# Aircraft Systems Course No. 40420 Credit: 1.0

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

Pathways and CIP Codes: **Aviation Maintenance and Operations (47.0607)**

Course Description: This course is designed to provide the aviation student with an in-depth knowledge of the major systems and components of the aircraft. Students will learn the operation of each of the major systems.

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: Identify the role of the electrical systems in aircraft

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Identify the electrical systems. |  |
| 1.2 | Identify the components of electrical systems. |  |
| 1.3 | Identify how the electrical systems are integrated into the aircraft. |  |
| 1.4 | Identify the operation of the electrical systems. |  |
| 1.5 | Review safety issues commonly found with electrical systems. |  |
| 1.6 | Define Electrostatic Discharge (ESD). |  |
| 1.7 | Describe ESD impact on the aircraft. |  |
| 1.8 | Identify ESD product, characteristics, handling and packaging. |  |
| 1.9 | Identify the routing concepts on wire systems including bend radius, clamping and chafing. |  |
| 1.10 | Identify appropriate handling procedures of this system including appropriate placement of temporary covers or protective devices. |  |
| 1.11 | Identify electrical bonding and grounding in both mechanical and composites parts. |  |
| 1.12 | Identify the impact of moisture on this system. |  |

## Benchmark 2: Identify the role of the avionics systems in aircraft

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify the avionic systems. |  |
| 2.2 | Identify the components of avionic systems. |  |
| 2.3 | Identify how avionic systems are integrated into the aircraft. |  |
| 2.4 | Identify the operation of the avionic systems. |  |
| 2.5 | Review safety issues commonly found with avionic systems. |  |
| 2.6 | Identify the providers of avionic systems. |  |
| 2.7 | Identify the components of the avionics package. |  |
| 2.8 | Identify appropriate handling procedures of this system including appropriate use and placement of temporary covers or protective devices. |  |
| 2.9 | Identify the impact of moisture on this system. |  |

## Benchmark 3: Identify the role of the flight control system in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Identify different types of flight controls including flaps, ailerons, speed breaks and wing slates, Elevators, rudder, spoilers. |  |
| 3.2 | Identify the different systems within flight controls. |  |
| 3.3 | Identify how flight control systems are integrated into the aircraft. |  |
| 3.4 | Identify the operation of the flight control system. |  |
| 3.5 | Identify rigging of flight controls. |  |
| 3.6 | Identify the role of tension, tools, and temperature in flight control systems. |  |
| 3.7 | Identify the role of friction and forces in flight control systems. |  |
| 3.8 | Identify the role of functional test in flight controls. |  |
| 3.9 | Review safety issues commonly found with flight control systems. |  |

## Benchmark 4: Identify the role of the environmental control systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Identify the environmental systems including heat, air, and pressurization. |  |
| 4.2 | Identify the components of environmental systems. |  |
| 4.3 | Identify how environmental systems are integrated into the aircraft. |  |
| 4.4 | Identify the operation of the environmental systems. |  |
| 4.5 | Identify the impact of moisture on this system. |  |
| 4.6 | Review safety issues commonly found with environmental systems. |  |

## Benchmark 5: Identify the role of the door systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Identify the door systems. |  |
| 5.2 | Identify the components of door systems. |  |
| 5.3 | Identify how door systems are integrated into the aircraft. |  |
| 5.4 | Identify the operation of the door systems. |  |
| 5.5 | Review safety issues commonly found with door systems. |  |

## Benchmark 6: Identify the role of the hydraulic systems in aircraft

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Identify the hydraulic systems and the different types used in aircraft. |  |
| 6.2 | Identify the components of hydraulic systems. |  |
| 6.3 | Identify how hydraulic systems are integrated into the aircraft. |  |
| 6.4 | Identify the operation of the hydraulic systems. |  |
| 6.5 | Review safety issues commonly found with hydraulic systems. |  |
| 6.6 | Identify appropriate handling procedures of this system including appropriate placement of temporary covers or protective devices. |  |

## Benchmark 7: Identify the role of the pneumatic systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 7.1 | Identify the pneumatic systems. |  |
| 7.2 | Identify the components of pneumatic systems. |  |
| 7.3 | Identify how pneumatic systems are integrated into the aircraft. |  |
| 7.4 | Identify the operation of the pneumatic systems. |  |
| 7.5 | Review safety issues commonly found with pneumatic systems. |  |
| 7.6 | Identify appropriate handling procedures of this system including appropriate use and placement of temporary covers or protective devices. |  |

## Benchmark 8Identify the role of the landing gear systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 8.1 | Identify the landing gear systems including steering and brakes. |  |
| 8.2 | Identify the components of landing gear systems. |  |
| 8.3 | Identify how landing gear systems are integrated into the aircraft. |  |
| 8.4 | Identify the operation of the landing gear systems. |  |
| 8.5 | Review safety issues commonly found with landing gear systems. |  |

## Benchmark 9: Identify the role of the windows systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 9.1 | Identify the windows systems. |  |
| 9.2 | Identify the components of windows systems. |  |
| 9.3 | Identify the operation of the windows systems. |  |
| 9.4 | Review safety issues commonly found with windows systems. |  |
| 9.5 | Identify how windows systems are integrated into the aircraft. |  |

## Benchmark 10: Identify the role of the fuel systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 10.1 | Identify the fuel systems. |  |
| 10.2 | Identify the components of fuel systems. |  |
| 10.3 | Identify how fuel systems are integrated into the aircraft. |  |
| 10.4 | Identify the operation of the fuel systems. |  |
| 10.5 | Identify the impact of moisture on this system. |  |
| 10.6 | Review safety issues commonly found with fuel systems. |  |

## Benchmark 11: Identify the role of the propulsion systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Identify the propulsion systems including radial, turbine, and reciprocating. |  |
| 11.2 | Identify the components of propulsion systems. |  |
| 11.3 | Identify how propulsion systems are integrated into the aircraft. |  |
| 11.4 | Identify the operation of the propulsion systems. |  |
| 11.5 | Review safety issues commonly found with propulsion systems. |  |

## Benchmark 12: Identify the role of the Anti-Ice and Deice systems in aircraft.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 12.1 | Identify the anti–ice and deice systems. |  |
| 12.2 | Identify the components of anti–ice and deice system. |  |
| 12.3 | Identify how anti–ice and deice systems are integrated into the aircraft. |  |
| 12.4 | Identify the operation of the anti–ice and deice systems. |  |
| 12.5 | Identify the impact of moisture on this system. |  |
| 12.6 | Review safety issues commonly found with anti–ice and deice systems. |  |

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

Instructor Signature:

For more information, contact:

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