## PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION

### Career Cluster: Agriculture, Food and Natural Resources

### Program Name: Agricultural Mechanization, General  
CIP: 010201  
National Standard: National Career Clusters  
Effective 9/2015

### Competencies

(Statement that provides the overview and defines the instructional area)

### Knowledge, Content and Skills

(What a student needs to know and be able to do and upon which they will be assessed)

<table>
<thead>
<tr>
<th>Student will:</th>
<th>NH Common Core State Standards – Aligned</th>
<th>Rating Scale -Sample Performance Assessments</th>
<th>Student will:</th>
</tr>
</thead>
</table>
| Understand physical science principles as they relate to engineering applications with mechanical equipment, structures, biological systems, land treatment, power utilization, and technology in order to make environmentally sound decisions. | [http://www.education.nh.gov/career/career/aaoi.htm](http://www.education.nh.gov/career/career/aaoi.htm)  
[http://www.careertech.org/career-ready-practices](http://www.careertech.org/career-ready-practices) | Performance tasks the student needs to demonstrate in order to be rated proficient in meeting the competency | |

1. **Identify petroleum sources (e.g., gasoline, diesel).**  
   - ELA: 2, 4, 6, 7, 8, 9  
   - M: 1, 2, 6, 16, 17, 19  
   - Rating Scale: 1 = NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)  
   - For Example:  
     You are farm manager. You are faced with increasing energy costs and regulations. The property you manage has a stream and pond on the property, located on hilly terrain. You must research and develop an energy plan for the property that will be cost efficient and be environmentally responsible. You must present your findings to the owners of the farm. Include #1-5

2. **Identify alternative sources (e.g., ethanol, biodiesel, air, and wood, geothermal, solar).**  
   - ELA: 2, 4, 6, 7, 8, 9  
   - M: 1, 2, 6, 16, 17, 19  
   - For Example:  

3. **Compare environmental impact of energy sources.**  
   **CRP:** Consider the environmental, social and economic impacts of decisions  
   - ELA: 2, 4, 6, 7, 8, 9  
   - M: 1, 2, 6, 16, 17, 19  
   - For Example:  

4. **Compare efficiency of energy source.**  
   **CRP:** Employ valid and reliable research strategies.  
   - ELA: 2, 4, 6, 7, 8, 9  
   - M: 1, 2, 6, 16, 17, 19  
   - For Example:  

5. **Compare characteristics of energy source.**  
   - ELA: 2, 4, 6, 7, 8, 9  
   - M: 1, 2, 6, 16, 17, 19  
   - For Example:  

### Key: Rating Scale

- 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

### Common Core:

E=English/Language Arts (Reading, Writing, Research, Listening Speaking, Technology)  
M=Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat&Prob)

### All Aspects of Industry (AAI) | Career Ready Practices (CRP)
## Program Competency Profile for Career Technical Education
### Program Name: Agricultural Mechanization, General  CIP: 010201
### Career Cluster: Agriculture, Food and Natural Resources

**National Standard:** National Career Clusters

<table>
<thead>
<tr>
<th>Competencies</th>
<th>Knowledge, Content and Skills (what a student needs to know and be able to do and upon which they will be assessed)</th>
<th>Rating Scale - Sample Performance Assessments (Performance tasks the student needs to demonstrate in order to be rated proficient in meeting the competency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student will:</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Student will:</strong></td>
<td>6. Classify lubricants and determine applications.</td>
<td><strong>For Example:</strong> You are a salesperson for a John Deere dealership. In order to increase your sales, you arrange to visit agricultural businesses in your sales area. Your purpose is to sell your products. You must produce a brochure or chart that describes, compares, and contrasts the lubricants of all the major companies, convincing the owners your product is the best. Include #6-8</td>
</tr>
<tr>
<td></td>
<td>7. Identify viscosity and strengths of lubricants.</td>
<td><strong>For Example:</strong></td>
</tr>
<tr>
<td></td>
<td>8. Describe properties of lubricants.</td>
<td><strong>For Example:</strong></td>
</tr>
<tr>
<td></td>
<td>9. Lubricate machinery and equipment.</td>
<td><strong>For Example:</strong> You are employed by an equipment dealership as a mechanic. One of your duties is to service a tractor. As part of your evaluation for consideration for a raise, you must perform a complete service in front of the service manager. Include #9-15.</td>
</tr>
<tr>
<td></td>
<td>10. Ensure presence and function of safety systems and hardware.</td>
<td><strong>For Example:</strong></td>
</tr>
</tbody>
</table>

