

## 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		
<b>CAPS TOPIC</b>	<b>CLASSROOM ADMIN &amp; REVISION</b>	<b>MECHANICAL DRAWING</b>				<b>COMMENCE WITH ISOMETRIC DRAWING</b>		<b>PAT</b>	<b>CONTINUE WITH ISOMETRIC DRAWING</b>		<b>COMMENCE WITH PERSPECTIVE DRAWING</b>		
<b>PRESCRIBED CONTENT &amp; SKILLS</b>	<ul style="list-style-type: none"> <li>Classroom and administrative management</li> <li>Revision of the general drawing principles</li> </ul>	<b>3<sup>rd</sup> angle orthographic</b> working drawings with <b>non-sectional, sectional, half-sectional</b> and <b>part-sectional</b> views of <b>simple mechanical assemblies</b> <b>Include the following:</b> <ul style="list-style-type: none"> <li>Title, scale, hidden detail, dimensioning, centre lines, cutting planes, hatching detail, notes, symbol of projection and layout planning</li> <li><b>Hexagonal bolts, nuts and lock nuts, washers/spacers, keys and keyways</b> and appropriate <b>labels</b></li> <li>Different <b>types of section</b>, e.g., aligned section, revolved section, removed section, etc.</li> <li><b>Conventional presentation</b> of common features</li> <li><b>Format and content</b> of working drawing <b>name/title blocks</b></li> </ul>				<b>Simple to complex</b> isometric drawings with isometric and non-isometric lines as well as <b>auxiliary views</b> and <b>circles</b>		<ul style="list-style-type: none"> <li>Revision of the <b>design process</b></li> <li>The <b>PAT scenarios</b> given to learners and <b>discussed</b></li> </ul>	<b>Complex</b> isometric drawings with isometric and non-isometric lines as well as <b>auxiliary views</b> and <b>circles</b>		<b>2-point</b> perspective drawings of <b>simple</b> castings, dwellings, and civil structures The HL, PP and SP can be varied to provide any desired view		<b>Phase 1: Complete/consolidate the design process requirements:</b> <ul style="list-style-type: none"> <li>Design brief, specifications, and constraints</li> <li>Research conducted</li> <li>TWO free hand solutions</li> <li>Selecting best solution</li> </ul>
<b>REQUISITE PRE-KNOWLEDGE</b>	Gr 10 general drawing principles	<ul style="list-style-type: none"> <li>ALL the Grade 10 mechanical drawing content</li> <li>3<sup>rd</sup> angle orthographic projection</li> </ul>				<ul style="list-style-type: none"> <li>ALL the Grade 10 Isometric drawing content</li> <li>The ability to convert 2D views into a 3D drawing</li> </ul>		Design Process	<ul style="list-style-type: none"> <li>ALL the Grade 10 Isometric drawing content</li> <li>The ability to convert 2D views into a 3D drawing</li> </ul>		<ul style="list-style-type: none"> <li>An understanding of the basic concepts of perspective drawing</li> <li>The ability to convert 2D views into 3D drawing</li> </ul>		Design process requirements
<b>RESOURCES, OTHER THAN TEXTBOOKS &amp; DRAWING INSTRUMENTS</b>	Files/folders, own rules, own notes	<ul style="list-style-type: none"> <li><b>LTSM:</b> Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples</li> <li><b>ICT:</b> Visualiser &amp; data projector, video clips</li> </ul>				<ul style="list-style-type: none"> <li><b>LTSM:</b> Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples</li> <li><b>ICT:</b> Visualiser &amp; data projector, video clips</li> </ul>		PAT document, previous best practice examples	<ul style="list-style-type: none"> <li><b>LTSM:</b> Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples</li> <li><b>ICT:</b> Visualiser &amp; data projector, video clips</li> </ul>		PAT document, previous best practice examples		
<b>INFORMAL ASSESSMENT</b>	Class test (suggested)	Min <b>12 DDEs/tasks</b> completed Class test suggested for theory  <b>Suggested:</b> A <b>controlled test</b> on the Term 1 content completed, that could be made up of TWO questions that constitutes a <b>min. of 60 minutes</b> and a <b>min. of 50 marks</b>				Min <b>8 DDEs/tasks</b> completed			Min <b>4 DDEs/tasks</b> completed for Term 1		N/A		
<b>FORMAL ASSESSMENT (SBA &amp; PAT)</b>	N/A	Drawings for <b>course drawing (CD) 1</b> (Mechanical analytical) & <b>CD 2</b> (1 <sup>st</sup> Mechanical assembly) & <b>CD 3</b> (2 <sup>nd</sup> Mechanical assembly), to be sourced from the DDEs/tasks				Drawings for <b>CD 4</b> (Isometric drawing), to be sourced from the DDEs/Tasks			N/A		<b>Phase 1 of ALL PATs</b> completed <b>NOTE: PAT is NOT part of the SBA!</b>		
<b>Formal Assessment for Grade 11 Term 1</b>						<b>Contribution for Term 1</b>			<b>Contribution to Final SBA</b>				
