



PROVINCE OF THE
EASTERN CAPE
EDUCATION

DIRECTORATE:
CURRICULUM FET PROGRAMMES
ELECTRICAL TECHNOLOGY
GRADE 10
LESSON PLANS
TERM 3

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 endeavors to improve Teaching, Learning and Assessment.

SUBJECT: ELECTRICAL TECHNOLOGY GRADE: 10 LESSON PLAN 1 TERM 3 TIME: 21 HOURS

CORE CONTENT: Describe the principles of electricity:
 Theory of current flow, Ohm’s law, Series circuit as voltage divider, Parallel circuit as a current divide, Combination circuits.
 Specific resistance, temperature coefficient, Verify Ohm’s law, investigates specific resistance and effect of temperature.

LEARNING OUTCOME 1: TECHNOLOGY, SOCIETY AND THE ENVIROMENT		LEARNING OUTCOME 2: TECNOLOGICAL PROCESS		LEARNING OUTCOME 3: KNOWLEDGE AND UNDERSTANDING		LEARNING OUTCOME 4: APPLICATION OF KNOWLEGE	
10.1.1 Describe the interrelationship between technology, society and the environment.		10.2.1 Identify, investigate, define and analyse problems in a given real-life situation.	X	10.3.1 Demonstrate an understanding of the Occupational Health and Safety (OHS) Act where applicable.		10.4.1 Safety and instruments Identify unsafe conditions and acts and apply tools and instruments correctly.	X
10.1.2 Describe human rights issues		10.2.2 Generate and/or design possible solutions for problems.	X	10.3.2 Describe the use and care of tools and measuring instruments.		10.4.2 Electrical applications Construct and comprehend single-phase circuits.	
10.1.3 Describe, explain and respond to basic medical emergencies in context, taking cognizance of health issues such as HIV/Aids.		10.2.3 Make or improve products according to the selected design		10.3.3 Describe the principles of magnetism.		10.4.3 Electronics Construct and comprehend electronic circuits.	X
10.1.4 Identify indigenous knowledge systems of different cultures.		10.2.4 Evaluate the final product against the initial design.		10.3.4 Describe the principles of electricity.	X	10.4.4 Digital electronics Construct and comprehend digital circuits.	
10.1.5 Describe entrepreneurship and its influence on society and environment.	X	10.2.5 Present assignments by means of a variety of communication media		10.3.5 Describe the principles of electrostatics.			
				10.3.6 Identify and describe the characteristics of electronic components			
				10.3.9			

				Describe the principles of operation and use of power sources.		
				10.3.10 Describe basic logic concepts.		
				10.3.11 Describe and compare different types of protective devices.		
				10.3.12 Draw single-phase circuits		
				10.3.13 Describe electronic communication systems		
TEACHER ACTIVITIES		LEARNER ACTIVITIES		RESOURCES	ASSESSMENT	DATE COMPLETED
Explain current flow.		Take notes		Hand book		
Explain Ohm's law and give examples of calculations.		Do work sheet with calculations. Practical measurements		Note book Computer lab	Completed calculations.	
Discuss specific resistance of materials.		To measure the resistance of different types of materials.		Work sheet	Completed work sheet	
Explain resistors in series and give example of calculation. Voltage divider		Do calculations. Practical measurements		Text book / work sheet Light current lab Bread board	Completed calculations	
Explain resistors in parallel and give example of calculation. Current divider		Do calculations.		Text book / work sheet Light current lab Bread board	Completed calculations	
Explain combination circuits and give examples of calculations.		Do calculations		Text book / work sheet Light current lab Bread board	Completed calculations	
Explain the effect of temperature on specific resistance		Do practical experiments		Different materials and a gas flam. Work sheet Light current lab	Completed work sheet	
Homework:						
Enrichment/Expanded Opportunities:						
Teacher Reflections:						

SIGNATURES:

TEACHER

DATE

HOD / SMT

DATE

SUBJECT: ELECTRICAL TECHNOLOGY	GRADE: 10	LESSON PLAN 2	TERM 3	TIME: 4 HOURS
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CORE CONTENT: Identify and describe the characteristics of electronic components (Characteristic curves where applicable): Resistor, Capacitor, Inductor, Semi-conductor devices: Diodes, LED's, Zener diodes

LEARNING OUTCOME 1: TECHNOLOGY, SOCIETY AND THE ENVIROMENT		LEARNING OUTCOME 2: TECNOLOGICAL PROCESS		LEARNING OUTCOME 3: KNOWLEDGE AND UNDERSTANDING		LEARNING OUTCOME 4: APPLICATION OF KNOWLEGE	
10.1.1 Describe the interrelationship between technology, society and the environment.		10.2.1 Identify, investigate, define and analyse problems in a given real-life situation.		10.3.1 Demonstrate an understanding of the Occupational Health and Safety (OHS) Act where applicable.		10.4.1 Safety and instruments Identify unsafe conditions and acts and apply tools and instruments correctly.	
10.1.2 Describe human rights issues		10.2.2 Generate and/or design possible solutions for problems.		10.3.2 Describe the use and care of tools and measuring instruments.		10.4.2 Electrical applications Construct and comprehend single-phase circuits.	
10.1.3 Describe, explain and respond to basic medical emergencies in context, taking cognizance of health issues such as HIV/Aids.		10.2.3 Make or improve products according to the selected design		10.3.3 Describe the principles of magnetism.		10.4.3 Electronics Construct and comprehend electronic circuits.	X
10.1.4 Identify indigenous knowledge systems of different cultures.		10.2.4 Evaluate the final product against the initial design.		10.3.4 Describe the principles of electricity.		10.4.4 Digital electronics Construct and comprehend digital circuits.	
10.1.5 Describe entrepreneurship and its influence on society and environment		10.2.5 Present assignments by means of a variety of communication media		10.3.5 Describe the principles of electrostatics.			
				10.3.6 Identify and describe the characteristics of electronic components	X		
				10.3.9 Describe the principles of operation and use of power sources.			
				10.3.10			

