REPUBLIC OF KENYA

COMPETENCY BASED CURRICULUM

FOR

CARPENTRY AND JOINERY

LEVEL 5

PROGRAMME CODE:0722 554B

TVET CDACC

P.O BOX 15745-00100
NAIROBI

SCIENCE

UNIT CODE: CON/CU/CAJ/CC/03/5/B

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply Science

Duration of Unit: 80 Hours

Unit Description

This unit describes the competence in apply science. It involves applying units of measurements, applying force, work, energy and power, applying friction, applying light and sound, applying Linear motion, applying general chemistry, applying primary and secondary cells, applying thermal properties of matter and applying pressure in fluids

Summary of Learning Outcomes

1. Apply units of measurements
2. Apply Force, work, energy and power
3. Apply Friction
4. Apply Light and sound
5. Apply Linear motion
6. Apply General chemistry
7. Apply primary and secondary cells
8. Apply thermal properties of matter
9. Apply pressure in fluids

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1 Apply units of measurements	• Selection of units of measurement • Conversion of units from one form to another	• Written tests • Oral • Practical tests
2 Apply Force, work, energy and power	• Definition of force, work, energy and power • Application of force, work, energy and power • Law of conservation of energy • Mechanical advantage • Velocity ratio	• Written tests • Oral • Practical tests

	• Calculation of efficiency
	• Examples of simple machines
	  • Levers
	  • Pulleys
	  • Inclined plane
	  • Wheel and axle
	  • Screw
	  • Hydraulic press
	  • Gears	

3 Apply Friction	• Definition of friction • Causes of friction • Advantages and disadvantages of friction • Coefficient of friction • Solving simple problems involving coefficient of friction	• Written tests • Oral Questioning • Practical tests
4 Apply Light and sound	• Nature of light • Dispersion of light • Laws of reflection and refraction • Polarisation of light • Optical instruments • Amplitude, loudness and intensity of sound • velocity of sound • Measurements of velocity • Frequency • Resonance	• Written tests • Oral Questioning • Practical tests
5 Apply Linear motion	• Definition of distance, displacement, speed and velocity and acceleration • Displacement • Interpretation of motion graphs • Scalar and vector quantities • Newton's law of motion • Law of conservation of momentum • Simple calculations of motion	• Written tests • Oral Questioning • Practical tests

6 Apply General chemistry	• Knowledge of experimental techniques • Recognize the structure of atoms • Types of bonds • Formation of bonds • Properties of bonds • Definition of acids, bases and salts • Difference between strong and weak acids and bases • Strength of chemical bonds	• Written tests • Oral Questioning • Practical tests
8 Apply thermal properties of matter	• Sources of heat • Effects of heat on matter • Change of matter as heat varies • methods of heat transfer • Water heating	• Written tests • Oral Questioning • Practical tests
9 Apply pressure in fluids and liquids	• Definition of pressure • Application of pressure • Simple calculations on pressure • Application of atmospheric and liquid pressure • Definition of density and relative density • Variations of pressure • Laws of flotation • Solving simple problems involving liquids of different densities	• Written tests • Oral Questioning • Practical tests

Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos

- Trainee group discussions

Recommended Resources

Tools and equipment

- Laboratory testing equipment
- Laboratory apparatus
- Hand tools
- Machine tools

Materials and supplies

- Construction materials
- Stationery
- Oils
- Cells
- Pins
- Candles
- Acids and bases
- Steel rods
- Iron fillings

Personal protective equipment (PPEs)

- Safety boots
- Goggles
- Gas masks
- Helmets
- Gloves
- Dust coats
- First aid kit
- Ear muffs
- Dust masks
- Overalls