ENGINEERING GRAPHICS & DESIGN

Dear Grade 12 Engineering Graphics and Design learner

It is extremely important that you practise your drawing skills throughout the year. Do plenty of freehand sketches to understand what you are drawing before applying it to paper or your computer.

Subject Requirements

You will need the following:

- Textbook, calculator, workbook, drawing instruments.

Content Checklist

Below is a checklist you should use to ensure that you have covered the EGD Grade 12 content in full. Make sure that you understand all drawings of the different sections below.

1. Civil Drawings

- **Civil sectional elevations of 'foundation to-roof'**: A detailed working drawing, at an enlarged scale, of a complete section through a window, a door and the roof. Include **all** other visible features and all relevant dimensions and labels.
- **Civil floor plan and elevations**: A working drawing that shows the complete floor plan and at least **three** elevations of a dwelling that has at least two separate bedrooms, a separate bathroom, a separate kitchen and a separate living/working area. The complete **electrical wiring** diagram must be included on the floor plan and the **plumbing detail** must be included on all relevant views. **All** the other relevant fixtures and **all** the relevant drawing features are required.
- **Civil analytical exercise**: A working drawing showing all the water, sewerage and electrical features. **All** other relevant features, as required for a site plan working drawing, must also be included.

2. Mechanical Drawings

- **Mechanical assemblies**: Multi-view working drawings of complex mechanical assemblies that are completely different in their design, their function and their parts. All must have fasteners that are, if possible, presented in different ways.
- **Mechanical analytical exercise**: Tolerances, welding symbols and machining and surface treatment symbols must be adhered to.

3. Perspective Drawings

- **Two-point perspective drawing**: The perspective must be of a complex civil object that has circular features, preferably horizontally and vertically, and other features on different planes.

4. Isometric Drawings

- A complex drawing with auxiliary view(s), constructed circles and a section.

5. Solid Geometry

- A multi-view 1st angle drawing of an inclined sectioned solid that consists of a combination of geometrical solids. Include the true shape(s) of the sectioned plane(s).

6. Developments

- **Interpenetration and development**: A complex drawing of two or more objects or solids that are joined together. All the parts must be developed.

7. Loci

- **Loci of a Cam**: A complex application of a cam that could include different types of motion. The follower must be a roller.
- **Loci of points on a Mechanism**: An advanced application of the loci of two or more points on the moving parts of a mechanism.

Assessment

School-based Assessment	**25%**	**100 marks**
Course drawings	**7,5%**	**30 marks**
Midyear examination	**7,5%**	**30 marks**
Trial examination	**10%**	**40 marks**
Practical Assessment Task (PAT)	**25%**	**100 marks**
Phase 1 Part A Design project	**4,5%**	**18 marks**
Phase 3 Part A Presentation	**1,75%**	**7 marks**
Phase 2 Part B Presentation drawings	**12,5%**	**50 marks**
Drawing competency and skill	**6,25%**	**25 marks**
External Exam: (50%) 3 hours (x2)		**200 marks**

FINAL NSC EXAMINATION

PAPER 1 *-CIVIL-* *(3 hours)* In first-angle orthographic projection			**PAPER 2 *-MECHANICAL-* *(3 hours)* In third-angle** orthographic projection		
Q 1	Civil Analytical	± 15%	Q 1	Mechanical Analytical	± 15%
Q 2	Solid geometry **and/or** Interpenetration and development	± 20%	Q 2	Loci of a Cam **and/or** Loci of a Mechanism	± 20%
Q 3	2-point perspective drawing	± 20%	Q 3	Isometric drawing	± 20%
Q 4	Civil working drawing including electrical features	± 45%	Q 4	Mechanical Assembly	± 45%

Tips for Success

- Ask your teacher for the content framework for EGD Grade 12. This will give you the detailed content. Paste it in your exercise book. Tick off every topic as it is taught in class, and write the relevant textbook page numbers next to the topic.
- Spend at least 3 hours per week after school on Engineering Graphics and Design.

SCAN ME!
Engineering Graphics & Design Overview

Line Types in Technical Drawings
https://www.youtube.com/watch?v=_t2NjPpsegE