

**071506T4MTM**

**MECHANICAL TECHNOLOGY AND MAINTENANCE TECHNICIAN LEVEL 6**

**ENG/OS/MEM/CR/03/6**

**Perform Oxy-Acetylene Gas Welding and Cutting**

**July/August 2025**



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL  
(TVET CDACC)**

### **OBSERVATION CHECKLIST**

#### **INSTRUCTIONS TO ASSESSOR**

1. You are required to guide the candidate on duration of this assessment as per the department's practical assessment schedule for this unit as the assessment is to be done continuously during training.
2. Assess the candidate as the practical progresses observing the critical areas.
3. You are required to mark the practical as the candidate performs the tasks.
4. You are required to take video clips at critical points.
5. Ensure the candidate has a name tag and registration code at the back and front

## OBSERVATION AND PRODUCT CHECKLIST

|  |                        |                       |                 |
|--|------------------------|-----------------------|-----------------|
| <b>Candidate's Name &amp; Registration Code</b>  |                        |                       |                 |
| <b>Assessors Name &amp; Registration Code</b>  |                        |                       |                 |
| <b>Venue of Assessment</b>   |                        |                       |                 |
| <b>Date of Assessment</b>  |                        |                       |                 |
| <b>Items to be Evaluated:</b> <i>Please award marks as appropriate. Give a brief comment on your observation.</i>  | <b>Marks Available</b> | <b>Marks Obtained</b> | <b>Comments</b> |
|  |                        |                       |                 |
| <b>FABRICATION OF COMPONENT 1</b>  |                        |                       |                 |
| <b>OBSERVATION CHECKLIST</b>   |                        |                       |                 |
| 1. Adhered to workplace safety precautions;<br>a. Wore Personal Protective Equipment (PPE)<br>i. Welding goggles<br>ii. Welding apron<br>iii. Safety boots<br>iv. Welding gloves<br><i>(Award 1 mark or zero for each)</i>   | 1<br>1<br>1<br>1       |                       |                 |
| 2. Set up gas welding equipment;<br>a. Connected gas hoses<br>b. Pressure setting:<br>i. Checked constant oxygen gas flow<br>ii. Checked constant acetylene gas flow<br>c. Lighting up:<br>(Opened and lit up acetylene gas, followed by oxygen gas)<br>d. Shutting off blowpipe:<br>i. Closed acetylene valve first<br>ii. Then closed oxygen valve<br>e. Closing down: | 2<br>1<br>1<br>1<br>1  |                       |                 |

|  |   |  |  |
|--|---|--|--|
| <ul style="list-style-type: none"> <li>i) Closed down both cylinder valves</li> <li>ii) Opened oxygen blowpipe valve to drain oxygen out</li> <li>iii) Closed oxygen blowpipe valve</li> <li>iv) Opened acetylene blowpipe valve to drain it out</li> <li>v) Close acetylene blowpipe valve</li> <li>f. Hanged up the welding blowpipe and hoses</li> </ul> <p style="text-align: center;"><i>(Award marks as indicated or 0 )</i></p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> |  |  |
| <p>3. Performed welding positions as per the drawing;</p> <ul style="list-style-type: none"> <li>a. 1G</li> <li>b. 2G</li> <li>c. 2F</li> <li>d. 3G</li> <li>e. 3F</li> <li>f. 5G</li> </ul> <p style="text-align: center;"><i>(Award 1 mark or zero for each)</i></p>   | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> |  |  |
| <p>4. Inspected and filled the '<i><b>candidates inspection checklist</b></i>' Appendix 1 on the candidate tool. (6 ×1)</p> <p style="text-align: center;"><i>(Award 1 mark for each identified measurement on appendix 1 in the candidate's tool)</i></p>   | <p><b>6</b></p>                                       |  |  |
| <p>5. Perform housekeeping</p> <ul style="list-style-type: none"> <li>a. Cleaned weld table and floor after welding</li> <li>b. Returned unused materials to the store</li> <li>c. Returned tools for storage after</li> </ul>   | <p>1</p> <p>1</p>                                     |  |  |

