

**OCTORARA MECHANICAL SYSTEMS CAREER & TECHNICAL EDUCATION**

**YEAR 1**

| <b>CURRICULUM SECTION &amp; CODE</b>  | <b>UNIT NAME</b>  | <b>POS Task Grid</b>   |
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| III. Engine Knowledge<br><br>Service Technician:<br><ul style="list-style-type: none"> <li>● Engine Systems: 2 &amp; 4 Stroke</li> <li>● Engines Systems: Diesel</li> </ul>                 | Prior Engine Knowledge  | 1401, 1402, 1403, 1404, 1405, 1407, 1408, 1410, 1414, 1415, 1416, 1417, 1418, 1001, 1002, 1007, 1008, 1101, 1102, 1701, 103<br>Service Technician Task List:<br>301, 302, 308, 401   |
| Service Technician:<br><ul style="list-style-type: none"> <li>● Interpersonal Skills</li> <li>● Safety</li> </ul>   | Career Development  | 103<br>Service Technician Task List:<br>101, 102, 103, 104, 105  |
| Service Technician:<br><ul style="list-style-type: none"> <li>● Engine Systems: 2 &amp; 4 Stroke</li> <li>● Engines Systems: Diesel</li> </ul>  | Tools & Parts of a Gas & Diesel Engine  | 1410, 1414, 1415, 1416, 1417, 1418, 1101, 1102, 1701<br>Service Technician Task List:<br>303, 402, 403, 404, 53  |
|   | Procedures & Operating Instructions of Tools & Parts of a Gas & Diesel Engine   | 1301, 1302, 1303, 1304, 1305<br>Service Technician Task List:<br>309, 310, 405, 406, 407, 54   |
|   | Inventory Methods of Tools & Parts of a Gas & Diesel Engine   | 301, 602, 103, 1406, 1409, 1415, 1416, 1417<br>Service Technician Task List:<br>309, 403, 404, 53, 54  |
|   | Knowledge of Setting Up & Adjusting Tools & Equipment   | 1100, 1400<br>Service Technician Task List:<br>307, 201, 208   |
|   | Functions of a Gas & Diesel Engine  | 1401, 1402, 1403, 1404, 1405, 1407, 1408, 1410, 1413 1414, 1415, 1416, 1417, 1418, 1701, 103<br>Service Technician Task List:<br>302, 304  |
| Service Technician:<br><ul style="list-style-type: none"> <li>● Engine Systems: 2 &amp; 4 Stroke</li> <li>● Engines Systems: Diesel</li> <li>● Problem Solving/Critical Thinking</li> </ul> | Core Mechanic Skills of a Gas & Diesel Engine<br><br>Understanding the Troubleshooting, Repair, Service & Maintenance Process of Gas & Diesel Engines | 1301, 1302, 1303, 1304, 1305, 1102, 1103, 1106, 1405, 1410, 1412, 1413, 1414, 1415, 1416, 1417, 1418<br>Service Technician Task List:<br>306, 305, 307, 309, 310, 405, 406, 407, 303, 54, 901, 902, 903, 904, 905, 906, 907, 908 |
|   | Applying Tools & Parts of a Gas Engine to Make it Function Properly   | 301, 602, 103, 1406, 1409, 1411, 1412, 1414, 1415, 1416, 1417, 1418<br>Service Technician Task List:<br>302, 304, 901, 902, 903, 904, 905, 906, 907, 908   |
| IV. Machinery & Equipment, Farm Equipment Systems<br><br>Service Technician:<br><ul style="list-style-type: none"> <li>● Problem Solving/Critical Thinking</li> </ul>                       | Procedures, Safety, & Identification of Equipment   | 1501, 1601, 1602   |
|   | Manually Apply Theory to Fix Equipment/   | 1502, 1503, 1602, 1604, 1612, 1613   |

