

# DUTCHESS

---

## COMMUNITY COLLEGE

### Aviation Maintenance Technician Program (AMT) & Airframe & Powerplant Certificate (APC) Operations Manual



Hudson Valley Regional Airport  
237 New Hackensack Road  
Wappingers Falls, NY 12590

Revised 06/2023

## TABLE OF CONTENTS

### **INTRODUCTION**

---

INTRODUCTION TO OPERATIONS MANUAL .....	1
SIGNATURE PAGE.....	2
<b>147.3 AIR AGENCY CERTIFICATE.....</b>	<b>3</b>
ORGANIZATIONAL TABLE.....	4
DUTIES AND RESPONSIBILITIES .....	5

### **SUBPART A**

---

<b>GENERAL REQUIREMENTS.....</b>	<b>7</b>
<b>147.5 APPLICATION AND ISSUE .....</b>	<b>7</b>
<b>147.7 DURATION OF CERTIFICATE.....</b>	<b>7</b>

### **SUBPART B**

---

<b>CERTIFICATION REQUIREMENTS.....</b>	<b>8</b>
<b>147.11 RATINGS .....</b>	<b>8</b>
<b>147.13 FACILITIES, EQUIPMENT &amp; MATERIAL REQUIREMENTS .....</b>	<b>8</b>
<b>147.15 SPACE REQUIREMENTS .....</b>	<b>9</b>
SPACE & CLASSROOMS.....	9
<b>147.17 INSTRUCTIONAL EQUIPMENT REQUIREMENTS .....</b>	<b>10</b>
TECHNICAL DATA & INSTRUCTIONAL AIDS.....	10
INSTRUCTIONAL AID REQUIREMENTS.....	11
<b>147.19 MATERIALS, SPECIAL TOOLS &amp; SHOP EQUIPMENT REQUIREMENTS.....</b>	<b>11</b>
SPECIAL TOOL REQUIREMENTS.....	12
MATERIAL REQUIREMENTS.....	12
<b>147.21 GENERAL CURRICULUM REQUIREMENTS .....</b>	<b>13</b>
CURRICULUM PATTERN & INSTRUCTIONAL HOURS .....	13
GENERAL CURRICULUM HOURS TABLE .....	15
AIRFRAME CURRICULUM HOURS TABLE .....	15
POWERPLANT CURRICULUM HOURS TABLE .....	16
<b>147.23 INSTRUCTOR REQUIREMENTS .....</b>	<b>17</b>
INSTRUCTOR QUALIFICATIONS, RESPONSIBILITIES & SPECIALIZATION .....	17
DESIGNATED MAINTENANCE EXAMINER .....	17

**SUBPART C** **18**

---

**OPERATING RULES** ..... **18**

**147.31 ATTENDANCE, ENROLLMENT, TESTS & CREDIT FOR PRIOR INSTRUCTION OR**

<b>EXPERIENCE</b> .....	<b>19</b>
TIME AND ATTENDANCE .....	20
ENROLLMENT .....	20
INSTRUCTOR/STUDENT RATIO .....	20
PRIOR EXPERIENCE CREDIT .....	21
STUDENT TESTING .....	21
COMPUTER TESTING CENTER .....	22
COMPLETION OF ALL PROGRAM & COURSE REQUIREMENTS .....	23
PROVISIONS FOR MAKEUP TIME.....	23
COURSEWORK REMEDIATION .....	23
FINAL EXAM REMEDIATION .....	23
ABSENCES AND LATENESS .....	24
PROVISIONS FOR REMEDIATION OF ABSENCES & LATENESS....	24
PROVISIONS FOR STUDENT WORK/HOUR MAKE-UP TIME .....	25
STUDENT GRADING POLICY .....	26
PRACTICAL PROJECTS .....	27

**147.33 RECORDS** ..... **28**

STUDENT PERMANENT RECORDS & ROLL BOOK. ....	28
STUDENT RECORDS - ATTENDANCE .....	29
MAINTENANCE OF STUDENT RECORDS - ATTENDANCE .....	30
EXAMPLE ATTENDANCE SHEET (FORM 003) .....	31
MAINTENANCE OF STUDENT RECORDS.....	32
EXAMPLE LAB PROJECT GRADING FORM (FORM 004) .....	32
EXAMPLE FINAL GRADE TALLY SHEET (FORM 005) .....	33
EXAM ANSWER SHEET (FORM 006) .....	33

