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| Title | **Perform repairing of home appliances** |
| Level | **2** | **Credits** | **23** |

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| Purpose | N/A |

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| Classification ISCED | 0714 Electronics and automation |

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| Available grade | Competent / Not yet competent |

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| Modification history | N/A |

| **Competency Unit** | **Performance Criteria** | Knowledge and Understanding | Tools & Equipment  |
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| **C1.** Perform test run | ***You must be able to:***1. Check short circuit
2. Connect to mains supply
3. Perform test run as described
4. Note parameters
 | *You need to know and understand:*1. **Explain electrical circuits**
2. **Read instruction manual**
3. **Explain procedure of test run of appliances**
4. **Explain operating specification**
 | **Series board** **Test lamp****Single phase test** **Clamp on meter** **Multi meter** **Insulation tester**  |
| **C2.** Dismantle appliance  | ***You must be able to:***1. Ensure complete isolation
2. Use standard tools according to job
3. Tag the wires of appliances accessories
4. Adopt proper method of dismantling
 | *You need to know and understand:*1. **Read instruction manual**
2. **Identify different tools**
3. **Explain procedure of dismantling of appliances**
4. **Explain wire tagging system**
 | **Screw driver set (Star set)** **Pliers set (combination, cutter, long nose, lock opener,)****Cramping tools set****Ale key set** **Retch wrench set** **Ring spanner set****Open spanner set** **Hacksaw mini****Hacksaw with blade** **Hammer set (400g)****Rubber hammer** **File set** **Puller set** **Torque screw driver set** **De-Soldering gun** **Soldering iron (100w)****Electrician knife** **Multi meter** **Single phase tester**  |
| **C3**. Diagnose fault of appliances  | ***You must be able to:***1. Inspect physical condition
2. Check electrical parts of appliance
3. Check mechanical parts
4. Check control module
5. Check magnetron
6. Check rectifier of magnetron
7. Check front penal
8. Tag faulty component/ parts
 | *You need to know and understand:*1. **Explain working principle of appliances**
2. **Describe functionality of appliances (specification)**
3. **Describe physical parts of appliances**
4. **Explain testing procedure of parts**
5. **Explain electrical circuits and components**
6. **Explain block diagram**

 | **Series board** **Test lamp****Single phase test** **Clamp on meter** **Multi meter** **Insulation tester**  |
| **C4.** Repair of washing machine  | ***You must be able to:***1. Fix rotor set
2. Fix mechanical fault
3. Fix electrical fault
4. Adjust control accessories
5. Align accessories
6. Fix front penal
7. Fix control module
8. Fix leakages
9. Demonstrate test run
 | *You need to know and understand:*1. **Explain wash phenomena**
2. **Explain method of mechanical fixing fault**
3. **Explain method of electrical fixing fault**
4. **Explain adjustment of accessories**
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| **C5.** Repair of microwave | ***You must be able to:***1. Fix safety fuse
2. Fix mechanical fault
3. Fix electrical fault
4. Adjust control accessories
5. Align accessories
6. Fix control module
7. Fix magnetron
8. Demonstrate test run
 | *You need to know and understand:*1. **Explain working principle of magnetron**
2. **Explain heating process of microwave**
3. **Explain safety precaution of high voltage accessories**
4. **Explain method of mechanical fixing fault**
5. **Explain method of electrical fixing fault**
6. **Explain adjustment of accessories**
7. **Explain thermostat device**
8. **Explain rectification**
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| **C6.** Repair electrical Iron | ***You must be able to:***1. Fix de-scaling of surface
2. Fix nozzles
3. Fix thermostat
4. Fix electrical fault
5. Adjust control accessories
6. Demonstrate test run
 | *You need to know and understand:*1. **Explain working principle of Iron**
2. **Explain heating process of Iron**
3. **Explain de-scaling process**
4. **Explain safety precaution of high temperature/ voltage accessories**
5. **Explain method of mechanical fixing fault**
6. **Explain method of electrical fixing fault**
7. **Explain adjustment of accessories**
8. **Explain thermostat device**

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| **C7.** Repair of vacuum cleaner | ***You must be able to:***1. Clean filter
2. Fix housing
3. Fix electrical fault
4. Adjust control accessories
5. Demonstrate test run
 | *You need to know and understand:*1. **Explain working principle of vacuum cleaner**
2. **Explain method of mechanical fault fixing**
3. **Explain method of electrical fault fixing**
4. **Explain adjustment of accessories**
5. **Explain speed control process**

 | **Micron gauge** **Tachometer**  |
| **C8.** Repair of fans | ***You must be able to:***1. Fix motor bushes
2. Perform lubrication
3. Fix mechanical faults
4. Align fan blade
5. Align parts and accessories
6. Fix electrical fault
7. Fix control parts
8. Adjust control accessories
9. Demonstrate test run
 | *You need to know and understand:*1. **Explain working principle of motor**
2. **Explain method of mechanical fault fixing**
3. **Explain method of electrical fault fixing**
4. **Explain adjustment of accessories**

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| **C9.** Repair of emergency light  | ***You must be able to:***1. Fix rectification section
2. Fix switching section
3. Fix output section
4. Fix PCB
5. Fix electrical fault
6. Fix control module
7. Demonstrate test run
 | *You need to know and understand:*1. **Explain emergency light working procedure**
2. **Explain batteries**
3. **Explain rectification**
4. **Read circuit diagram**
5. **Explain diode, LEDs, PCB**
6. **Explain transistor basics**
7. **Explain testing procedure of electronics components**

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| **C10.** Repair of toaster  | ***You must be able to:***1. Fix thermostat
2. Fix spring
3. Fix mechanical faults
4. Align parts and accessories
5. Fix electrical fault
6. Fix control parts
7. Adjust control accessories
8. Demonstrate test run
 | *You need to know and understand:*1. **Explain working principle of toaster**
2. **Explain safety precautions of toaster**
3. **Explain method of mechanical fault fixing**
4. **Explain method of electrical fault fixing**
5. **Explain adjustment of accessories**

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| **C11.** Repair of kitchen appliances | ***You must be able to:***1. Fix carbon brushes
2. Fix leakage seals
3. Fix armature bushes
4. Fix mechanical fault
5. Fix electrical fault
6. Adjust control accessories
7. Align accessories
8. Fix front penal
9. Demonstrate test run
 | *You need to know and understand:*1. **Explain working principle of motor**
2. **Explain method of mechanical fixing fault**
3. **Explain method of electrical fixing fault**
4. **Explain adjustment of accessories**
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| **C12.** Assemble appliance | ***You must be able to:***1. Ensure standard tools according to job
2. Make internal connections
3. Perform proper method of assembling
4. Check physical condition of appliances
5. Perform leakage test
6. Check mains supply
7. Perform test run
8. Demonstrate appliances
 | *You need to know and understand:*1. **Describe Identification of different tools**
2. **Explain Usage of different tools & equipment**
3. **Explain internal wiring diagram**
4. **Explain procedure of assembling**
5. **Explain procedure of test run**
6. **Explain demonstration of appliances**
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