

2023/24 ANNUAL TEACHING PLANS: ENGINEERING GRAPHICS AND DESIGN (EGD): GRADE 11 (TERM 1)

TERM 1	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11			
CAPS TOPIC	CLASSROOM ADMIN & REVISION	MECHANICAL DRAWING				COMMENCE WITH ISOMETRIC DRAWING	PAT	CONTINUE WITH ISOMETRIC DRAWING	COMMENCE WITH PERSPECTIVE DRAWING	PAT				
PRESCRIBED CONTENT & SKILLS	- Classroom and administrative management - Revision of the general drawing principles	3rd angle orthographic working drawings with non-sectional, sectional, half-sectional and part-sectional views of simple mechanical assemblies Include the following: - Title, scale, hidden detail, dimensioning, centre lines, cutting planes, hatching detail, notes, symbol of projection and layout planning Hexagonal bolts, nuts and lock nuts, washers/spacers, keys and keyways and appropriate labels - Different types of section, e.g., aligned section, revolved section, removed section, etc. Conventional presentation of common features Format and content of working drawing name/title blocks				Simple to complex isometric drawings with isometric and non-isometric lines as well as auxiliary views and circles		- Revision of the design process - The PAT scenarios given to learners and discussed	Complex isometric drawings with isometric and non-isometric lines as well as auxiliary views and circles		2-point perspective drawings of simple castings, dwellings, and civil structures The HL, PP and SP can be varied to provide any desired view		Phase 1: Complete/consolidate the design process requirements: - Design brief, specifications, and constraints - Research conducted - TWO free hand solutions - Selecting best solution	
REQUISITE PRE-KNOWLEDGE	Gr 10 general drawing principles	- ALL the Grade 10 mechanical drawing content 3rd angle orthographic projection				- ALL the Grade 10 Isometric drawing content - The ability to convert 2D views into a 3D drawing		Design Process	- ALL the Grade 10 Isometric drawing content - The ability to convert 2D views into a 3D drawing		- An understanding of the basic concepts of perspective drawing - The ability to convert 2D views into 3D drawing		Design process requirements	
RESOURCES, OTHER THAN TEXTBOOKS & DRAWING INSTRUMENTS	Files/folders, own rules, own notes	LTSM: Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples ICT: Visualiser & data projector, video clips				LTSM: Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples ICT: Visualiser & data projector, video clips		PAT document, previous best practice examples	LTSM: Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples ICT: Visualiser & data projector, video clips		PAT document, previous best practice examples			
INFORMAL ASSESSMENT	Class test (suggested)	Min 12 DDEs/tasks completed Class test suggested for theory				Min 8 DDEs/tasks completed				Min 4 DDEs/tasks completed for Term 1		N/A		
		Suggested: A controlled test on the Term 1 content completed, that could be made up of TWO questions that constitutes a min. of 60 minutes and a min. of 50 marks												
FORMAL ASSESSMENT (SBA & PAT)	N/A	Drawings for course drawing (CD) 1 (Mechanical analytical) & CD 2 (1 st Mechanical assembly) & CD 3 (2 nd Mechanical assembly), to be sourced from the DDEs/tasks				Drawings for CD 4 (Isometric drawing), to be sourced from the DDEs/Tasks				N/A		Phase 1 of ALL PATs completed NOTE: PAT is <u>NOT</u> part of the SBA!		
Formal Assessment for Grade 11 Term 1						Contribution for Term 1				Contribution to Final SBA				
CD1: Mechanical analytical CD2: 1st Mechanical assembly CD3: 2nd Mechanical assembly CD4: Isometric drawing						100%				To be confirmed				

2023/24 ANNUAL TEACHING PLANS: ENGINEERING GRAPHICS AND DESIGN (EGD): GRADE 11 (TERM 2)