**147.35 TRANSCRIPTS & GRADUATION CERTIFICATES** ..... **34**

PROCEDURES FOR ADDRESSING STUDENT CERTIFICATION NEEDS AND INQUIRIES .....	34
QUALIFYING EXAMINATION & CERTIFICATE OF GRADUATION .....	35

**147.36 MAINTENANCE OF INSTRUCTOR REQUIREMENTS** ..... **35**

**147.37 MAINTENANCE OF FACILITIES, EQUIPMENT, AND MATERIAL** ..... **36**

MAINTENANCE OF FACILITIES.....	36
MAINTENANCE OF LAB EQUIPMENT .....	36
MAINTENANCE OF TOOLS AND SPECIAL TOOLS SUPPLY .....	36
MAINTENANCE OF TECHNICAL DATA REFERENCE MATERIALS.....	36
MAINTENANCE OF INSTRUCTIONAL MATERIALS.....	36

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport,  
Wappingers Falls, NY 12590

<b>147.38 MAINTENANCE OF CURRICULUM REQUIREMENTS .....</b>	<b>38</b>
MAINTENANCE OF QUALITY OF INSTRUCTION .....	38
REVISIONS TO CURRICULUM .....	38
CURRICULUM REQUIREMENTS .....	39
REVISION PROCEDURES AND OPERATIONS MANUAL CONTROL .....	39
CURRICULUM FLOW CHART – AVIATION MAINTENANCE CERTIFICATE PROGRAM.....	40
<b>147.39 DISPLAY OF CERTIFICATE .....</b>	<b>41</b>
<b>147.41 CHANGE OF LOCATION .....</b>	<b>41</b>
<b>147.43 INSPECTION .....</b>	<b>41</b>
<b>147.45 ADVERTISEMENT .....</b>	<b>42</b>

**APPENDIX A**

---

<b>CURRICULUM REQUIREMENTS .....</b>	<b>43</b>
GLOSSARY OF TERMS .....	44
STUDENT CONDUCT .....	47

**APPENDIX B**

---

**GENERAL CURRICULUM SUBJECTS**

MATHEMATICS .....	49
AIRCRAFT DRAWINGS .....	52
PHYSICS .....	54
WEIGHT & BALANCE .....	57
MATERIAL, PROCESSES & HARDWARE .....	59
AIRCRAFT CLEANING AND CORROSION CONTROL .....	65
FLUID LINES & FITTINGS .....	68
BASIC ELECTRICITY .....	70
SAFETY, GROUND OPERATIONS & SERVICING .....	78
PUBLICATIONS, FORMS & RECORDS .....	80
THE MECHANICS PRIVILEGES AND LIMITATIONS/CERTIFICATE.....	83
GENERAL AIRCRAFT INSPECTION PRINCIPLES .....	84

## **APPENDIX C**

---

### **AIRFRAME CURRICULUM SUBJECTS**

<b>AIRFRAME STRUCTURES .....</b>	<b>85</b>
WOOD STRUCTURES .....	85
AIRCRAFT COVERINGS .....	86
AIRCRAFT FINISHES .....	88
SHEET METAL & NON-METALLIC STRUCTURES.....	91
WELDING .....	99
ASSEMBLY & RIGGING.....	102
<b>AIRFRAME SYSTEMS &amp; COMPONENTS.....</b>	<b>106</b>
AIRCRAFT LANDING GEAR SYSTEMS .....	106
HYDRAULIC & PNEUMATIC POWER SYSTEMS .....	109
CABIN ATMOSPHERIC CONTROL SYSTEMS .....	111
AIRCRAFT INSTRUMENTS .....	113
COMMUNICATION & NAVIGATION SYSTEMS .....	116
AIRCRAFT FUEL SYSTEMS .....	118
AIRCRAFT ELECTRICAL SYSTEMS .....	121
POSITION AND WARNING SYSTEMS .....	124
ICE & RAIN PROTECTION SYSTEMS.....	126
FIRE PROTECTION SYSTEMS.....	128
AIRFRAME INSPECTION .....	130

## **APPENDIX D**

---

### **POWERPLANT I**

<b>THEORY &amp; MAINTENANCE .....</b>	<b>131</b>
ENGINES .....	131
ENGINE MAINTENANCE & OPERATION .....	134

### **POWERPLANT II**

<b>SYSTEMS AND COMPONENTS.....</b>	<b>137</b>
ENGINE INSTRUMENTS .....	137
ENGINE FIRE PROTECTION SYSTEMS.....	139
ENGINE ELECTRICAL SYSTEMS.....	141
ENGINE LUBRICATING SYSTEMS.....	143
IGNITION AND STARTING SYSTEMS.....	145

