# Aviation Tooling Course No. 40600 Credit: 1.0

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

Pathways and CIP Codes:Aviation Production (15.000) - Production Strand

Course Description: **Application level** course where students learn to utilize tools and processes in aviation tool assembly.

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: Aviation tooling operations

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Apply all shop safety standards – breaking sharp edges, eye/hearing protection, unplug air hose when changing drill bits/rivet sets |  |
| 1.2 | Identify and define Foreign Object Damage (FOD) and the impact on finished product |  |
| 1.3 | Utilize industry specific tools and materials in aerospace manufacturing |  |
| 1.4 | Understand the use of blueprints and picture sheets used in the aerospace manufacturing. |  |
| 1.5 | Utilize precision measuring instruments |  |
| 1.6 | Identify and explain the different types of tooling used in aerospace and/or advanced manufacturing |  |
| 1.7 | Demonstrate how to safely use hand and power tools used in aerospace and/or advanced manufacturing tooling |  |
| 1.8 | Describe the need for creating tools in the aerospace and/or advanced manufacturing industry |  |
| 1.9 | Understand the role of the toolmaker |  |
| 1.10 | Read and interpret the requirements on an engineering drawing |  |
| 1.11 | Practice General Welding Safety |  |
| 1.12 | Cut metal using Power Equipment |  |
| 1.13 | Demonstrate basic knowledge of GMAW and GTAW welding techniques |  |
| 1.14 | Perform and apply skills associated with precision drilling operations, using hand drills and/or drill press. |  |
| 1.15 | Demonstrate the ability to precision to holes to specified tolerances |  |
| 1.16 | Define the basic principles of Geometric Dimensioning & Tolerancing (GD&T) |  |
| 1.17 | Identify GD&T symbols |  |
| 1.18 | Interpret form and orientation tolerances |  |
| 1.19 | Interpret profile, runout and location tolerances |  |

## Benchmark 2: Aviation fixtures and Jigs

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify the critical features the tooling process |  |
| 2.2 | Identify the role of performance assemblies |  |
| 2.3 | Demonstrate how to safely perform tap and die process in aerospace and/or advanced manufacturing tooling. |  |
| 2.4 | Describe the final details in the tooling process |  |
| 2.5 | Describe proper layout for installation |  |
| 2.6 | Practice tool building skills by creating Drill Fixture |  |
| 2.7 | Create a permanent assembly with proper hardware |  |
| 2.8 | Map out the assembly project based on project specifications |  |
| 2.9 | Select and edge utilizing GD &T principles |  |
| 2.10 | Perform Hole generation processes |  |
| 2.11 | Layout and create final assembly project based on project specifications |  |
| 2.12 | Perform final inspection of assembly project |  |
| 2.13 | Demonstrate skills associated with removable sub assembly |  |

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

[pathwayshelpdesk@ksde.org](mailto:pathwayshelpdesk@ksde.org)



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.