TERM 2	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11																								
CAPS TOPIC	CONTINUE WITH PERSPECTIVE DRAWING			CIVIL DRAWING			COMMENCE WITH SOLID GEOMETRY	PAT	MID-YEAR EXAMINATION																										
PRESCRIBED CONTENT & SKILLS	2-point perspective drawings of simple castings, dwellings and civil structures The HL, PP and SP can be varied to provide any desired view			Limited to single-storey dwellings, 1st angle orthographic working drawings with floor plans, detailed elevations with basic single line roofs (i.e., only the basic shape of the roof), and sectional elevations showing the detail of the foundation to the ceiling height , but not including the ceiling itself Include the following: • Annotation, labels, dimensioning, scales • Relevant abbreviations and graphical symbols • On all relevant views/elevations: Windows, doors and fixtures such as WC, bath, sink, shower, built-in cupboards etc., as well as all other features and fixtures already covered in Gr 10 & Gr 11 • Hatching detail and the application of colours • The calculation of perimeters, as well as total- and floor areas • Format and content of layout/working drawing name/title panels			1st angle orthographic views of solids or a combination of solids , which includes solids with holes The solids and shape of the holes may be either right-regular prisms or pyramids with 3, 4, 5, 6 and 8 sides only, as well as cylinders or cones The axis of the solids may be perpendicular, parallel or inclined to one principal projection plane only Include the following: • Layout planning • Sectional views • The true shapes of the cut surfaces • ALL hidden detail must be shown	Phase 2: Complete the working drawing a pictorial (3D) drawing as required by the specific scenario , i.e.: • An orthographic working drawing with min 4 x views • Pictorial (3D) drawing (perspective or isometric drawing)	Continue with Term 2 content until the commencement of the examination <table><tr><td colspan="3">PAPER 1 – CIVIL (2½ hours) In first-angle orthographic projection</td><td colspan="3">PAPER 2 – MECHANICAL (2½ hours) In third-angle orthographic projection</td></tr><tr><td>Q 1</td><td>Civil analytical</td><td>± 18%</td><td>Q 1</td><td>Mechanical analytical</td><td>± 18%</td></tr><tr><td>Q 2</td><td>2-point perspective drawing</td><td>± 32%</td><td>Q 2</td><td>Isometric drawing</td><td>± 32%</td></tr><tr><td>Q 3</td><td>Civil working drawing</td><td>± 50%</td><td>Q 3</td><td>Mechanical assembly</td><td>± 50%</td></tr></table>			PAPER 1 – CIVIL (2½ hours) In first-angle orthographic projection			PAPER 2 – MECHANICAL (2½ hours) In third-angle orthographic projection			Q 1	Civil analytical	± 18%	Q 1	Mechanical analytical	± 18%	Q 2	2-point perspective drawing	± 32%	Q 2	Isometric drawing	± 32%	Q 3	Civil working drawing	± 50%	Q 3	Mechanical assembly	± 50%
PAPER 1 – CIVIL (2½ hours) In first-angle orthographic projection			PAPER 2 – MECHANICAL (2½ hours) In third-angle orthographic projection																																
Q 1	Civil analytical	± 18%	Q 1	Mechanical analytical	± 18%																														
Q 2	2-point perspective drawing	± 32%	Q 2	Isometric drawing	± 32%																														
Q 3	Civil working drawing	± 50%	Q 3	Mechanical assembly	± 50%																														
REQUISITE PRE-KNOWLEDGE	• An understanding of the basic concepts of perspective drawing • The ability to convert 2D views into 3D drawing			• ALL the Grade 10 civil drawing content • 1 st angle orthographic projecting			• ALL the Grade 10 solid geometry content • 1 st angle orthographic projecting	Content & skills for civil/ mech. working drawings																											
RESOURCES, OTHER THAN TEXTBOOKS & DRAWING INSTRUMENTS	• LTSM : Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples • ICT : Visualiser & data projector, video clips						N/A																												
INFORMAL ASSESSMENT	Min. 7 DDEs/tasks completed for Term 2 (Min 11 Perspective DDEs/Tasks in TOTAL)			Min 8 DDEs/Tasks completed. Class test suggested for areas and perimeters, as well as other theory			Min 3 DDEs/Tasks completed.	N/A																											
FORMAL ASSESSMENT (SBA & PAT)	Drawings for course drawing (CD) 5 (2-point perspective), to be sourced from the DDEs/Tasks			Drawings for CD 6 (Civil floor plan & elevations) & CD 7 (Civil sectional elevation), to be sourced from the DDEs/tasks			N/A	Phase 2 of ALL PATs completed <i>NOTE: PAT is NOT part of the SBA!</i>	Examination																										
Formal assessment for Grade 11 Term 2						Contribution for Term 2				Contribution to final SBA																									
• CD5 : 2-point perspective • CD6 : Civil floor plan & elevations • CD7 : Civil sectional elevation						25%		100%		To be confirmed																									
Examination						75%				To be confirmed																									