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport,  
Wappingers Falls, NY 12590

FUEL METERING SYSTEMS.....	148
ENGINE FUEL SYSTEMS .....	150
INDUCTION & ENGINE AIRFLOW SYSTEMS .....	152
ENGINE COOLING SYSTEMS.....	154
ENGINE EXHAUST & REVERSER SYSTEMS.....	155
PROPELLERS .....	156
POWERPLANT INSPECTION .....	159

## **APPENDIX E**

---

### **FORMS & DOCUMENTS**

FORM 001 GRADUATION CERTIFICATE.....	A1
FORM 002 STUDENT PERMANENT RECORD .....	A2
FORM 003 ATTENDANCE SHEET.....	A3
FORM 004 LAB PROJECT GRADING FORM.....	A4
FORM 005 FINAL GRADE TALLY SHEET.....	A5
FORM 006 EXAM ANSWER SHEET EXAMPLE .....	A6
FORM 007 GRADUATION LIST EXAMPLE .....	A7
FORM 008 MAKE-UP SESSION RECEIPT DOCUMENT.....	A8
FORM 009 SAMPLE JOB SHEET .....	A9
FORM 010 TRADE SKILL/PROJECT RUBRIC.....	A10
FLOOR PLANS.....	A11

## **APPENDIX F**

---

### **LIST OF PERSONNEL**

COLLEGE ADMINISTRATORS, INSTRUCTORS, DME'S.....	A12
-------------------------------------------------	-----

## **APPENDIX G**

---

LISTS OF EQUIPMENT & INSTRUCTIONAL AIDS .....	A13
AIRCRAFT INVENTORY.....	A13
LIST OF INSTRUCTIONAL TRAINING AIDS .....	A14-A15
SCHOOL SPECIAL TOOL LIST INVENTORY.....	A16-A17
LIST OF SHOP EQUIPMENT.....	A18
FACULTY HAND TOOL LIST INVENTORY.....	A19
STUDENT REQUIRED TOOL LIST.....	A20

## **APPENDIX H**

---

LIST OF REVISIONS AND CHANGES.....	A21
------------------------------------	-----

## **Introduction to Operations Manual**

**This Operations Manual has been prepared in accordance with the requirements of Title 14 of the Code of Federal Regulations 14 CFR, Part 147 Aviation Maintenance Technician Schools, AC 147.3B and policies and procedures of the NYS Department of Education.**

**This Operations Manual will explain student certification policy and procedures including day to day instruction, student enrollment, instructional time, attendance, records, transcripts and student graduation certificates for incoming students effective September 2021.**

**The Operations Manual will also describe and explain the school's curriculum, facilities, technical reference data, instructional aids, materials, lab equipment, and specialized/precision tools as specified by part 147.**

*Dutchess Community College Aviation Maintenance Technician Program (will be referred to hereafter as DCC AMT Program) is certified and inspected by the Federal Aviation Administration (FAA). Therefore, satisfying Part 147 requirements the degree program will be known as DCC (AMT) Airframe Maintenance Technician and the certificated program as Airframe & Powerplant Technician (APC) program. When DCC AMT Program, Local and/or State Educational Requirements and Labor Contractual Issues conflict with the FAA's regulation of DCC AMT Program, FAA regulations will take precedence over those requirements.*

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

## Signature Page

---

\*\*\* 6/7/22 Revision 2

~~Dr. Ellen Gambino, Ed. D.~~ Dr. Peter Jordan, Ed. D.  
~~Acting President~~

---

Genna Suraci  
FAA Liaison/Coordinator, Aviation Maintenance Technology



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

**Sec. 147.3 — Air Agency Certificate required**

No person may operate as a certificated aviation maintenance technician school without, or in violation of, an aviation maintenance technician school certificate issued under this part.

