

ENGINEERING SCIENCE PRINCIPLES

UNIT CODE: ENG/CU/AME/CC/03/4

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply Agricultural Engineering Science Principles

Duration of Unit: 30 hours

Unit Description

This unit describes the competencies required by an individual in order to apply a wide range of engineering science principles in their work. It includes carrying out measurements, determining force, work, energy and power. It also involves solving simple problems on friction and identification of characteristics of light and sound. It also involves applying of general chemistry in experiments

Summary of Learning Outcomes

1. Carry out measurements
2. Determine force, work, energy and power
3. Solve simple problems on friction
4. Identify characteristics of light and sound
5. Apply general chemistry in experiments

Learning Outcomes, Content and Suggested Assessment Methods

Learning outcome	Content	Suggested assessment methods
1. Carry out measurements	<ul style="list-style-type: none">• Select appropriate units of measurements• Convert units from one form to another• Carry out simple measurements	<ul style="list-style-type: none">• Written tests• Oral questioning• Assignments• Supervised exercises
2. Determine force, work, energy and power	<ul style="list-style-type: none">• Define force, work, energy and power• Describe forms of energy• Convert energy from one form to another• Solve simple calculations on force, work, energy and power	<ul style="list-style-type: none">• Written tests• Oral questioning• Assignments• Supervised exercises.• Practical tests

3. Solve simple problems on friction	<ul style="list-style-type: none"> • State meaning of friction • Identify the advantages and disadvantages of friction • Solve simple problems on friction 	<ul style="list-style-type: none"> • Assignments • Oral questioning • Supervised exercises • Written tests. • Practical tests
4. Identify characteristics of light and sound	<ul style="list-style-type: none"> • Identify sources of light and sound • State the laws of reflection and refraction • Determine the characteristics of images formed by mirrors • Solve simple problems involving location of images • Describe propagation of sound in a given medium • State the properties of sound 	<ul style="list-style-type: none"> • Assignments • Oral questioning • Practical tests • Observation • Supervised exercises • Written tests
5. Apply general chemistry in experiments	<ul style="list-style-type: none"> • State the classification of matter • Describe the strength of chemical bonds • State the properties of elements and compounds • State the properties of acids and bases • Prepare salts from acids and bases 	<ul style="list-style-type: none"> • Assignments • Supervised exercises • Written tests • Practical test

Suggested Delivery Methods

- Group discussions
- Demonstration by trainer
- Online videos
- Power point presentation
- Exercises by trainee

Recommended Resources

- Scientific Calculators
- Relevant reference materials
- Stationeries
- Relevant practical materials
- Laboratories
- Internet