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|  | Machinery.  | Service Technician Task List:<br>54   |
|  | Process in Fixing a Problem with Equipment/ Machinery.  | 1504, 1603, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613<br>Service Technician Task List:<br>901, 902, 903, 904, 905, 906, 907, 908 |
|  | Procedures, Safety, & Identification of Equipment Procedures & Operations.  | 501<br>Service Technician Task List:<br>54  |
| V. Supervised Agricultural Experience  | Short & Long Term Project Plans<br><br>Develop a Supervised Agricultural Experience (SAE) Based on Career Goals       | 101, 102  |
| Service Technician:<br>● Basic Math<br>● Computer and Software Access or Retrieve Data | Record Keeping  | 103<br>Service Technician Task List:<br>51, 52  |
|  | Research Project using Scientific Method  | 104, 105  |
| VI. Manage Natural Resources   | Renewable & Nonrenewable Resources  | 801   |
|  | Soil Erosion  | 802   |
|  | Hydrologic Cycle  | 803   |
|  | Land Uses   | 804   |
| VII. Historical Application & Future Implications of Agricultural Power & Systems      | Historical Development of Agricultural Power & Systems Technologies   | 900   |
| Service Technician:<br>Precision Agriculture Systems                                   | Global Applications of Agricultural Power & Systems Technologies<br><br>Introduction of Precision Agriculture Systems | 902<br>Service Technician Task List:<br>701   |
|  | Identify Emerging Technologies and Their Potential Impact   | 903   |
|  | Identify Method of changing Appropriate Technology for Various Applications (six, social and cultural)                | 904   |

**OCTORARA MECHANICAL SYSTEMS CAREER & TECHNICAL EDUCATION**

**YEAR 2**

| <b>CURRICULUM SECTION &amp; CODE</b>  | <b>UNIT NAME</b>  | <b>POS Task Grid</b>  |
|---|---|---|
| I. Safety   | Safety within the Agriculture Lab   | 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009<br>Equipment Service Technician Task: 201, 202, 203, 204, 205, 206, 207, 208   |
| II. Material Fabrication & Welding  | Welding Safety  | Equipment Service Technician Task: 805  |
|   | Welding Symbols & Blueprint Reading   | 1201, 1202, 1203, 1204, 1205<br>Service Technician Task: 801, 802, 54   |
|   | Welding Processes<br>Mig, Tig, Gas, Stick, Plasma Cutting                     | 1203, 1204, 1209, 1208<br>Service Technician Task: 803  |
|   | Soldering Equipment   | 1205<br>Service Technician Task: 804  |
| III. Engine Knowledge<br><br>Service Technician:<br><ul style="list-style-type: none"> <li>● Engine Systems: 2 &amp; 4 Stroke</li> <li>● Engines Systems: Diesel</li> </ul> | Prior Engine Knowledge  | 1401, 1402, 1403, 1404, 1405, 1407, 1408, 1410, 1414, 1415, 1416, 1417, 1418, 1001, 1002, 1007, 1008, 1101, 1102, 1701, 103<br>Service Technician Task List: 301, 302, 308, 401 |
| Service Technician:<br><ul style="list-style-type: none"> <li>● Interpersonal Skills</li> <li>● Safety</li> </ul>   | Career Development  | 103<br>Service Technician Task List: 101, 102, 103, 104, 105  |
| Service Technician:<br><ul style="list-style-type: none"> <li>● Engine Systems: 2 &amp; 4 Stroke</li> <li>● Engines Systems: Diesel</li> </ul>                              | Tools & Parts of a Gas & Diesel Engine  | 1410, 1414, 1415, 1416, 1417, 1418, 1101, 1102, 1701<br>Service Technician Task List: 303, 402, 403, 404, 53  |
|   | Procedures & Operating Instructions of Tools & Parts of a Gas & Diesel Engine | 1301, 1302, 1303, 1304, 1305<br>Service Technician Task List: 309, 310, 405, 406, 407, 54   |
|   | Inventory Methods of Tools & Parts of a Gas & Diesel Engine                   | 301, 602, 103, 1406, 1409, 1415, 1416, 1417<br>Service Technician Task List: 309, 403, 404, 53, 54  |
|   | Knowledge of Setting Up & Adjusting Tools & Equipment                         | 1100, 1400<br>Service Technician Task List: 307, 201, 208   |
|   | Functions of a Gas & Diesel Engine  | 1401, 1402, 1403, 1404, 1405, 1407, 1408, 1410, 1413 1414, 1415, 1416, 1417, 1418, 1701, 103<br>Service Technician Task List: 302, 304  |
| Service Technician:<br><ul style="list-style-type: none"> <li>● Engine Systems: 2 &amp; 4 Stroke</li> </ul>   | Core Mechanic Skills of a Gas & Diesel Engine                                 | 1301, 1302, 1303, 1304, 1305, 1102, 1103, 1106, 1405, 1410, 1412, 1413,   |