**Key: Rating Scale:**

1 = NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

**Common Core:** E = English/Language Arts (Reading, Writing, Research, Listening, Speaking, Technology)  | M = Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat&Prob)  

**All Aspects of Industry (AAI) | Career Ready Practices (CRP)**

---

Page 2 of 7
### Program Competency Profile for Career Technical Education

**Career Cluster:** Agriculture, Food and Natural Resources

**Program Name:** Agricultural Mechanization, General  
**CIP:** 010201

**National Standard:** National Career Clusters

**Effective:** 9 2015

### Competencies

<table>
<thead>
<tr>
<th>Competencies</th>
<th>Knowledge, Content and Skills</th>
<th>NH Common Core State Standards – Aligned</th>
<th>Rating Scale - Sample Performance Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student will:</strong></td>
<td><strong>ELA:</strong> 7, 8</td>
<td><strong>ELA:</strong> 7, 8</td>
<td><strong>For Example:</strong></td>
</tr>
<tr>
<td><strong>11. Service electrical systems.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AAI 4. Technical and Production Skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12. Perform machine adjustments (e.g., belts, drive chains).</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CRP: Apply appropriate academic and technical skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13. Service filtration systems and maintain fluid levels.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>14. Maintain vehicle, machinery and equipment cleanliness and appearance.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>15. Maintain fluid conveyance components (e.g., hoses, lines, valves, nozzles).</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>16. Describe function of machine controls and instrumentation.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student will:</th>
<th>Knowledge, Content and Skills</th>
<th>NH Common Core State Standards – Aligned</th>
<th>Rating Scale - Sample Performance Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11. Service electrical systems.</strong></td>
<td>ELA: 7, 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AAI 4. Technical and Production Skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12. Perform machine adjustments (e.g., belts, drive chains).</strong></td>
<td>ELA: 7, 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CRP: Apply appropriate academic and technical skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13. Service filtration systems and maintain fluid levels.</strong></td>
<td>ELA: 7, 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>14. Maintain vehicle, machinery and equipment cleanliness and appearance.</strong></td>
<td>ELA: 7, 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>15. Maintain fluid conveyance components (e.g., hoses, lines, valves, nozzles).</strong></td>
<td>ELA: 7, 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>16. Describe function of machine controls and instrumentation.</strong></td>
<td>ELA: 2, 3, 6, 7, 8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:** Rating Scale:  
1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

**Common Core:** E=English/Language Arts (Reading, Writing, Research, Listening, Speaking, Technology) | M=Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat & Prob)

**All Aspects of Industry (AAI) | Career Ready Practices (CRP)**

---

For Example:

11. Service electrical systems.

12. Perform machine adjustments (e.g., belts, drive chains).

13. Service filtration systems and maintain fluid levels.

14. Maintain vehicle, machinery and equipment cleanliness and appearance.

15. Maintain fluid conveyance components (e.g., hoses, lines, valves, nozzles).

16. Describe function of machine controls and instrumentation.

Include #16-22, 24
## PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION

**Program Name:** Agricultural Mechanization, General  
**CIP:** 010201  
**Career Cluster:** Agriculture, Food and Natural Resources  
**National Standard:** National Career Clusters  
**Effective:** 9 2015

### Competencies

- **Program Name:** Agricultural Mechanization, General  
- **CIP:** 010201  
- **Career Cluster:** Agriculture, Food and Natural Resources  
- **National Standard:** National Career Clusters  
- **Effective:** 9 2015

