most recurrent mistake observed was lack of neatness.

D. CONCLUDING COMMENTS

The examiners observed that, on average, candidates need to be better prepared for the examination. Many of the candidates who performed poorly made basic, and at times careless, mistakes. These included poor presentation, lack of accuracy, inadequate rendering, weak freehand techniques, and incomplete solutions.

It is also worth noting that this year, candidates performed particularly poorly in the two-point perspective and assembly questions, areas in which candidates have traditionally scored well. The assembly question proved most challenging, as it included an auxiliary projection element in the form of a true shape. This suggests that candidates require more training in applying their knowledge flexibly, regardless of how the content is presented in the exam. Such difficulties point to limited creativity and underdeveloped problem-solving skills. Such areas can be strengthened through project-based learning, collaborative work, and engaging classroom activities.

On a more positive note, there was a noticeable improvement in responses to the surface developments question, with many candidates providing average to good solutions. Candidates also responded well to the newly introduced content, particularly CAD and image editing techniques. This is a promising development, and the examination panel encourages both educators and candidates to continue exploring and deepening their understanding of these areas. CAD should be regarded as an essential tool in a candidate's toolkit, capable of supporting nearly every aspect of the learning process in Graphical Communication.

Chairperson

Examination Panel 2025