# Aerostructures Course No. 40620 Credit: 1.0

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

Pathways and CIP Codes:Aviation Production (15.0000) - Production Strand

Course Description: An **application level** course designed to teach students a general overview of assembly techniques used in aviation.

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 Assembly

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Demonstrate how to safely use hand tools used in aerospace manufacturing. |  |
| 1.2 | Identify and define Foreign Object Damage (FOD) and the impact on finished product. |  |
| 1.3 | Apply all shop safety standards – breaking sharp edges, eye/hearing protection, unplug air hose when changing drill bits/rivet sets. |  |
| 1.4 | Utilize industry specific tools and aerospace specific materials. |  |
| 1.5 | Understand the use of blueprints and picture sheets used in the aerospace manufacturing. |  |
| 1.6 | Utilize precision measuring instruments. |  |
| 1.7 | Identify and select fasteners, sets and retainer springs used in aviation industry based on engineering drawings. |  |
| 1.8 | Identify most common materials used in aircraft manufacturing such as sheet metal. |  |
| 1.9 | Demonstrate layout techniques for sheet metal. |  |
| 1.10 | Apply layout techniques to industry specific project within tolerance of +/- .03”. |  |
| 1.11 | Calculate parts (angle, nutplates, fasteners) locations based on engineering drawings |  |
| 1.12 | Demonstrate net trim skills. |  |
| 1.13 | Demonstrate temporary assembly techniques. |  |
| 1.14 | Demonstrate drilling techniques. |  |
| 1.15 | Identify correct drill bit and motor. |  |
| 1.16 | Perform drilling a perpendicular hole. |  |
| 1.17 | Demonstrate de-burring techniques. |  |
| 1.18 | Employ and practice techniques used in fastener removal and installation |  |
| 1.19 | Demonstrate effective conventional rivet and blind fastener installation. |  |
| 1.20 | Install counter sunk rivet. |  |
| 1.21 | Describe and discuss the elements of assembly in terms of quality and inspection. |  |
| 1.22 | Utilize techniques used in application of non-conforming aspects. |  |
| 1.23 | Describe proper demonstration of documentation of FAA guidelines and related costing features. |  |

## Benchmark 2: Aerospace Mechanical assembly

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Describe the hazards and PPE associated with sealants |  |
| 2.2 | Identify the appropriate sealant for each project |  |
| 2.3 | Demonstrate the basic concepts associate with aerospace sealant processes |  |
| 2.4 | Identify guidelines for proper application of sealant including issues of surface temperature, sealant expiration, and sealant consistency |  |
| 2.5 | Install and properly seal a direct ground stud installation |  |
| 2.6 | Understand principles and application of torque |  |
| 2.7 | Install and remove close to tolerance specialty fasteners |  |
| 2.8 | Demonstrate special techniques for drilling and countersinking on a curved surface |  |
| 2.9 | Practice fastener installation on a curved surface |  |
| 2.10 | Produce close tolerance holes in composite materials and materials harder than aluminum |  |
| 2.11 | Demonstrate various types of patch repairs |  |
| 2.12 | Perform teamwork skills to Layout and produce project |  |
| 2.13 | Conduct Team Bucking Skills |  |
| 2.14 | Install stringers and hat sections |  |
| 2.15 | Describe and discuss the elements of assembly in terms of quality and inspection |  |
| 2.16 | Utilize techniques used in application of non-conforming aspects |  |
| 2.17 | Describe proper demonstration of documentation of FAA guidelines and related costing features |  |

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



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

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

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