# Advanced Materials and Fabrication Course No. 38010 Credit: 1.0

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

Pathways and CIP Codes: **Construction & Design (46.0000) - Construction Strand;** Manufacturing (48.0000) - Production Strand

Course Description: An advanced **application level** course designed to provide students with experience in constructing projects using advanced materials and methods of production and fabrication.

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.

**Prerequisite**: 17007 - Woodworking Principles (Construction Pathway)
 39052 – Production Methods II or 39208 – Welding Processes II (Manufacturing Pathway)

## Benchmark 0: The following competencies are to be taught within ALL application level courses offered in your school's approved pathway.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 0.1 | Demonstrate an understanding of industry standards for personal safety including the safe use of tools, equipment, and hazardous materials. |  |
| 0.2 | Demonstrate time management skills. |  |
| 0.3 | Create and utilize employment documents including a resume and portfolio. |  |
| 0.4 | Demonstrate job seeking and interview skills. |  |

## Benchmark 1: project planning and design

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Properly use, maintain, and care for machines and care for hand and power tools common to industry. |  |
| 1.2 | Properly set up, maintain, and care for machines as they are used for constructing projects. |  |
| 1.3 | Apply the principles and elements of design to create project plans, which fulfills the criteria for the project to be constructed. |  |
| 1.4 | Select the appropriate materials based upon; strength, appearance, and durability requirements of the project designed. |  |
| 1.5 | Create a bill of materials and a plan of procedure for a project being planned for construction. |  |
| 1.6 | Estimate costs of a project. |  |

## Benchmark 2: Project construction

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Research, select, and perform “best method” joint construction and assembly techniques for project being constructed. |  |
| 2.2 | Research, select, and perform the appropriate finish for the project being constructed. |  |
| 2.3 | Research, select, and perform composite materials fabrication. |  |
| 2.4 | Research, select, and perform overlay/veneer materials fabrication. |  |
| 2.5 | Research, select, and perform appropriate tooling methods for chosen materials. |  |
| 2.6 | Research, select, and perform appropriate methods of assembly for materials and applications. |  |

## Benchmark 3: production systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Design and engineer a product using CAD and/or CAM software systems. |  |
| 3.2 | Understand and demonstrate operations of advanced technology systems. |  |
| 3.3 | Demonstrate effective techniques to manage and organize production flow. |  |
| 3.4 | Research and understand related career fields and postsecondary training opportunities. |  |
| 3.5 | Implement and manage a safety program for procedures and hazardous materials. |  |

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

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

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