# Aerospace Drawings II Course No. 41510 Credit: 0.5

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

Pathways and CIP Codes:Aviation Productions (15.0000) - Design Strand

Course Description: An a**pplication level** course that teaches students wireframe and surfaces design geometry used to create complex contours. (CATIA 3)

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**: 41500 Aerospace Drawings I

## Benchmark 1: Demonstrate basic concepts of the wireframe and surface structure

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Identify the wireframe and surface tools. |  |
| 1.2 | Review integration of wireframe and surface geometry to create solid objects. |  |
| 1.3 | Identify how wireframe and surface geometry is used throughout the environment. |  |

## Benchmark 2: Demonstrate how to effectively create wireframe geometry with the wireframe and surface tools

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Create points, lines, and planes. |  |
| 2.2 | Create curves: circles, corners, splines, helixes, parallels, combines, projects, and intersects. |  |
| 2.3 | Work with 2D and 3D supports. |  |
| 2.4 | Modify wireframe geometry. |  |

## Benchmark 3: Demonstrate how to effectively create surfaces with the wireframe and surface tools

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Create basic surfaces: extrudes, revolves, spheres, cylinders. |  |
| 3.2 | Create advanced surfaces: sweeps, fills, multi-section and blended. |  |
| 3.3 | Work with geometrical laws. |  |

## Benchmark 4: Demonstrate how to effectively perform operations on geometry with the wireframe and surface tools

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Perform joins on wireframe and surfaces. |  |
| 4.2 | Perform heals on surfaces and smooth wireframe. |  |
| 4.3 | Perform splits, trims, and extracts on wireframe and surfaces. |  |
| 4.4 | Create fillets and chamfers on surfaces. |  |
| 4.5 | Create patterns, perform transformations and extrapolations on wireframe and surfaces. |  |

## Benchmark 5: Demonstrate how to effectively perform analysis on geometry with the wireframe and surface tools

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Perform connect checker analysis on wireframe and surfaces. |  |
| 5.2 | Perform draft and curvature analysis on surfaces. |  |
| 5.3 | Perform porcupine curvature analysis on wireframe. |  |

## Benchmark 6: Demonstrate basic concepts of the drafting structure

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Identify the drafting tools. |  |
| 6.2 | Review drafting standards and basic drafting concepts. |  |
| 6.3 | Create a drawing and a new sheet. |  |

## Benchmark 7: Demonstrate how to effectively create views and dimensions for a drawing in a CAD system

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 7.1 | Create views from parts and assemblies. |  |
| 7.2 | Modify sheets and views. |  |
| 7.3 | Create dimensions. |  |
| 7.4 | Apply GD&T to a drawing. |  |
| 7.5 | Modify dimensions. |  |

## Benchmark 8: Demonstrate how to effectively create annotations and markups for a drawing in a CAD system

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 8.1 | Create and modify annotations and symbols. |  |
| 8.2 | Create markups. |  |
| 8.3 | Create fill areas. |  |

## Benchmark 9: Demonstrate how to effectively work with assemblies in a CAD system

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 9.1 | Create balloons and bills of material. |  |
| 9.2 | Manipulate views with cut, copy, and paste. |  |
| 9.3 | Create views of parts from an assembly. |  |
| 9.4 | Work with links in an assembly drawing. |  |

## Benchmark 10: Demonstrate how to effectively create 2D geometry with a CAD system

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 10.1 | Create 2D views manually. |  |
| 10.2 | Create 2D geometry using drawing tools. |  |
| 10.3 | Create, modify and use 2D components. |  |
| 10.4 | Create, modify, and use title blocks. |  |

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

Instructor Signature:

For more information, contact:

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