



PROVINCE OF THE
EASTERN CAPE
EDUCATION

DIRECTORATE:
CURRICULUM FET PROGRAMMES
ENGINEERING GRAPHICS & DESIGN
LESSON PLANS
GRADE 10
TERM 4

FOREWORD

The following Grade 10 Lesson Plans were developed by Subject Advisors during May 2009. Teachers are requested to look at them, modify them where necessary to suit their contexts and resources. It must be remembered that Lesson Plans are working documents, and any comments to improve the lesson plans in this document will be appreciated. Teachers are urged to use this document with the following departmental policy documents: Subject Statement; LPG 2008; SAG 2008; Examination Guidelines 2009 and Provincial CASS Policy / Guidelines.

Lesson planning is the duty of each and every individual teacher but it helps when teachers sometimes plan together as a group. This interaction not only helps teachers to understand how to apply the Learning Outcomes (LOs) and Assessment Standards (ASs) but also builds up the confidence of the teachers in handling the content using new teaching strategies.

It must please be noted that in order to help teachers who teach across grades and subjects, an attempt has been made to **standardise lesson plan templates** and thus the new template might not resemble the templates used in each subject during the NCS training. However, all the essential elements of a lesson plan have been retained. This change has been made to assist teachers and lighten their administrative load.

Please note that these lesson plans are to be used only as a guide to complete the requirements of the Curriculum Statements and the work schedules and teachers are encouraged to develop their own learner activities to supplement and /or substitute some of the activities given here (depending on the school environment, number and type of learners in your class, the resources available to your learners, etc). Do not forget to build in the tasks for the Programme of Assessment into your Lesson Plans.

Strengthen your efforts by supporting each other in clusters and share ideas. Good Luck with your endeavours to improve Teaching, Learning and Assessment.

SUBJECT: ENGINEERING GRAPHICS AND DESIGN		GRADE: 10		LESSON PLAN 1		TERM 4		TIME: 18hrs			
CORE CONTENT: REVISION AND REMEDIATION (of work covered in terms 1, 2 and 3)											
INTEGRATION: Mechanical, Engineering, Technology, Mathematics											
LEARNING OUTCOME 1: Technology, Society and the environment			LEARNING OUTCOME 2: Design Process			LEARNING OUTCOME 3: Knowledge and Understanding			LEARNING OUTCOME 4: Application of Knowledge		
10.1.1 Describe the inter-relationship between Engineering Graphics and Design, society and the environment.	X	10.2.1 Identify the problem, need or opportunity through the interpretation of a given design brief.	X	10.3.1 Of the SANS codes of practice related to basic civil, electrical and mechanical drawing.	X	10.4.1 Apply basic visualisation, cognitive and perception skills to analysing and interpretation of information and drawings.	X		X		
10.1.2 Identify and discuss pertinent human rights issues.	X	10.2.1 Conduct relevant research/case studies and generate a number of ideas/concepts graphically.	X	10.3.2 of the principles of projection with respect to basic multi-view and pictorial drawings.	X	10.4.2 Apply principles of measuring, dimensioning, printing, annotations, constructions, projections to produce basic freehand, instrument and CAD drawings.	X		X		
10.1.3 discuss the ways in which HIV/Aids can be transmitted.HIV/AIDS	X	10.2.3 Select the most relevant possibility, analyse it, and synthesize it into a final solution.	X	10.3.3 Application of the theory related to computer hardware and basic functions of CAD software.	X	10.4.3 apply the principles of single and multi-view projections to produce freehand, instrument and CAD drawings of: <ul style="list-style-type: none"> • basic 1st and 3rd angle orthographic views, • descriptive geometry and geometrical solids, • circuit diagrams, • castings and • Floor plans. 	X		X		
10.1.4 identify contributions made by indigenous South African cultures to graphical communication.Communication	X	10.2.4 Present the final solution using graphics including visual, symbolic, and language skills in appropriate modes.	X	10.3.4 of basic design principles	X	10.4.4 apply the principles of pictorial drawings to produce freehand, instrument or CAD drawings of: <ul style="list-style-type: none"> • oblique, • isometric and • Perspective. 	X		X		
10.1.5 Describe entrepreneurship and its influence on society and the environment.	X	10.2.5 Show evidence of evaluation at each stage the design process.	X	10.3.5 Application of techniques used to produce basic freehand, instruments and computer drawings.	X	10.4.5 Sectioning multiview	X		X		
				10.3.6 Of the principles of basic sectional views.		10.4.6 Design Process	X		X		
				10.3.7 Of methods of graphical communication and presentation.		10.4.7 CAD	X		X		

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
Assist learners through problem areas from the work covered in term1, 2, & 3.	Producing free hand drawings, instrument drawing, Orthographic, Descriptive geometry, Solid geometry, Sectioning & CAD. Through Class discussion Group discussion Group work Individual work Individual work	Observation, Projector & projector screen. Environment Models CAD Software Audio Visual Worksheets Drawing Instruments Transparencies / OHP Chalkboard / Posters	METHODS <ul style="list-style-type: none"> • Self Assessment, Peer Assessment • Group Assessment, Teacher Assessment TOOLS <ul style="list-style-type: none"> • Task Lists, Checklists • Memo/Mask, Rating Scales • Rubrics / Grids, Observation Sheets EVIDENCE <ul style="list-style-type: none"> • Task based • Checklists 	
Homework:				
Enrichment/Expanded Opportunities:				
Teacher Reflections:				

SIGNATURES:

TEACHER

DATE

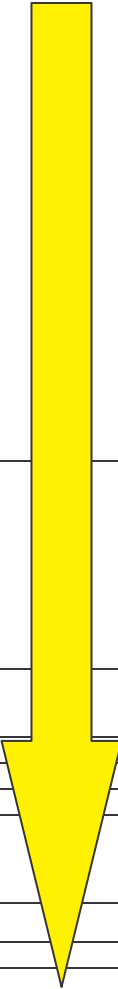
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DATE

SUBJECT: ENGINEERING GRAPHICS AND DESIGN		GRADE: 10		LESSON PLAN 2		TERM 4		TIME: 18hrs			
CORE CONTENT: PAT											
INTEGRATION: Mechanical, Engineering, Technology, Mathematics, CAT & IT											
LEARNING OUTCOME 1: Technology, Society and the environment			LEARNING OUTCOME 2: Design Process			LEARNING OUTCOME 3: Knowledge and Understanding			LEARNING OUTCOME 4: Application of Knowledge		
10.1.1 Describe the inter-relationship between Engineering Graphics and Design, society and the environment.	X	10.2.1 Identify the problem, need or opportunity through the interpretation of a given design brief.	X	10.3.1 Of the SANS codes of practice related to basic civil, electrical and mechanical drawing.		10.4.1 Apply basic visualisation, cognitive and perception skills to analysing and interpretation of information and drawings.					
10.1.2 Identify and discuss pertinent human rights issues.		10.2.1 Conduct relevant research/case studies and generate a number of ideas/concepts graphically.	X	10.3.2 of the principles of projection with respect to basic multi-view and pictorial drawings.		10.4.2 Apply principles of measuring, dimensioning, printing, annotations, constructions, projections to produce basic freehand, instrument and CAD drawings.					
10.1.3 discuss the ways in which HIV/Aids can be transmitted.HIV/AIDS		10.2.3 Select the most relevant possibility, analyse it, and synthesize it into a final solution.	X	10.3.3 Application of the theory related to computer hardware and basic functions of CAD software.		10.4.3 apply the principles of single and multi-view projections to produce freehand, instrument and CAD drawings of: <ul style="list-style-type: none"> • basic 1st and 3rd angle orthographic views, • descriptive geometry and geometrical solids, • circuit diagrams, • castings and • Floor plans. 					
10.1.4 identify contributions made by indigenous South African cultures to graphical communication.Communication	X	10.2.4 Present the final solution using graphics including visual, symbolic, and language skills in appropriate modes.	X	10.3.4 of basic design principles		10.4.4 apply the principles of pictorial drawings to produce freehand, instrument or CAD drawings of: <ul style="list-style-type: none"> • oblique, • isometric and • Perspective. 					
10.1.5 Describe entrepreneurship and its influence on society and the environment.	X	10.2.5 Show evidence of evaluation at each stage the design process.	X	10.3.5 Application of techniques used to produce basic freehand, instruments and computer drawings.		10.4.5 Sectioning multiview					
				10.3.6 Of the principles of basic sectional views.		10.4.6 Design Process					
				10.3.7 Of methods of graphical communication and presentation.		10.4.7 CAD					

PAT

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
<p>Design Process:</p> <p>Teach the Design process:</p> <ol style="list-style-type: none"> 1. Identification of a problem, need or opportunity and formulate a design brief. 2. Conduct relevant research; generate a number of ideas/concepts analytically and graphically. 3. select the most relevant possibility giving reasons for choice that are based on sound design principles citing references where possible, analyse it, and synthesize it into a final solution. 4. Present the final solution using graphics including visual, symbolic, and language skills in appropriate modes. 5. Show evidence of evaluation at each stage of the design process. <p>Teacher provides guidance in planning and execution of the chosen PAT topic</p>	<p>Learners apply the following principles</p> <ol style="list-style-type: none"> 1. Identify the problem, need or opportunity formulates a design brief. 2. Conduct research/case studies and generate a number of ideas/concepts analytically and graphically. 3. select the most relevant possibility giving reasons for choice that are based on sound design principles citing references where possible, analyse it, and synthesize it into a final solution. 4. Present the final solution using graphics including visual, symbolic, and language skills in appropriate modes. 5. show evidence of evaluation at each stage of the design process <p>and then</p> <ul style="list-style-type: none"> • Presents the final solution with working/layout drawings • Presents the final solution, or parts thereof, with a 3D pictorial drawing(s), and optionally, making a model where possible • Evaluates the whole process 	<p>Models, CAD software, Audio-visual media, Worksheets, Drawing instruments, catalogues, internet.</p>	<p>Tools:</p> <ul style="list-style-type: none"> • Memo's • Task lists, • rubrics <p>Method:</p> <ul style="list-style-type: none"> • Teacher <p>Evidence:</p> <ul style="list-style-type: none"> • Task-based 	
<p>Cost Factors Guide learners in costing the PAT</p>	<p>Learners research and compile costing lists.</p>		<p>Presentation portfolio for performance evaluation</p>	
<p>Civil</p>	<p>Scenarios should be chosen from these topics, ie. Civil, Electrical or Mechanical</p>			
<p>Electrical</p>				
<p>Mechanical</p>				
<p>Entrepreneurial opportunities</p>	<p>Research and present <i>Entrepreneurial Opportunities</i> for the scenario in a portfolio of evidence.</p>			
<p>Models (Shoebox Size)</p>	<p>Model is optional.</p>			
<p>Homework:</p>				
<p>Enrichment/Expanded Opportunities:</p>				
<p>Teacher Reflections:</p>				



SIGNATURES:

TEACHER

DATE

HOD / SMT

DATE