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

## **Organizational Table**

**See Appendix F for List of Personnel**

**President of Dutchess Community College**

**~~Provost~~ Chief of Staff of Dutchess Community College \*\*\*6/7/22 Rev 2**

**Dean of Academic Affairs**

**Department Chair**

**Program Chair**

**FAA Coordinator/Liaison/Teacher**

**Instructors**

## Duties and Responsibilities

### Coordinator

- The Coordinator is accountable to the Federal Aviation Administration.
- The Coordinator has the sole responsibility for the overall operation of the school's FAA program.
- The Coordinator will have the authority to delegate duties and assignments as required.
- The Coordinator can also be the FAA Liaison.
- In the absence of the Coordinator, a teacher will assume the responsibilities of the coordinator and the school's FAA program and can then delegate authority to staff personnel as required.
- The Coordinator must possess an Airframe and Powerplant Certificate.
- The Coordinator is accountable to the FAA Liaison, and FAA.
- The Coordinator is responsible for the ordering/inventory of supplies, tooling, materials, and/or equipment needed to manage day-to-day operations of the FAA Program.

### FAA Liaison

- The FAA Liaison will be the Coordinator or a teacher who possesses an Airframe and Powerplant certificate.
- The FAA Liaison is accountable to the Federal Aviation Administration.
- The FAA Liaison is accountable to the Coordinator of Dutchess Aviation Maintenance Program.
- In the absence of the FAA Liaison, the lead teacher(s) will assume and manage the school's FAA Program and can then delegate authority to staff personnel as required.
- The FAA Liaison working with the Federal Aviation Administration will coordinate the FAA Instructional Program at Dutchess Aviation Maintenance Program.

### Instructors

- The instructors must possess an Airframe and Powerplant Certificate.
- The instructors are accountable to the Coordinator, FAA Liaison, and the Program chair.
- The instructor's primary responsibilities are the day-to-day instruction of students.
- It is the responsibilities of all instructors and instructional assistants to fulfill the duties listed below but are not limited to:
  - Lesson planning and teaching.
  - Tool procurement and equipment inventory.
  - File, maintain and secure daily attendance, student records & forms.
  - Manage all classroom administration requirements.
  - Create, file, maintain, secure, manage and issue lab projects and ensure that all safety procedures are met.
  - File, maintain and secure student grades, documentation and appropriate paperwork.
- Review of Schools Operation Manual and/or FAA Teacher Handbook (annually and/or when revisions are announced) concerning school policies and procedures, including but not limited to the following:

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- Student Attendance, Lateness and Remediation policies, procedures and requirements.
- FAA course grade grading policy and grade submission timeline for all courses.
- FAA remediation rules and grade submission timeline.
- Directions on how to access the online instruction “BLACKBOARD” and transcript data system “BANNER”
- Teacher record keeping requirements, timeline and storage location.

## Subpart A

### General Requirements

#### Sec. 147.5 — Application and Issue

(a) An application for a certificate and rating, or for an additional rating, under this part is made on a form and in a manner prescribed by the Administrator, and submitted with—

- (1) A description of the proposed curriculum;
- (2) A list of the facilities and materials to be used;
- (3) A list of its instructors, including the kind of certificate and ratings held and the certificate numbers; and
- (4) A statement of the maximum number of students it expects to teach at any one time.

(b) An applicant who meets the requirements of this part is entitled to an aviation maintenance technician school certificate and associated ratings prescribing such operations specifications and limitations as are necessary in the interests of safety.

#### Application:

The DCC AMT Program will with this Operations Manual meet all the requirements of 147 schools. The following pages will comply with all parts of 147.5

#### Sec. 147.7 — Duration of Certificate

- (a) An aviation maintenance technician school certificate or rating is effective until it is surrendered, suspended, or revoked.
- (b) The holder of a certificate that is surrendered, suspended, or revoked, shall return it to the Administrator.

**Duration of Certificate:** DCC AMT Program certificate will remain in effect until it is surrendered, suspended or revoked. However, if DCC AMT Program changes location, facilities or ratings, or adds or deletes a rating, the school must be recertified by the FAA.

## Subpart B

### Certification Requirements

#### Sec. 147.11 — Ratings

The following ratings are issued under this part:

- (a) Airframe.
- (b) Powerplant.
- (c) Airframe and Powerplant.

**School Rating:** DCC AMT Program is a Federal Aviation Administration certified school for the following ratings: Airframe, Powerplant, Airframe and Powerplant. The General portion of the curriculum is not a rating, but it is a required part of all the ratings.

#### Sec. 147.13 — Facilities, Equipment, and Material Requirements

An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must have at least the facilities, equipment, and materials specified in §§147.15 to 147.19 that are appropriate to the rating he seeks.

##### Facilities

DCC AMT Program is located in the Hudson Valley Regional Airport (KPOU) in the Town of Wappingers Falls, New York 12590. The school will use the hangar facility at Hudson Valley Regional Airport, 237 New Hackensack Road.

