1. **COURSE TITLE\*: Aircraft Environmental, Ice, Rain, and Water Systems**
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*: AVIT 1204**
3. **PREREQUISITE(S)\*: COREQUISITE(S)\*:**
4. **COURSE TIME/LOCATION/MODALITY: (*Course Syllabus – Individual Instructor Specific*)**
5. **CREDIT HOURS\*: 3 LECTURE HOURS\*: 2**

**LABORATORY HOURS\*:1 (3.5 contact hrs) OBSERVATION HOURS\*:0**

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

This course will introduce the student to ice and rain, cabin atmosphere control systems and Water and Waste Systems. Students will inspect, check, troubleshoot, and service smoke, carbon monoxide, fire detection, and fire extinguishing systems. Students will investigate cabin atmosphere control systems which include heating and air conditioning both vapor cycle and air cycle. Student will inspect, check, troubleshoot, and service aircraft oxygen systems. Students will be knowledgeable of water and waste systems in aircraft

1. **LEARNING OUTCOMES\*:**

Students will gain knowledge of the following:

1. Pressurization systems
2. Bleed air heating
3. Aircraft instrument cooling
4. Combustion heater and system component(s) function, operation, and inspection procedures
5. Vapor-cycle system and system component(s) operation, servicing, and inspection procedures
6. Air-cycle system and system component(s) operation and inspection procedures
7. Cabin pressurization and system component(s) operation and inspection procedures
8. Types of oxygen systems and oxygen system component(s) operation (e.g., chemical generator, pressure cylinder)
9. Oxygen system maintenance and inspection procedures
10. Aircraft icing causes/effects
11. Ice detection systems
12. De-ice systems and components
13. Wiper blade, chemical, and pneumatic bleed air rain control systems
14. Potable water system components and operation
15. Lavatory waste system components and operation
16. Inspection and servicing requirements for water and waste systems
17. **ADOPTED TEXT(S)\*:**

FAA-H-8083-31A (Airframe Vol 1&2)

Aviation Maintenance Technician Handbook43.13-1B

<https://www.faa.gov/sites/faa.gov/files/regulations_policies/handbooks_manuals/aviation/amt_airframe_hb_vol_1.pdf>

<https://www.faa.gov/handbooksmanuals/aviation/aviation-maintenance-technician-handbook-airframe-volume-2>

<https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf>

**9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) \*\*\*.**

1. **OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***
2. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: 0 – 59

Grades of 69 and below will not meet the requirements of the FAA for Mechanic

Certificate.

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

Test count – 40% of Final Grade

Quizzes count – 10% of Final Grade

Lab Grade counts – 50% of Final Grade

Class and lab attendance will be graded, two points will be deducted from the grade for each day missed. Quizzes cannot be made up. No test can be taken late without prior approval of the instructor.

1. **COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

May included but not limited to lecture and problems solving, group and lab projects, in-class and home assignments, quizzes and tests. Lab project will be individual and group. Attendance to class and lab is required.

**14. COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

***(Insert sample course outline with learning outcomes tied to assignments / topics.)***

**Below is an example of how you might fill-in the course outline of classwork, assignments, tests, et al…**

|  |  |  |
| --- | --- | --- |
| **WEEK** | **DESCRIPTION** | **LEARNING OUTCOMES #** |
| WEEK 1 | Carbon monoxide detectors, fire-detection system inspection and testing, spot-type and thermocouple maintenance, continuous-loop maintenance practices. | 1, 2, 4 |
| WEEK 2 | Airframe ice control systems, icing effects, ice detection systems, anti-icing systems. | 10, 11 |
| WEEK 3 | De-icing systems, rubber de-icer boot system, de-icing system components, electrothermal de-icing. | 12 |
| WEEK 4 | Ground de-icing of aircraft, frost removal, rain control systems, windshield wiper systems, chemical rain repellant, pneumatic rain removal systems. | 12, 13 |
| WEEK 5 | Quiz 1 |  |
| WEEK 6 | The atmosphere, human respiration and circulation, hypoxia, carbon monoxide poisoning. | 6, 7 |
| WEEK 7 | Oxygen systems, sources of supplemental oxygen, oxygen systems and | 8, 9 |
| WEEK 8 | Chemical oxygen systems, oxygen system servicing, prevention of oxygen fires or explosions. | 8, 9 |
| WEEK 9 | Test 1 |  |
| WEEK 10 | Pressurization systems, sources of pressurizing air, control of cabin pressure, cabin pressurization troubleshooting. | 1 |
| WEEK 11 | Cabin climate control systems, ventilation systems, heating systems. | 2, 4 |
| WEEK 12 | Aircraft air conditioning systems, air-cycle air conditioning, vapor-cycle air conditioning. | 3 |
| WEEK 13 | Air conditioning service equipment, system servicing. | 5 |
| WEEK 14 | Climate control tests and inspection. | 3 |
| WEEK 15 | Water and Waste System and troubleshooting | 14, 15, 16 |
| WEEK 16 | Final |  |

* Carbon monoxide detectors, fire-detection system inspection and testing, spot-type and thermocouple maintenance, continuous-loop maintenance practices.
* Airframe ice control systems, icing effects, ice detection systems, anti-icing systems.
* De-icing systems, rubber de-icer boot system, de-icing system components, electrothermal de-icing.
* Ground de-icing of aircraft, frost removal, rain control systems, windshield wiper systems, chemical rain repellant, pneumatic rain removal systems.
  + Quiz 1
* The atmosphere, human respiration and circulation, hypoxia, carbon monoxide poisoning.
* Oxygen systems, sources of supplemental oxygen, oxygen systems and components, storage cylinders, regulators, masks, liquid oxygen systems.
* Chemical oxygen systems, oxygen system servicing, prevention of oxygen fires or explosions.
  + Test 1
* Pressurization systems, sources of pressurizing air, control of cabin pressure, cabin pressurization troubleshooting.
* Cabin climate control systems, ventilation systems, heating systems.
* Aircraft air conditioning systems, air-cycle air conditioning, vapor-cycle air conditioning.
* Air conditioning service equipment, system servicing.
* Climate control tests and inspection.
* Water and Waste System and troubleshooting
  + Final

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

Class and lab attendance will be graded. Quizzes cannot be made up. No test can be taken late without prior approval of the instructor.

**16. FERPA:\***

Students need to understand that their work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. ACCOMMODATIONS: \***

Students requesting accommodations may contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431, X 2604.

Students seeking a religious accommodation for absences permitted under Ohio’s Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first. For more information about Religious Accommodations, contact Ryan Hall, Accessibility Coordinator at [rhall21@sscc.edu](mailto:rhall21@sscc.edu) or 937-393-3431 X 2604.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.