				Describe basic logic concepts.		
				10.3.11 Describe and compare different types of protective devices.		
				10.3.12 Draw single-phase circuits		
				10.3.13 Describe electronic communication systems		
TEACHER ACTIVITIES		LEARNER ACTIVITIES		RESOURCES	ASSESSMENT	DATE COMPLETED
Show learners different components.		To identify and classify the different components		Electronic Components. Work sheet	Completed work sheet Light current workshop	
Instruct learners to bring examples of uses of electronic components.		To bring examples of electronic devices from home.		Electronic devices	assignment	
Instruct learners to do a case study in groups on electronic devices..		Do case study on electronic devices.		Electronic devices	Case study completed	
Explain symbols, uses and characteristics of the following components: Resistor Capacitor Inductor Diodes LED's Zener diodes		Learners take notes		Hand book / notes	Small test	
Discuss the use of the components in diagrams.		To draw electronic circuits using electronic symbols. Discuss the role of components in existing circuits		Work sheets on practical circuits Light current lab	Completed work sheet	
Discuss the conversion of circuit diagrams to practical applications.		To transfer circuit diagrams on to PC boards.		Work sheet Computer lab	Completed work sheet Project	
Homework: Do exercise in text book.						
Enrichment/Expanded Opportunities: Practical work in workshop.						
Teacher Reflections:						

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SUBJECT: ELECTRICAL TECHNOLOGY		GRADE: 10		LESSON PLAN 3		TERM 3		TIME: 8 HOURS			
CORE CONTENT: Electronic communication systems. Signaling with lamp/buzzer Applications of different systems e.g. wireless channel systems.											
LEARNING OUTCOME 1: TECHNOLOGY SOCIETY AND THE ENVIRONMENT			LEARNING OUTCOME 2: TECHNOLOGICAL PROCESS			LEARNING OUTCOME 3: KNOWLEDGE AND UNDERSTANDING			LEARNING OUTCOME 4: APPLICATION OF KNOWLEDGE		
10.1.1 Describe the interrelationship between technology, society and the environment.		10.2.1 Identify, investigate, define and analyse problems in a given real-life situation.		10.3.1 Demonstrate an understanding of the Occupational Health and Safety (OHS) Act where applicable.		10.4.1 Safety and instruments Identify unsafe conditions and acts and apply tools and instruments correctly.					
10.1.2 Describe human rights issues.		10.2.2 Generate and/or design possible solutions for problems.		10.3.2 Describe the use and care of tools and measuring instruments.		10.4.2 Electrical applications Construct and comprehend single-phase circuits.					
10.1.3 Describe, explain and respond to basic medical emergencies in context, taking cognisance of health issues such as HIV/Aids.		10.2.3 Make or improve products according to the selected design.		10.3.3 Describe the principles of magnetism.		10.4.3 Electronics Construct and comprehend electronic circuits.					
10.1.4 Identify indigenous knowledge systems of different cultures.	X	10.2.4 Evaluate the final product against the initial design.		10.3.4 Describe the principles of electricity.		10.4.4 Digital electronics Construct and comprehend digital circuits.				X	
10.1.5 Describe entrepreneurship and its influence on society and environment.		10.2.5 Present assignments by means of a variety of communication media.		10.3.5 Describe the principles of electrostatics.							
				10.3.6 Identify and describe the characteristics of electronic components.							
				10.3.9 Describe the principles of operation and use of power sources.							

			10.3.10 Describe basic logic concepts.			
			10.3.11 Describe and compare different types of protective devices.			
			10.3.12 Draw single-phase circuits.			
			10.3.13 Describe electronic communication systems.	X		
TEACHER ACTIVITIES		LEARNER ACTIVITIES		RESOURCES	ASSESSMENT	DATE COMPLETED
Explain the advantage of technology with reference to communication		Research the traditional ways of communication and compare them with modern technology		Internet / Resource media	Assignments (Task based)	
Explain electronic communication systems such as signaling with lamp or buzzer (MORSE CODE)		Demonstrate an understanding of circuit diagram containing lamp/ buzzer by interacting, discussing and experimenting in groups.		Light current lab	Work sheet	
Explain the block diagram approach of transmitters and receivers.		Draw the block diagrams and experiment in groups		Light current lab	Work sheet	
Demonstrate how to construct electronic circuits		Construct electronic circuits such as a continuity tester by making use relevant electronic components and a power source. Convert circuit diagrams to practical applications.		Light current lab	Work sheet	
Homework:						
Enrichment/Expanded Opportunities:						
Teacher Reflections:						

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