|  |                        |                       |                 |
|--|------------------------|-----------------------|-----------------|
| welding<br>(Award 1 mark or zero for each)   | 1                      |                       |                 |
| <b>SUB-TOTAL</b>   | <b>32</b>              |                       |                 |
| <b>PRODUCT CHECKLIST</b>   |                        |                       |                 |
| <b>Items to be Evaluated:</b> <i>Please award marks as appropriate. Give a brief comment on your observation.</i>  | <b>Marks Available</b> | <b>Marks Obtained</b> | <b>Comments</b> |
| 6. Prepared work pieces according to task specifications:<br>a. Dimensions:<br><b>Note. All dimensions are in mm</b><br><b>Linear tolerance: <math>\pm 0.5</math> mm</b><br>i. 100 (20 $\times$ 1)                      20<br>ii. 50 (8 $\times$ 1)                              8<br>b. Squareness of work pieces<br>i. 100 $\times$ 100 (8 $\times$ 1)                      8<br>ii. 100 $\times$ 50 (4 $\times$ 1)                      4<br>c. Prepared bevel on workpieces<br>i. 100 $\times$ 100 (4 $\times$ 1)                      4<br>ii. 100 $\times$ 50 (2 $\times$ 1)                      2<br>(Award 1 mark or zero for each) |                        |                       |                 |

|      |   |           |  |  |
|------|---|-----------|--|--|
| 7.   | Performed oxyacetylene gas welding                |           |  |  |
| a.   | Open corner joint (in at least one of the joints) |           |  |  |
| i.   | Uniform start and end                             | 1         |  |  |
| ii.  | No porosity                                       | 1         |  |  |
| iii. | No undercut                                       | 1         |  |  |
| iv.  | Welded at right angle                             | 1         |  |  |
| v.   | Good penetration                                  | 1         |  |  |
|      | <i>(Award 1 mark or zero for each)</i>            |           |  |  |
| b.   | Butt joint (in at least one of the joints)        |           |  |  |
| i.   | Flatness  | 1         |  |  |
| ii.  | Uniform start and end                             | 1         |  |  |
| iii. | No porosity                                       | 1         |  |  |
| iv.  | No overlap  | 1         |  |  |
| v.   | No undercut                                       | 1         |  |  |
|      | <i>(Award 1 mark or zero for each)</i>            |           |  |  |
| c.   | Tee fillet joint (pipe on plate)                  |           |  |  |
| i.   | Welded at right angle ( $90^0 \pm 1$ )            | 1         |  |  |
| ii.  | Correct buildup of beads                          | 1         |  |  |
| iii. | Uniform start and end                             | 1         |  |  |
| iv.  | No porosity                                       | 1         |  |  |
| v.   | No undercut                                       | 1         |  |  |
|      | <i>(Award 1 mark or zero for each)</i>            |           |  |  |
| 8.   | Assembly  |           |  |  |
| a.   | Welded as per working drawing                     | 1         |  |  |
| b.   | Welded as per weld symbols                        | 1         |  |  |
|      | <i>(Award 1 mark or zero for each)</i>            |           |  |  |
|      | <b>SUB-TOTAL</b>                                  | <b>63</b> |  |  |
|      | <b>TOTAL (Task 1)</b>                             | <b>98</b> |  |  |