| Competencies (statement that provides the overview and defines the instructional area) | Knowledge, Content and Skills (what a student needs to know and be able to do and upon which they will be assessed) | NH Common Core State Standards – Aligned English/Language Arts/Literacy: E  
Mathematics: M | Rating Scale -Sample Performance Assessments (Performance tasks the student needs to demonstrate in order to be rated proficient in meeting the competency) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student will:</strong></td>
<td><strong>Student will:</strong></td>
<td></td>
<td><strong>Student will:</strong></td>
</tr>
</tbody>
</table>
| 17. Perform pre-operation inspection.  
**CRP:** Utilize critical thinking to make sense of problems and persevere in solving them. | ELA: 2, 3, 6, 7, 8 | 1 2 3 4 | For Example: |
| 18. Perform appropriate startup procedures. | ELA: 2, 3, 6, 7, 8 | 1 2 3 4 | For Example: |
| 19. Select proper machinery for specific tasks. | ELA: 2, 3, 6, 7, 8 | 1 2 3 4 | For Example: |
| 20. Safely operate equipment. | ELA: 2, 3, 6, 7, 8 | 1 2 3 4 | For Example: |
| 21. Describe principles of operation. | ELA: 2, 3, 6, 7, 8 | 1 2 3 4 | For Example: |
| 22. Identify engine systems and components. | ELA: 2, 3, 6, 7, 8 | 1 2 3 4 | For Example: |
| 23. Analyze and troubleshoot engine.  
**AAI 4.** Technical and Production Skills | ELA: 2, 4, 6, 8, 9 | 1 2 3 4 | For Example: |
| **CRP:** Communicate clearly, effectively and with reason | | | |
| 24. Describe features and applications of electrical systems. | ELA: 2, 4, 6, 8, 9 | 1 2 3 4 | For Example: |
| **CRP:** Communicate clearly, effectively and with reason | | | |
| 25. Interpret symbols and wiring diagrams. | ELA: 2, 4, 6, 8, 9 | 1 2 3 4 | For Example: |

### Key: Rating Scale
- 1 NO EXPOSURE: Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision;
- 2 = NOVICE: Student regularly demonstrates the knowledge or skill;
- 4 = MASTERY: Student demonstrates successful completion of this skill numerous times without supervision.

### Common Core
- E=English/Language Arts (Reading, Writing, Research, Listening Speaking, Technology)  
- M=Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat&Prob)

### All Aspects of Industry (AAI) | Career Ready Practices (CRP)
# PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION

## Program Name: Agricultural Mechanization, General   CIP: 010201

**Career Cluster: Agriculture, Food and Natural Resources**

**National Standard:** National Career Clusters

### Competencies

(Statement that provides the overview and defines the instructional area)

<table>
<thead>
<tr>
<th>Competency</th>
<th>Knowledge, Content and Skills</th>
<th>NH Common Core State Standards – Aligned</th>
<th>Rating Scale - Sample Performance Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand the concepts and basic skills in blueprints/design and the use of hand and power tools in fabrication/construction in order to use blueprints in fabrication and construction successfully.</td>
<td>26. Use current technology to develop simple plans and sketches. AAI 5. Underlying Principles of Technology</td>
<td>ELA: 2, 4, 6, 7, 8, 9 M: 2, 4, 12, 13</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Student will:</td>
<td>For Example: A client comes to you seeking a custom part for a piece of equipment. You are to design the part using computer technology. You have to provide the client with a plan, complete with appropriate technical terminology. Include #26-29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Identify symbols and drawing techniques used to develop simple plans and sketches.</td>
<td>ELA: 2, 4, 6, 7, 8, 9 M: 2, 4, 12, 13</td>
<td>1 2 3 4</td>
<td>For Example:</td>
</tr>
<tr>
<td>28. Identify parts of plans or blueprint.</td>
<td>ELA: 2, 4, 6, 7, 8, 9 M: 2, 4, 12, 13</td>
<td>1 2 3 4</td>
<td>For Example:</td>
</tr>
<tr>
<td>29. Identify criteria for different views of a plan or blueprint.</td>
<td>ELA: 2, 4, 6, 7, 8, 9 M: 2, 4, 12, 13</td>
<td>1 2 3 4</td>
<td>For Example:</td>
</tr>
<tr>
<td>30. Demonstrate proper use of measurements and layout.</td>
<td>ELA: 7, 8, 9 M: 2, 4, 12, 13</td>
<td>1 2 3 4</td>
<td>For Example: Your plan has been approved (#26), and your team has been subcontracted to produce the part. The foreperson of the construction team is overseeing this project. You will be required to demonstrate proper use of measurements and layout tools, the safe use of hand and power tools, and the ability to complete the construction of the part according to plans. Include #30-33</td>
</tr>
</tbody>
</table>

**Key: Rating Scale:**  1 NO EXPOSURE;  2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision);  3 = PROFICIENT (Student regularly demonstrates the knowledge or skill);  4= MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

**Common Core:** E=English/Language Arts (Reading, Writing, Research, Listening Speaking, Technology) | M=Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat&Prob)

**All Aspects of Industry (AAI) | Career Ready Practices (CRP)**
## PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION

**Program Name:** Agricultural Mechanization, General  
**Career Cluster:** Agriculture, Food and Natural Resources  
**CIP:** 010201  
**Effective:** 9 2015  
**National Standard:** National Career Clusters

### Competencies
(Statement that provides the overview and defines the instructional area)

<table>
<thead>
<tr>
<th>Competency</th>
<th>Knowledge, Content and Skills</th>
<th>NH Common Core State Standards – Aligned English/Language Arts/Literacy: E</th>
<th>Rating Scale -Sample Performance Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student will:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 31. Apply proper use of measurement and layout tools in construction/fabrication or an actual project. | ELA: 7, 8, 9  
M: 2, 4, 12,13 | |  
For Example: |
| **CRP:** Use technology to enhance productivity | | | |
| 32. Identify and demonstrate safe and proper techniques in using hand and power tools in construction/fabrication. | ELA: 7, 8, 9  
M: 2, 4, 12,13 | |  
For Example: |
| 33. Demonstrate hand and power tool use to construct/fabricate an actual project according to blueprints or plans. | ELA: 7, 8, 9  
M: 2, 4, 12,13 | |  
For Example: |

#### Understand the fundamental concepts of entrepreneurship and how entrepreneurship influences the economy.

<table>
<thead>
<tr>
<th>Student will:</th>
<th>Knowledge, Content and Skills</th>
<th>NH Common Core State Standards – Aligned English/Language Arts/Literacy: E</th>
<th>Rating Scale -Sample Performance Assessments</th>
</tr>
</thead>
</table>
| 34. Discuss business possibilities and identify the steps in planning a business.  
AAI 6. Labor Issues  
AAI 7. Community Issues  
**CRP:** Act as responsible and contributing citizen and employee  
**CRP:** Attend to personal health and financial well-being.  
**CRP:** Model integrity, ethical leadership and effective management | ELA: 2, 4, 6, 7, 8,9 | |  
For Example: |
| | | | |

### Key: Rating Scale:
- 1 NO EXPOSURE;  
- 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision);  
- 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill);  
- 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

### Common Core:
- E=English/Language Arts (Reading, Writing, Research, Listening Speaking, Technology)  
- M=Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat&Prob)

### All Aspects of Industry (AAI) | Career Ready Practices (CRP)
**PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION**
**Career Cluster: Agriculture, Food and Natural Resources**

**Program Name: Agricultural Mechanization, General   CIP: 010201**

National Standard: National Career Clusters  
Effective 9 2015

<table>
<thead>
<tr>
<th>Competencies (statement that provides the overview and defines the instructional area)</th>
<th>Knowledge, Content and Skills (what a student needs to know and be able to do and upon which they will be assessed)</th>
<th>NH Common Core State Standards – Aligned English/Language Arts/Literacy: E Mathematics: M</th>
<th>Rating Scale -Sample Performance Assessments (Performance tasks the student needs to demonstrate in order to be rated proficient in meeting the competency)</th>
</tr>
</thead>
</table>
| Student will: | 35. Identify the resources needed for business startup and operation.  
AAI 1. Planning  
AAI 2. Management  
AAI 3. Finance  
CRP: Demonstrate creativity and innovation. | ELA: 2, 4, 6, 7, 8,9 | Rating Scale: 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.) |
| Student will: | 35. Identify the resources needed for business startup and operation.  
AAI 1. Planning  
AAI 2. Management  
AAI 3. Finance  
CRP: Demonstrate creativity and innovation. | ELA: 2, 4, 6, 7, 8,9 | Rating Scale: 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.) |
| Understand the necessary career readiness and employability skills in order to achieve success in today’s workplace | 36. Discuss and research career options and postsecondary programs within this industry to assist in developing a career plan  
CRP: Plan education and career paths aligned to personal goals. | ELA: 2, 3, 4, 6, 7, 8, 9 | Rating Scale: 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.) |
| Student will: | 37. Demonstrate personal growth, community leadership, democratic principles and social responsibility by participating in activities/events offered through FFA or other professional organizations.  
AAI 9. Personal Work Habits  
CRP: Work productively in teams while using cultural global awareness. | ELA: 3, 7, 8 | Rating Scale: 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.) |

**Key: Rating Scale:** 1 NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

**Common Core:** E=English/Language Arts (Reading, Writing, Research, Listening Speaking, Technology) | M=Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat&Prob)  
**All Aspects of Industry (AAI) | Career Ready Practices (CRP)**