<ul style="list-style-type: none"> <li><b>CD1:</b> Mechanical analytical</li> <li><b>CD2:</b> 1<sup>st</sup> Mechanical assembly</li> <li><b>CD3:</b> 2<sup>nd</sup> Mechanical assembly</li> <li><b>CD4:</b> Isometric drawing</li> </ul>						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																									
<b>CAPS TOPIC</b>	<b>CONTINUE WITH PERSPECTIVE DRAWING</b>		<b>CIVIL DRAWING</b>			<b>COMMENCE WITH SOLID GEOMETRY</b>		<b>PAT</b>	<b>MID-YEAR EXAMINATION</b>																											
<b>PRESCRIBED CONTENT &amp; SKILLS</b>	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, 1 <sup>st</sup> 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 <u>foundation to the ceiling height</u> , but not including the ceiling itself  Include the following: • Annotation, labels, dimensioning, scales • Relevant abbreviations and graphical symbols • On all relevant views/elevations: <b>Windows, doors</b> and fixtures such as <b>WC, bath, sink, shower, built-in cupboards</b> etc., as well as <b>all other features and fixtures</b> 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 • <b>Format and content</b> of layout/working drawing name/title panels			1 <sup>st</sup> 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 • <b>ALL hidden detail must be shown</b>		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 border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">PAPER 1 – CIVIL (2½ hours) In first-angle orthographic projection</th> <th colspan="3">PAPER 2 – MECHANICAL (2½ hours) In third-angle orthographic projection</th> </tr> </thead> <tbody> <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> </tbody> </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%																															
<b>REQUISITE PRE-KNOWLEDGE</b>	• 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 <sup>st</sup> angle orthographic projecting			• ALL the Grade 10 solid geometry content • 1 <sup>st</sup> angle orthographic projecting		Content & skills for civil/ mech. working drawings																												
<b>RESOURCES, OTHER THAN TEXTBOOKS &amp; DRAWING INSTRUMENTS</b>	• 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																												
<b>INFORMAL ASSESSMENT</b>	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																												
<b>FORMAL ASSESSMENT (SBA &amp; PAT)</b>	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																										
<b>Formal assessment for Grade 11 Term 2</b>						<b>Contribution for Term 2</b>			<b>Contribution to final SBA</b>																											
• CD5: 2-point perspective • CD6: Civil floor plan & elevations • CD7: Civil sectional elevation						25%			100%																											
<b>Examination</b>						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
<b>CAPS TOPIC</b>	<b>CONTINUE WITH SOLID GEOMETRY</b>			<b>INTERPENETRATION &amp; DEVELOPMENT</b>				<b>COMMENCE WITH LOCI (CAM)</b>		<b>PAT</b>	
<b>PRESCRIBED CONTENT &amp; SKILLS</b>	<p>1<sup>st</sup> angle orthographic views of solids or a combination of solids, which includes solids with holes</p> <p>The solids and shape of the holes may be either right-regular prisms or pyramids with 3, 4, 5, 6 and 8 sides only</p> <p>The axis of the solids may be perpendicular, parallel or inclined to one principal projection plane only</p> <p>Include the following:</p> <ul style="list-style-type: none"> <li>Sectional views</li> <li>The true shapes of the cut surfaces</li> <li><b>ALL hidden detail must be shown</b></li> </ul>			<p>1<sup>st</sup> angle orthographic views showing the curve of interpenetration formed between two solids or pipes joined at either 30°, 45°, 60° or 90°.</p> <ul style="list-style-type: none"> <li>The solids or tubes/pipes have to be <b>right-regular geometrical prisms</b>, with 3, 4, 5, 6 &amp; 8 sides, <b>and/or cylinders only</b>.</li> <li>The <b>axes</b> of the two solids or tubes/pipes must <b>meet in a common plane</b>, i.e. <b>in-line only</b>, with <b>symmetrical curves of interpenetration</b></li> <li><b>ALL hidden detail must be shown</b>, unless otherwise stated</li> </ul> <p><b>Include the surface developments</b> of the parts of the <b>interpenetrating</b> solids or tubes</p>				<p>The principles of the <b>cam</b> in <b>simple</b> mechanical applications in which the following must be shown:</p> <ul style="list-style-type: none"> <li>the <b>cam shaft</b> and <b>follower detail</b></li> <li>the complete <b>displacement graph</b></li> <li>the complete <b>cam profile</b></li> <li>The <b>motion</b> has to be <b>uniform</b></li> <li>The <b>direction</b> has to be emphasised</li> <li>The follower has to reciprocate on the <b>vertical centre line</b> of the cam shaft</li> <li><b>Wedge-shaped</b> and <b>roller followers</b> must be applied.</li> </ul>		<p><b>Phase 3: Complete the PAT and include:</b></p> <ul style="list-style-type: none"> <li>Self-assess. &amp; deadlines</li> <li>Presentation</li> </ul>	