|   |   |                     |                |
|---|---|---------------------|----------------|
| b. 3F<br>c. 2F<br>d. 4F<br><br>(Award 1 mark or zero for each   | 1<br>1<br>1   |                     |                |
| 12. Inspected and filled the ' <b><i>candidates inspection checklist</i></b> ' <b>Appendix 2</b> on the candidate tool.<br><br>(6 × 1)<br><br>(Award 1 mark for each identified measurement on appendix 2 in the candidate's tool.)   | 6   |                     |                |
| 13. Perform housekeeping<br>a. Cleaned weld table and floor after welding<br>b. Returned unused materials to the store<br>c. Returned tools for storage after welding   | 1<br>1<br>1   |                     |                |
| 14. (Award 1 mark or zero for each)   |   |                     |                |
| <b>SUB TOTAL</b>  | <b>23</b>   |                     |                |
| <b>PRODUCT CHECKLIST</b>  |   |                     |                |
| <b>Items to be Evaluated:</b> Please award marks as appropriate. Give a brief comment on your observation.  | <b>Max-marks</b>  | <b>Actual-marks</b> | <b>Comment</b> |
| 15. Prepared work pieces according to task specifications:<br>a. Dimensions:<br><b>Note. All dimensions are in mm</b><br><b>Linear tolerance: ± 0.5 mm</b><br>i. 100 (10 × 1)<br>ii. 50 (2 × 1)<br>iii. 70 (2 × 1)<br>b. Squareness of work pieces<br>i. 100 × 80 (2 × 1)<br>ii. 100 × 50 (1 × 1) | <b>10</b><br><b>2</b><br><b>2</b><br><b>2</b><br><b>1</b> |                     |                |

|  |                       |  |  |
|--|-----------------------|--|--|
| iii. 100 × 70 (2 × 1)<br>c. Prepared bevel on workpieces<br>i. 100 × 70 (2 × 1)<br><i>(Award marks as indicated or zero for each)</i>  | <b>2</b>              |  |  |
| 16. Performed oxyacetylene gas welding<br>a. Corner joint<br>i. Welded at right angle ( $90^0 \pm 1$ )<br>ii. Correct buildup of beads<br>iii. Uniform start and end<br>iv. No porosity<br>v. No undercut<br><i>(Award 2 marks or zero for each)</i> | 2<br>2<br>2<br>2<br>2 |  |  |
| b. Tee joint<br>i. Welded at right angle ( $90^0 \pm 1$ )<br>ii. Correct buildup of beads<br>iii. Uniform start and end<br>iv. No porosity<br>v. No undercut<br><i>(Award 2 marks or zero for each)</i>  | 2<br>2<br>2<br>2<br>2 |  |  |
| c. Lap joint<br>i. Lap 20 mm<br>ii. Correct build-up of beads<br>iii. Uniform start and end<br>iv. No porosity<br>v. No undercut<br><i>(Award 2 marks or zero for each)</i>  | 2<br>2<br>2<br>2<br>2 |  |  |

|   |           |  |  |
|---|-----------|--|--|
| d. Butt joint                           |           |  |  |
| i. Correct buildup of beads             | 2         |  |  |
| ii. Uniform start and end               | 2         |  |  |
| iii. No porosity                        | 2         |  |  |
| iv. No undercut                         | 2         |  |  |
| v. Flatness                             | 2         |  |  |
| <i>(Award 2 marks or zero for each)</i> |           |  |  |
| 17. Assembly                            |           |  |  |
| a. Welded as per working drawing        | 1         |  |  |
| b. Welded as per weld symbols           | 1         |  |  |
| <i>(Award 1 mark or zero for each)</i>  |           |  |  |
| <b>SUBTOTAL</b>                         | <b>66</b> |  |  |
| <b>TOTAL Task 2</b>                     | <b>92</b> |  |  |

|  |             |  |  |
|--|-------------|--|--|
| <b>GRAND TOTAL (TASK 1 +TASK 2)</b>                                    | <b>190</b>  |  |  |
| <b>CANDIDATE GRAND SCORE ( <math>\frac{x}{190} \times 100</math> )</b> | <b>100%</b> |  |  |

**The candidate was found to be:**

Competent  Not yet competent

*(Please tick as appropriate)*

*(The candidate is competent if s/he gets 50% and above)*

**Feedback from candidate:**

.....

**Feedback to candidate:**

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|                               |              |
|-------------------------------|--------------|
| <b>Candidate's signature:</b> | <b>Date:</b> |
| .....                         | .....        |

|                                |                    |
|--------------------------------|--------------------|
| <b>Assessor's signature: -</b> | <b>Date:</b> _____ |
|--------------------------------|--------------------|