

BUILDING MATERIALS SCIENCE

UNIT CODE: CON/CU/ARC/CC/03/6/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply Building Materials Science

Duration of Unit: 100 Hours

Unit Description

This unit describes the competence in applying building materials science. It involves identifying essential and properties of construction materials, manufacturing construction materials, selecting quality construction materials, using construction materials properly, testing construction materials and handling construction materials safely.

Summary of Learning Outcomes

1. Identify essential construction materials
2. Identify properties of construction materials
3. Manufacture construction materials
4. Select quality construction materials
5. Use construction materials appropriately
6. Test construction materials
7. Handle construction materials safely

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify essential construction materials	<ul style="list-style-type: none">• Engineering drawings interpretation• Bills of quantities• Construction materials	<ul style="list-style-type: none">• Written tests• Oral questioning• Practical tests• Project
2. Identify properties of construction materials	<ul style="list-style-type: none">• Physical properties of construction materials• Chemical properties of construction materials• Mechanical properties of construction materials	<ul style="list-style-type: none">• Written tests• Oral• Practical tests/Project

3. Manufacture construction materials	<ul style="list-style-type: none"> • Raw materials used in manufacturing construction materials • Procedures of manufacturing construction materials • Plant and equipment used in manufacturing construction materials 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests • Project
4. Select quality construction materials	<ul style="list-style-type: none"> • Properties of quality construction materials • Construction materials Cost and quality relationship • Selection of Construction materials 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests • Project
5. Use construction materials appropriately	<ul style="list-style-type: none"> • Construction methods and processes • Appropriate use of construction materials 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Practical tests • Project
6. Test construction materials	<ul style="list-style-type: none"> • Materials testing parameters <ul style="list-style-type: none"> • Destructive tests • Non-destructive tests • Materials testing procedures • Quality assurance and control 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests • Project
7. Handle construction materials safely	<ul style="list-style-type: none"> • User safety in handling construction materials • Construction Materials handling and storage 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests • Project

Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Projects
- Field trips
- Trainee group discussions

Recommended Resources

Tools and equipment

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

Materials and supplies

- Computer software
- Construction materials
- Computers
- Stationery
- Manufacturer's catalogues

Personal protective equipment (PPEs)

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

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