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| <ul style="list-style-type: none"> <li>Engines Systems: Diesel</li> <li>Problem Solving/Critical Thinking</li> </ul>  | Understanding the Troubleshooting, Repair, Service & Maintenance Process of Gas & Diesel Engines                      | 1414, 1415, 1416, 1417, 1418<br>Service Technician Task List:<br>306, 305, 307, 309, 310, 405, 406, 407, 303, 54, 901, 902, 903, 904, 905, 906, 907, 908 |
|   | Applying Tools & Parts of a Gas Engine to Make it Function Properly   | 301, 602, 103, 1406, 1409, 1411, 1412, 1414, 1415, 1416, 1417, 1418<br>Service Technician Task List:<br>302, 304, 901, 902, 903, 904, 905, 906, 907, 908 |
| IV. Machinery & Equipment, Farm Equipment Systems<br><br>Service Technician:<br><ul style="list-style-type: none"> <li>Problem Solving/Critical Thinking</li> </ul>                     | Procedures, Safety, & Identification of Equipment   | 1501, 1601, 1602   |
|   | Manually Apply Theory to Fix Equipment/ Machinery.  | 1502, 1503, 1602, 1604, 1612, 1613<br>Service Technician Task List:<br>54  |
|   | Process in Fixing a Problem with Equipment/ Machinery.  | 1504, 1603, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613<br>Service Technician Task List:<br>901, 902, 903, 904, 905, 906, 907, 908              |
|   | Procedures, Safety, & Identification of Equipment Procedures & Operations.  | 501<br>Service Technician Task List:<br>54   |
| V. Supervised Agricultural Experience<br><br>Service Technician:<br><ul style="list-style-type: none"> <li>Basic Math</li> <li>Computer and Software Access or Retrieve Data</li> </ul> | Record Keeping  | 101, 102, 103<br>Service Technician Task List:<br>51, 52   |
|   | Research Project using Scientific Method  | 104, 105   |
| VII. Service Technician:<br>Precision Agriculture Systems   | Global Applications of Agricultural Power & Systems Technologies<br><br>Introduction of Precision Agriculture Systems | 902<br>Service Technician Task List:<br>701  |
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| CURRICULUM SECTION & CODE                  | UNIT NAME                           | POS Task Grid                            |
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| I. Plumbing, Irrigation, and Water Systems | Career Development                  |  |
|  | Identify Plumbing Tools & Functions | 2001, 2003, 2004, 2005, 2101, 2105       |
|  | Irrigation                          | 2001, 2001, 2003, 2004, 2005, 2101, 2105 |

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| II. Structural Systems | Understanding general principles, equipment, techniques and processes of site surveying. | 1801, 1802, 1803   |
|                        | Understanding Construction Codes, Regulations & Contract                                 | 1301, 1302, 1303, 1304, 1305, 1803, 1804, 1805, 1806, 1807 |
|                        | Identify and evaluate building construction materials, methods and styles.               | 1808, 1809   |
|                        | Interpret Plans & Drawings   |  |
|                        | Designing & Forming Concrete Construction  |  |