<b>REQUISITE PRE-KNOWLEDGE</b>	<ul style="list-style-type: none"> <li>ALL the Grade 10 solid geometry content</li> <li>1<sup>st</sup> angle orthographic projecting</li> </ul>			<ul style="list-style-type: none"> <li>Relevant Grade 10 &amp; 11 Solid geometry content</li> <li>1<sup>st</sup> angle orthographic projecting</li> </ul>				<ul style="list-style-type: none"> <li>ALL general drawing principles</li> </ul>		Design process requirements	
<b>RESOURCES, OTHER THAN TEXTBOOKS &amp; DRAWING INSTRUMENTS</b>	<ul style="list-style-type: none"> <li><b>LTSM:</b> Own complaint notes, previous exam/test questions on specific topic/content, compliant content from TD textbooks, relevant models/ physical examples</li> <li><b>ICT:</b> Visualiser &amp; data projector, video clips</li> </ul>									PAT document, previous best practice examples	
<b>INFORMAL ASSESSMENT</b>	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	
	<b>Suggested:</b> A <b>Controlled Test</b> on the Term 3 content completed, that could be made up of TWO questions that constitutes a <b>min of 60 minutes</b> and a <b>min of 50 marks</b>										
<b>FORMAL ASSESSMENT (SBA &amp; PAT)</b>	Drawings for <b>course drawing (CD) 8 &amp; 9</b> (1 <sup>st</sup> Solid geometry drawing with two adjacent sectioned solids, & 2 <sup>nd</sup> Solid geometry drawing of a sectioned solid with a hole), to be sourced from the DDEs/tasks			Drawings for <b>CD 10 &amp; 11</b> (1 <sup>st</sup> & 2 <sup>nd</sup> Interpenetration & development), to be sourced from the DDEs/Tasks				Drawings for <b>CD 12</b> (3 <sup>rd</sup> Mechanical assembly)		<b>All PATs completed</b> <b>NOTE: PAT is NOT part of the SBA!</b>	
<b>Formal assessment for Grade 11 Term 3</b>						<b>Contribution for Term 3</b>			<b>Contribution to final SBA</b>		
<ul style="list-style-type: none"> <li><b>CD8:</b> 1<sup>st</sup> solid geometry (two adjacent sectioned solids)</li> <li><b>CD9:</b> 2<sup>nd</sup> solid geometry (sectioned solid with a hole)</li> <li><b>CD10:</b> 1<sup>st</sup> interpenetration &amp; development (two prisms)</li> <li><b>CD11:</b> 2<sup>nd</sup> interpenetration &amp; development (including a cylinder)</li> <li><b>CD12:</b> 3<sup>rd</sup> mechanical assembly</li> </ul>						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	
<b>CAPS TOPIC</b>	<b>CONTINUE WITH LOCI (CAM)</b>		<p><i>Continue with/catch-up on content not completed</i></p> <p><b>or</b></p> <p><b>do revision</b></p> <p><b>until the commencement of the final/promotional examinations/assessment</b></p>	<b>FINAL/PROMOTIONAL EXAMINATION/ASSESSMENT</b>							
<b>PRESCRIBED CONTENT &amp; SKILLS</b>	<p>The principles of the <b>cam</b> in <b>simple</b> mechanical applications in which the following has to be shown:</p> <ul style="list-style-type: none"> <li>- the <b>cam shaft</b> and <b>follower detail</b></li> <li>- the complete <b>displacement graph</b></li> <li>- the complete <b>cam profile</b></li> <li>• The <b>motion</b> has to be <b>uniform</b></li> <li>• The <b>direction</b> has to be emphasised</li> <li>• The follower has to reciprocate on the <b>vertical centre line</b> of the cam shaft</li> <li>• <b>Wedge-shaped</b> and <b>roller followers</b> must be applied.</li> </ul>			<p><b>PAPER 1 – CIVIL</b> (3 hours) In <b>first-angle</b> orthographic projection</p>			<p><b>PAPER 2 – MECHANICAL</b> (3 hours) In <b>third-angle</b> orthographic projection</p>				
<b>REQUISITE PRE-KNOWLEDGE</b>	<ul style="list-style-type: none"> <li>• ALL general drawing principles</li> <li>• 1<sup>st</sup> angle orthographic projecting</li> </ul>			Q 1	Civil analytical	± 15%	Q 1	Mechanical analytical	± 15%		
<b>RESOURCES, OTHER THAN TEXTBOOKS &amp; DRAWING INSTRUMENTS</b>	Same as for Term 3			Q 2	Interpenetration and development <b>and/or</b> Solid geometry	± 20%	Q 2	Loci of a Cam	± 20%		
<b>INFORMAL ASSESSMENT</b>	Min 4 DDEs/tasks completed for Term 4 (Min 9 CAM DDEs/Tasks in TOTAL)			Q 3	2-point perspective drawing	± 25%	Q 3	Isometric drawing	± 25%		
<b>FORMAL ASSESSMENT (SBA &amp; PAT)</b>	Drawings for <b>CD 13</b> (Cam), to be sourced from the DDEs/tasks			Q 4	Civil working drawing	± 40%	Q 4	Mechanical assembly	± 40%		
<b>Formal assessment for Grade 11 Term 4</b>					<b>Contribution for Term 4</b>			<b>Contribution to final SBA</b>			
• CD13: Loci of a Cam					N/A			To be confirmed			