PROVINCE OF THE

EASTERN CAPE

EDUCATION

DIRECTORATE:

CURRICULUM FET PROGRAMMES

ENGINEERING GRAPHICS & DESIGN

LESSON PLANS

TERM 4

GRADE 11

FOREWORD

The following Grade 11 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 & DESIGN	GRADE: 11	LESSON PLAN 1	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	
11.1.1 Discuss and analyse the inter-relationship between Engineering Graphics and Design, society and the environment.	X	11.2.1 Identify a problem, need or opportunity by interpreting given information and formulating a design brief.	X	11.3.1 of the various codes of practice related to advanced civil, electrical and mechanical drawing.		11.4.1 Apply advanced visualisation, cognitive and perception skills to analysing and interpretation of information and drawings.	
11.1.2 Formulate strategies that show sensitivity to a broad spectrum of human rights issues.	X	11.2.2 Conduct relevant research / case studies and generate a number of ideas/concepts analytically and graphically.	X	11.3.2 Of the principles of projection with respect to advanced multi-view and pictorial drawings.		11.4.2 Apply principles of measuring, dimensioning, printing, annotations, constructions, projections to produce advanced freehand, instrument and CAD drawings.	
11.1.3 Identify and suggest strategies for safe practices in an Engineering Graphics and Design that safeguard against the contact/spread of Aids.	X	11.2.3 select the most relevant possibility giving reasons for choice based on manufacturing techniques, analyse it, and synthesize it into a final solution.	X	11.3.3 Of the theory related to computer hardware and advanced functions of CAD software.		11.4.3 apply the principles of single and multi-view projections to produce freehand, instrument and CAD drawings of: • advanced 1st and 3rd angle orthographic views, • descriptive geometry and geometrical solids, • interpenetrations, • development, • advanced loci, • circuit diagrams, • dwellings, • assemblies and • Surface textures.	X
11.1.4 compare contributions made by Global Cultures to graphical communication.Communication	X	11.2.4 Present the final solution using graphics including visual, symbolic, and language skills in appropriate modes.	X	11.3.4 of advanced design principles.		11.4.4 apply the principles of pictorial drawings to produce freehand, instrument or CAD drawings of: • isometric and • perspective.Pictorial Drawings	
11.1.5 discuss the competencies required by entrepreneurs.Entrepreneurship	X	11.2.5 Show evidence of evaluation at each stage of the design process.	X	11.3.5 Of techniques used to produce advanced freehand, instruments and computer drawings.		11.4.5 Loci of points.Sectioning multiview	
11.1.6 Electronic impact on Comm.				11.3.6 of the principles of advanced loci, assemblies, sectional views and detail drawings.		11.4.6 Design Process	
				11.3.7of methods of graphical communication and presentation. Comm.		11.4.7 CAD	
				11.3.8 Loci		11.4.8 Loci	

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
Design Process: **Teach the Design process:** 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. **Teacher provides guidance in planning and execution of the chosen PAT topic**	**Learners apply the following principles** 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 **and then** • 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	Models, CAD software, Audio-visual media, Worksheets, Drawing instruments, catalogues, internet.	**Tools:** • Memo's • Task lists, • rubrics **Method:** • Teacher **Evidence:** • Task-based	
Cost Factors Guide learners in costing the PAT	**Learners research and compile costing lists.**		**Presentation portfolio for performance evaluation**	
Civil	**Scenarios should be chosen from these topics, ie. Civil, Electrical or Mechanical**			
Electrical				
Mechanical				
Entrepreneurial opportunities	**Research and present *Entrepreneurial Opportunities* for the scenario in a portfolio of evidence.**			
Models (Shoebox Size)	**Model is optional.**			
Homework:				
Enrichment/Expanded Opportunities:				
Teacher Reflections:				

SIGNATURES:

_____ TEACHER

_____ DATE

_____ HOD / SMT

_____ DATE