2023/24 ANNUAL TEACHING PLANS: ENGINEERING GRAPHICS AND DESIGN (EGD): GRADE 11 (TERM 3)

TERM 3	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
CAPS TOPIC	CONTINUE WITH SOLID GEOMETRY				INTERPENETRATION & DEVELOPMENT				COMMENCE WITH LOCI (CAM)		PAT
PRESCRIBED CONTENT & SKILLS	1 st angle orthographic views of solids or a combination of solids, which includes solids with holes The solids and shape of the holes may be either right-regular prisms or pyramids with 3, 4, 5, 6 and 8 sides only The axis of the solids may be perpendicular, parallel or inclined to one principal projection plane only Include the following: - Sectional views - The true shapes of the cut surfaces - ALL hidden detail must be shown				1 st angle orthographic views showing the curve of interpenetration formed between two solids or pipes joined at either 30°, 45°, 60° or 90°. - The solids or tubes/pipes have to be right-regular geometrical prisms, with 3, 4, 5, 6 & 8 sides, and/or cylinders only. - The axes of the two solids or tubes/pipes must meet in a common plane, i.e. in-line only, with symmetrical curves of interpenetration - ALL hidden detail must be shown, unless otherwise stated Include the surface developments of the parts of the interpenetrating solids or tubes				The principles of the cam in simple mechanical applications in which the following must be shown: - the cam shaft and follower detail - the complete displacement graph - the complete cam profile - The motion has to be uniform - The direction has to be emphasised - The follower has to reciprocate on the vertical centre line of the cam shaft - Wedge-shaped and roller followers must be applied.		Phase 3: Complete the PAT and include: - Self-assess. & deadlines - Presentation
REQUISITE PRE-KNOWLEDGE	- ALL the Grade 10 solid geometry content 1st angle orthographic projecting				- Relevant Grade 10 & 11 Solid geometry content 1st angle orthographic projecting				ALL general drawing principles		Design process requirements
RESOURCES, OTHER THAN TEXTBOOKS & DRAWING INSTRUMENTS	- LTSM: Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples - ICT: Visualiser & data projector, video clips										PAT document, previous best practice examples
INFORMAL ASSESSMENT	Min 9 DDEs/tasks completed (Min 12 Solid Geometry DDEs/Tasks in TOTAL)			Min 13 DDEs/tasks completed					Min 5 DDEs/tasks completed for Term 3		N/A
	Suggested: A Controlled Test on the Term 3 content completed, that could be made up of TWO questions that constitutes a min of 60 minutes and a min of 50 marks										
FORMAL ASSESSMENT (SBA & PAT)	Drawings for course drawing (CD) 8 & 9 (1 st Solid geometry drawing with two adjacent sectioned solids, & 2 nd Solid geometry drawing of a sectioned solid with a hole), to be sourced from the DDEs/tasks			Drawings for CD 10 & 11 (1 st & 2 nd Interpenetration & development), to be sourced from the DDEs/Tasks					Drawings for CD 12 (3 rd Mechanical assembly)		All PATs completed NOTE: PAT is NOT part of the SBA!
Formal assessment for Grade 11 Term 3						Contribution for Term 3			Contribution to final SBA		
- CD8: 1st solid geometry (two adjacent sectioned solids) - CD9: 2nd solid geometry (sectioned solid with a hole) - CD10: 1st interpenetration & development (two prisms) - CD11: 2nd interpenetration & development (including a cylinder) - CD12: 3rd mechanical assembly						100%			To be confirmed		

