# Production Methods I Course No. 13052 Credit: 1.0

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| --- | --- | --- | --- |
| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes:Aviation Production (15.0000) - Production Strand; Manufacturing (48.0000) - Production Strand; Aviation Maintenance (47.0608) - Airframe Strand

Course Description: **Technical Level:** A comprehensive, technical level course designed to instruct students in the knowledge and skills common to manufacturing occupations using a variety of materials (wood, plastic, metal, composites). (SCED: Material and Processes courses expose students to the tools, equipment, and processes that may be encountered in manufacturing-related occupations. In particular, these courses stress the analysis, testing, and processing of metals, plastics, woods, ceramics, and composite materials.)

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Safety and Tool Operation

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Explain the safe and correct use of basic hand and power tools. |  |
| 1.2 | Demonstrate skills required to safely use power equipment. |  |
| 1.3 | Demonstrate proper safety procedures for manufacturing processes and material handling. |  |
| 1.4 | Select and use the correct personal protective equipment (PPE) for specific manufacturing processes. |  |

## Benchmark 2: Methods, Materials, and Processes

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify materials and processes incorporated in the manufacturing industry. |  |
| 2.2 | Utilize technical drawings/prints, work orders, and other ways of conveying product specifications. |  |
| 2.3 | Apply math skills to manage distance, spacing, angle measurements, and placement for project development. |  |
| 2.4 | Describe the use of measuring devices related to manufacturing and materials processes. |  |
| 2.5 | Perform steps to interpret, transfer and layout procedures for projects. |  |
| 2.6 | Describe gauging and measuring devices used with manufacturing and material processing for dimensioning, measurement and quality control. |  |
| 2.7 | Discuss properties of materials. |  |
| 2.8 | List physical, chemical and mechanical properties of selected materials. |  |
| 2.9 | Explain how thermoplastics and wood structure and properties fit into the manufacturing and materials process. |  |
| 2.10 | Demonstrate and develop skills for bonding, combining, forming, and separating processes. |  |
| 2.11 | Demonstrate soldering abilities. |  |

## Benchmark 3: Concepts in Production, Methods, and Technology

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Explore and/or implement computer automations into manufacturing processes. |  |
| 3.2 | Analyze and solve problems using skills related to methods in production of a product. |  |
| 3.3 | Integrate mass production processes into design as related to traditional methods of manufacturing and constructing products. |  |
| 3.4 | Select and perform best practices for joining, assembling, and finishing projects. |  |
| 3.5 | Incorporate LEAN manufacturing concepts pertaining to mass production, visual management, value stream mapping, 5S, kanban systems, lean metrics, shop layout. |  |
| 3.6 | Explain the role of business and market in the free enterprise system. |  |
| 3.7 | Research future technologies affecting manufacturing concepts related to going green, recycling supplies, alternative resources. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

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