- The instructional aids, laboratory and lab equipment, and physical layout of the building meets the requirements outlined in sections CFR 147.15, 147.17 and 147.19.
- DCC AMT Program constitutes an environment suitable for learning.
- The facilities are of adequate size for the number of FAA-authorized students to accomplish any of the laboratory or lab projects designated for that area and all classroom instruction.
- The school will ensure that all lab areas are free and clear from clutter; such as, extension cords, air hoses, ladders, debris, etc.

**Sec. 147.15 — Space Requirements**

An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must have such of the following properly heated, lighted, and ventilated facilities as are appropriate to the rating he seeks and as the Administrator determines are appropriate for the maximum number of students expected to be taught at any time:

- (a) An enclosed classroom suitable for teaching theory classes.
- (b) Suitable facilities, either central or located in training areas, arranged to assure proper separation from the working space, for parts, tools, materials, and similar articles.
- (c) Suitable area for application of finishing materials, including paint spraying.
- (d) Suitable areas equipped with wash tank and degreasing equipment with air pressure or other adequate cleaning equipment.
- (e) Suitable facilities for running engines.
- (f) Suitable area with adequate equipment, including benches, tables, and test equipment, to disassemble, service, and inspect.
  - (1) Ignition, electrical equipment, and appliances;
  - (2) Carburetors and fuel systems; and
  - (3) Hydraulic and vacuum systems for aircraft, aircraft engines, and their appliances.
- (g) Suitable space with adequate equipment, including tables, benches, stands, and jacks, for disassembling, inspecting, and rigging aircraft.
- (h) Suitable space with adequate equipment for disassembling, inspecting, assembling, troubleshooting, and timing engines.

**Space and Classrooms:**

DCC AMT Program has over 17,000 square feet of usable instructional area. The facility and ramp area have space for all equipment, parts and tools listed in part 147.15 (a thru h). The floor plans can be located **Appendix E Forms and Documents** “floor plans”.

**Sec. 147.17 — Instructional Equipment Requirements**

- (a) An applicant for a mechanic school certificate and rating, or for an additional rating, must have such of the following instructional equipment as is appropriate to the rating he seeks:
- (1) Various kinds of airframe structures, airframe systems and components, powerplants, and powerplant systems and components (including propellers), of a quantity and type suitable to complete the practical projects required by its approved curriculums.
  - (2) At least one aircraft of a type currently certificated by FAA for private or commercial operation, with powerplant, propeller, instruments, navigation and communications equipment, landing lights, and other equipment and accessories on which a maintenance technician might be required to work and with which the technician should be familiar.
- (b) The equipment required by paragraph (a) of this section need not be in an airworthy condition. However, if it was damaged, it must have been repaired enough for complete assembly.
- (c) Airframes, powerplants, propellers, appliances, and components thereof, on which instruction is to be given, and from which practical working experience is to be gained, must be so diversified as to show the different methods of construction, assembly, inspection, and operation when installed in an aircraft for use. There must be enough units so that not more than eight students will work on any one unit at a time.
- (d) If the aircraft used for instructional purposes does not have retractable landing gear and wing flaps, the school must provide training aids, or operational mock-ups of them.

**Technical Data and Instructional Aids**

Technical data library is located in library/testing room in the hangar building and online via a shared student drive. The technical data library is appropriate for the school ratings. The coordinator or his or her representative will update all materials each year or when required to satisfy the FAA requirements. The technical data library at DCC AMT Program will include the following:

- Federal aviation regulations.
- Aircraft, engine, propeller, manuals, type certificate data sheets (TCDS) and specification.
- Airworthiness Directives (AD).
- Supplemental Type Certificates (STC).
- Maintenance manuals.
- Advisory Circulars.
- Textbooks 8083-30 31 32
- Other instructional reference materials



**Instructional Aid Requirements:**

Instructional Aids: required by section 147.17 are appropriate for both the scope and depth of the curriculum. DCC AMT Program will ensure that the complexity of instructional aids is appropriate to the specific teaching level of the subject item. All aircraft parts and components used for instructional purposes will be labeled as “Non-Airworthy”.

Aircraft: Section 147.17 (a) (2) requires a school to have (for instructional purposes) an aircraft of a type currently certificated by the FAA. In this case, certification refers to the FAA type-certification. Active aircraft used to comply with section 147.17 (d) become part of the approved instructional equipment; therefore, they must be listed in the instructional aids inventory.