2023/24 ANNUAL TEACHING PLANS: ENGINEERING GRAPHICS AND DESIGN (EGD): GRADE 11 (TERM 4)

TERM 4	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10																															
CAPS TOPIC	CONTINUE WITH LOCI (CAM)	<i>Continue with/catch-up on content not completed or do revision until the commencement of the final/promotional examinations/assessment</i>		FINAL/PROMOTIONAL EXAMINATION/ASSESSMENT																																					
PRESCRIBED CONTENT & SKILLS	The principles of the cam in simple mechanical applications in which the following has to be shown: - the cam shaft and follower detail - the complete displacement graph - the complete cam profile • The motion has to be uniform • The direction has to be emphasised • The follower has to reciprocate on the vertical centre line of the cam shaft • Wedge-shaped and roller followers must be applied.			<table><tr><td colspan="3">PAPER 1 – <i>CIVIL</i> (3 hours) In first-angle orthographic projection</td><td colspan="3">PAPER 2 – <i>MECHANICAL</i> (3 hours) In third-angle orthographic projection</td></tr><tr><td>Q 1</td><td>Civil analytical</td><td>± 15%</td><td>Q 1</td><td>Mechanical analytical</td><td>± 15%</td></tr><tr><td>Q 2</td><td>Interpenetration and development <u>and/or</u> Solid geometry</td><td>± 20%</td><td>Q 2</td><td>Loci of a Cam</td><td>± 20%</td></tr><tr><td>Q 3</td><td>2-point perspective drawing</td><td>± 25%</td><td>Q 3</td><td>Isometric drawing</td><td>± 25%</td></tr><tr><td>Q 4</td><td>Civil working drawing</td><td>± 40%</td><td>Q 4</td><td>Mechanical assembly</td><td>± 40%</td></tr></table>								PAPER 1 – <i>CIVIL</i> (3 hours) In first-angle orthographic projection			PAPER 2 – <i>MECHANICAL</i> (3 hours) In third-angle orthographic projection			Q 1	Civil analytical	± 15%	Q 1	Mechanical analytical	± 15%	Q 2	Interpenetration and development <u>and/or</u> Solid geometry	± 20%	Q 2	Loci of a Cam	± 20%	Q 3	2-point perspective drawing	± 25%	Q 3	Isometric drawing	± 25%	Q 4	Civil working drawing	± 40%	Q 4	Mechanical assembly	± 40%
PAPER 1 – <i>CIVIL</i> (3 hours) In first-angle orthographic projection				PAPER 2 – <i>MECHANICAL</i> (3 hours) In third-angle orthographic projection																																					
Q 1	Civil analytical			± 15%	Q 1	Mechanical analytical	± 15%																																		
Q 2	Interpenetration and development <u>and/or</u> Solid geometry			± 20%	Q 2	Loci of a Cam	± 20%																																		
Q 3	2-point perspective drawing			± 25%	Q 3	Isometric drawing	± 25%																																		
Q 4	Civil working drawing	± 40%	Q 4	Mechanical assembly	± 40%																																				
REQUISITE PRE-KNOWLEDGE	• ALL general drawing principles • 1 st angle orthographic projecting																																								
RESOURCES, OTHER THAN TEXTBOOKS & DRAWING INSTRUMENTS	Same as for Term 3																																								
INFORMAL ASSESSMENT	Min 4 DDEs/tasks completed for Term 4 (Min 9 CAM DDEs/Tasks in TOTAL)																																								
FORMAL ASSESSMENT (SBA & PAT)	Drawings for CD 13 (Cam), to be sourced from the DDEs/tasks																																								
Formal assessment for Grade 11 Term 4						Contribution for Term 4			Contribution to final SBA																																
• CD13 : Loci of a Cam						N/A			To be confirmed																																