**OCTORARA MECHANICAL SYSTEMS CAREER & TECHNICAL EDUCATION  
YEAR 3**

| <b>CURRICULUM SECTION &amp; CODE</b>  | <b>UNIT NAME</b>  | <b>POS Task Grid</b>   |
|---|---|--|
| II. Safety  | Safety within the Agriculture Lab   | 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009<br>Equipment Service Technician Task:<br>201, 202, 203, 204, 205, 206, 207, 208   |
| II. Material Fabrication & Welding  | Welding Safety  | Equipment Service Technician Task:<br>805  |
|   | Welding Symbols & Blueprint Reading   | 1201, 1202, 1203, 1204, 1205<br>Service Technician Task:<br>801, 802, 54   |
|   | Welding Processes<br>Mig, Tig, Gas, Stick, Plasma Cutting                     | 1203, 1204, 1209, 1208<br>Service Technician Task:<br>803  |
|   | Soldering Equipment   | 1205<br>Service Technician Task:<br>804  |
| III. Engine Knowledge<br><br>Service Technician:<br>● Engine Systems: 2 & 4 Stroke<br>● Engines Systems: Diesel | Prior Engine Knowledge  | 1401, 1402, 1403, 1404, 1405, 1407, 1408, 1410, 1414, 1415, 1416, 1417, 1418, 1001, 1002, 1007, 1008, 1101, 1102, 1701, 103<br>Service Technician Task List:<br>301, 302, 308, 401 |
| Service Technician:<br>● Interpersonal Skills<br>● Safety   | Career Development  | 103<br>Service Technician Task List:<br>101, 102, 103, 104, 105  |
| Service Technician:<br>● Engine Systems: 2 & 4 Stroke<br>● Engines Systems: Diesel                              | Tools & Parts of a Gas & Diesel Engine  | 1410, 1414, 1415, 1416, 1417, 1418, 1101, 1102, 1701<br>Service Technician Task List:<br>303, 402, 403, 404, 53  |
|   | Procedures & Operating Instructions of Tools & Parts of a Gas & Diesel Engine | 1301, 1302, 1303, 1304, 1305<br>Service Technician Task List:  |

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|---|---|--|
|   |   | 309, 310, 405, 406, 407, 54  |
|   | Inventory Methods of Tools & Parts of a Gas & Diesel Engine   | 301, 602, 103, 1406, 1409, 1415, 1416, 1417<br>Service Technician Task List:<br>309, 403, 404, 53, 54  |
|   | Functions of a Gas & Diesel Engine  | 1401, 1402, 1403, 1404, 1405, 1407, 1408, 1410, 1413 1414, 1415, 1416, 1417, 1418,1701, 103<br>Service Technician Task List:<br>302, 304   |
| Service Technician:<br><ul style="list-style-type: none"> <li>● Engine Systems: 2 &amp; 4 Stroke</li> <li>● Engines Systems: Diesel</li> <li>● Problem Solving/Critical Thinking</li> </ul> | Core Mechanic Skills of a Gas & Diesel Engine<br><br>Understanding the Troubleshooting, Repair, Service & Maintenance Process of Gas & Diesel Engines | 1301, 1302, 1303, 1304, 1305, 1102, 1103, 1106, 1405, 1410, 1412, 1413, 1414, 1415, 1416, 1417, 1418<br>Service Technician Task List:<br>306, 305, 307, 309, 310, 405, 406, 407, 303, 54, 901, 902, 903, 904, 905, 906, 907, 908 |
|   | Applying Tools & Parts of a Gas Engine to Make it Function Properly   | 301, 602, 103, 1406, 1409, 1411, 1412, 1414, 1415, 1416, 1417, 1418<br>Service Technician Task List:<br>302, 304, 901, 902, 903, 904, 905, 906, 907, 908   |
| IV. Machinery & Equipment, Farm Equipment Systems<br><br>Service Technician:<br><ul style="list-style-type: none"> <li>● Problem Solving/Critical Thinking</li> </ul>                       | Manually Apply Theory to Fix Equipment/ Machinery.  | 1502, 1503, 1602, 1604, 1612, 1613<br>Service Technician Task List:<br>54  |
|   | Process in Fixing a Problem with Equipment/ Machinery.  | 1504, 1603, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613<br>Service Technician Task List:<br>901, 902, 903, 904, 905, 906, 907, 908  |
|   | Procedures, Safety, & Identification of Equipment Procedures & Operations.  | 501<br>Service Technician Task List:<br>54   |
| V. Supervised Agricultural Experience<br><br>Service Technician:<br><ul style="list-style-type: none"> <li>● Basic Math</li> <li>● Computer and Software Access or Retrieve Data</li> </ul> | Record Keeping  | 101, 102, 103<br>Service Technician Task List:<br>51, 52   |
|   |   | 104, 105   |
| VII. Service Technician:<br>Precision Agriculture Systems   | Global Applications of Agricultural Power & Systems Technologies<br><br>Introduction of Precision Agriculture Systems                                 | 902<br>Service Technician Task List:<br>701  |

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