**Instructional Aids:**

The curriculum provides the following instructional equipment consisting of training aids, visual aids, mock-ups and several functional aircraft appropriate to the course. **See Appendix G List of Equipment & Instructional Aids.**

**Sec. 147.19 — Materials, Special Tools, and Shop Equipment Requirements**

**An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must have an adequate supply of material, special tools, and such of the shop equipment as are appropriate to the approved curriculum of the school and are used in constructing and maintaining aircraft, to assure that each student will be properly instructed. The special tools and shop equipment must be in satisfactory working condition for the purpose for which they are to be used.**

DCC AMT Program has the required quantity of lab equipment in place and in satisfactory operation condition to adequately serve the student enrollment and meet lab/project subject requirements. The equipment is located so students can operate it in a safe and efficient manner. Large, standing equipment is secured. Placement of large lab equipment is placed so to provide sufficient aisle space so that students can move about freely. An equipment list **Appendix G** is maintained and updated periodically by the coordinator or his or her designee.

### **Special Tools Requirements:**

DCC AMT Program has an inventory of special tools required for instruction. Tools will be inventoried with a serial number for control purposes. For subjects taught at level 3, when meeting return to service standards, all special tools will be in satisfactory working condition, maintained in accordance with section 147.19, and of the proper kind for the purpose for which they are intended. When meeting simulated return to service standards, all special tools will be in satisfactory working condition for the purpose for which they are to be used and marked with calibrated tags when required.

DCC AMT Program has adequate supply of special tools appropriate to the ratings and curriculum. Special tools may be custom fabricated for the intended purpose and furnished by the school. DCC AMT Program will supply the students with a minimum hand tool list.

The tool room/lockers/cabinets etc. are monitored and locked when not in use. Special tools required for specific projects will be secured and located in the tool crib or locked tool cabinets. Tools will be issued by the lab assistant and or the teacher. Students will be required to sign out all special tools needed for a particular job using a tool slip and by entering their name, Roll Book Number, date and serial number of the tool. Tools will be inventoried by school personnel before and after classes to ensure they are returned and stowed.

The school will maintain a tool box for faculty to use. The tools in the cabinet will be used for instructional and demonstrating purposes.

All tool lists are subject to change to meet curriculum requirements.

- Special tool list, faculty tool list and required student hand tool list can be found in
  - **Appendix G: Instructional Aids & Equipment.**

### **Material Requirements:**

To ensure adequate instruction, the amount and variety of stock should directly reflect the requirements of the curriculum. For example, sufficient quantities of rivets, hydraulic fluid, gaskets, wire, tubing, composites, hardware, safety wire and sheet metal are needed to complete a course of study.

DCC AMT Program will for all project level 3 work properly stock and store all materials needed for the approved student enrollment.

### **Sec. 147.21 – General Curriculum Requirements**

- (a) An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must have an approved curriculum that is designed to qualify his students to perform the duties of a mechanic for a particular rating or ratings.
- (b) The curriculum must offer at least the following number of hours of instruction for the rating shown, and the instruction unit hour shall not be less than 50 minutes in length—
- (1) Airframe—1,150 hours (400 general plus 750 airframe).
  - (2) Powerplant—1,150 hours (400 general plus 750 powerplant).
  - (3) Combined airframe and powerplant—1,900 hours (400 general plus 750 airframe and 750 powerplant).
- (c) The curriculum must cover the subjects and items prescribed in appendices B, C, or D, as applicable. Each item must be taught to at least the indicated level of proficiency, as defined in appendix A.
- (d) The curriculum must show—
- (1) The required practical projects to be completed;
  - (2) For each subject, the proportions of theory and other instruction to be given; and
  - (3) A list of the minimum required school tests to be given.
- (e) Notwithstanding the provisions of paragraphs (a) through (d) of this section and §147.11, the holder of a certificate issued under subpart B of this part may apply for and receive approval of special courses in the performance of special inspection and preventive maintenance programs for a primary category aircraft type certificated under §21.24(b) of this chapter. The school may also issue certificates of competency to persons successfully completing such courses provided that all other requirements of this part are met and the certificate of competency specifies the aircraft make and model to which the certificate applies.

### **Curriculum Pattern and Instructional Hours**

Students enrolled at DCC AMT Program in our FAA approved school curriculum (Airframe or Powerplant or Airframe & Powerplant) follow a sequence of courses over the length of the program. Courses are numbered AMT 001, 002, 003, 004 005, 006, 007, 008, 009, 010, 011, 012, 013. The pattern will permit students to acquire the necessary training and experience in both areas of the Aircraft Maintenance Technician curriculum.

The combined Airframe and Powerplant curriculum will provide a minimum of 1,904 hours of instruction. The minimum hours of instruction required for the *General/Airframe* and *Powerplant* certification as listed in CFR 147.21 are 1,900 hours. Absence beyond the minimum number of hours listed in CFR 147.21 will require the students to recover all hours lost by way of voluntary scheduled make up classes.

#### **SEE Time and Attendance Policy Page 20**

All approved course graduates will complete the required number of instructional hours as indicated in the approved curriculum.

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappinger Falls, New York 12590

Students who successfully complete all requirements for graduation from the approved aviation maintenance technician program (Airframe or Powerplant or Airframe & Powerplant) may qualify for the FAA written exams once they pass a qualifying exam with a grade of 85% or higher given by the college once they meet the hour requirements set forth in this manual. ~~Students who fail to achieve an 85 or higher will be required to take up to 20 hour remedial training before retesting again.~~ \*\*\* 6/7/22 Rev. 2

**CFR 147.21(b) states: “The instruction unit hour shall not be less than 50 minutes in length.” This means that if 50 minutes of instruction is provided for a subject area, the school can take credit for one hour of instruction.**

DCC AMT Program courses are based on instructional two 4 hours blocks of instruction, one AM session from 8 to 12 and the PM 12:30 am to 4:30 pm for a total of 8 hours of instruction. **Embedded in the day is a 30-minute lunch.**

The school curriculum is calculated based on an instructional hour which is 50 minutes. The chart below illustrates the total number of hours available per semester. This chart will also indicate how the DCC AMT Program curriculum exceeds the minimum hours required under CFR part 147.21. The pages to follow will further breakdown the total number of instructional hours by subject area.

Days of Instruction	Total Semester days	Hours per day	Days per week	credit hours based on 50 minutes = 1 hour	Hours per week	Morning Session Length in Minutes	Afternoon Session Length in Minutes	Total Minutes in Class	Total hours per	Total Hours Available per License Area
Semester 1	79	8.5	5	8 hrs	40	240	240	480	632	General 401 Airframe 753 Powerplant 750
Semester 2	79	8.5	5	8 hrs	40	240	240	480	632	
Semester 3	80	8.5	5	8 hrs	40	240	240	480	640	
Total	238								1904	1904

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappinger Falls, New York 12590

**General, Airframe and Powerplant Curriculum**

<b>General Curriculum</b>	<b>Theory Hrs.</b>	<b>Lab Hrs.</b>	<b>Total Hrs.</b>
Mathematics	16	2	18
Aircraft Drawings	10	11	21
Basic Physics	10	2	12
Weight and Balance	20	15	35
Materials and Processes	33	32	65
Cleaning and Corrosion Control	20	15	35
Fluid Lines and Fittings	20	10	30
Basic Electricity	60	25	85
Safety, Ground Operation/Serviceing	17	10	27
Maintenance Forms, Records & Publications	14	13	27
Mechanic Privileges and Limitations	15	1	16
Human Factors (taught throughout the curriculum)	10	0	10
General aircraft inspection procedures (Capstone Inspection)	0	20	20
<b>Total Curriculum Hours/General</b>	<b>245</b>	<b>156</b>	<b>401</b>

<b>Airframe Curriculum</b>	<b>Theory Hrs.</b>	<b>Lab Hrs.</b>	<b>Total Hrs.</b>
Wood Structures *** 6/7/22 Revision 2	<del>9</del> 7	0	<del>9</del> 7
Aircraft Covering	9	0	9
Aircraft Finishes	10	15	25
Sheet Metal and Nonmetallic Structures	55	130	185
Welding	15	40	55
Assembly and Rigging	20	35	55
Aircraft Landing Gear Systems	20	35	55
Hydraulic and Pneumatic Power Systems	20	30	50
Cabin Atmospheric Control Systems			
<b>Water &amp; Waste Systems ***6/7/22 Rev 2</b>	<del>32</del> 34	3	<del>35</del> 37
Aircraft Instrument Systems	20	5	25
Communication and Navigation Systems	29	1	30
Aircraft Fuel Systems	31	9	40
Aircraft Electrical Systems	40	50	90
Position and Warning Systems	10	10	20
Ice and Rain Control Systems	15	5	20
Fire Protection Systems	15	15	30
General airframe inspection procedures (Capstone Inspection)	0	20	20
<b>Total Curriculum Hours/Airframe</b>	<b>350</b>	<b>403</b>	<b>753</b>

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappinger Falls, New York 12590

<b>Powerplant Curriculum</b>	<b>Theory Hrs.</b>	<b>Lab Hrs.</b>	<b>Total Hrs.</b>
Reciprocating engines	76	103	179
Turbine	54	59	113
Engine Instrument Systems	10	15	25
Engine Fire Protection Systems	5	10	15
Engine Electrical Systems	20	30	50
Lubrication Systems	30	35	65
Ignition and Starting Systems	25	35	60
Fuel Metering Systems	32	21	53
Engine Fuel Systems	8	10	18
Induction Engine Airflow Systems	8	12	20
Engine Cooling Systems	5	10	15
Engine Exhaust and Reverser Systems	8	12	20
Propellers	30	60	90
Unducted Fans	3	0	3
Turbine Powered Auxiliary Units	4	0	4
General powerplant inspection procedures (Capstone Inspection)	0	20	20
<b>Total Curriculum Hours/Powerplant</b>	<b>318</b>	<b>432</b>	<b>750</b>

## **Sec. 147.23 – Instructor Requirements**

**An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must provide the number of instructors holding appropriate mechanic certificates and ratings that the Administrator determines necessary to provide adequate instruction and supervision of the students, including at least one such instructor for each 25 students in each shop class. However, the applicant may provide specialized instructors, who are not certificated mechanics, to teach mathematics, physics, basic electricity, basic hydraulics, drawing, and similar subjects. The applicant is required to maintain a list of the names and qualifications of specialized instructors, and upon request, provide a copy of the list to the FAA.**

### **Instructor Qualifications, Responsibilities, and Specialization**

Instructors at the DCC AMT Program meet the minimum FAA standards for teaching within a certified CFR part 147 school. Satisfying part 147 requirements is a primary concern of an AMTS. When local and state educational requirements conflict with the FAA's regulation of an AMTS, FAA regulations take precedence over those requirements.

#### **DCC AMT Program instructors meet the following criteria:**

1. FAA certified with an "A & P Mechanic Certificate" having the ratings appropriate to those subjects to be taught.
2. Have the appropriate experience working in the aviation industry, either in general aviation, corporate, commercial aviation, military aviation or a combination of the above using the appropriate FAA Mechanic's Certificate.

Other desirable qualifications:

1. Previous experience teaching at an FAA certificated part 147 school.
2. Previous experience teaching aviation related courses.

Other employees, such as tool room monitors/stock clerk or parts persons, are not required to be FAA-certificated.

### **Designated Maintenance Examiner (DME)**

The school will have at least two designated maintenance examiners attached to it or on staff.

Should a vacancy be declared in anyone of the two positions listed above, the Coordinator/FAA Liaison will recruit DME's as required.

Names & license numbers of DME's can be found in **Appendix F List of Personnel**

## SUBPART C

### Operating Rules

**Official method of notification communication:** All DCC AMT Program Department notifications/communication etc. will be disseminated online via the DCC teacher email account. All DCC AMT Program FAA & non-FAA instructors will be required to check their email account once per/day (minimum).

**Change of location:** DCC AMT Program will not make any changes to the school's location unless the change is approved by the FAA in advance. DCC AMT Program will notify the FAA in writing at least 30 days before the date change is contemplated. During the change in location, no disruption may be made to student instruction or normal classroom attendance. Equipment, facilities, and instructors must be at least at the same level as the standards approved for the vacated facilities.

**Records, transcripts, and graduation certificates:** DCC AMT Program maintains and upon request, will make available to the FAA documents that show records on each student. See samples in **Appendix E Forms and Documents section.**

**A. Records:** Records must make it clear which tests, quizzes, and practical projects are required, and which ones are optional. Student records should clearly distinguish between successful performance and unsuccessful performance. Progress records or charts must show student grades (0-100%) for practical projects or laboratory work. Student attendance records must show the number of days of absences.

CFR 147.33 requires the DCC AMT program to retain student records for 2 years beyond the student's graduation date.

**B. Transcripts:** FAA student transcripts (form 02) will be authenticated by the Coordinator/FAA Liaison. Transcripts contain a complete record of the courses, grades, and term of completion, and will be made available to the student regardless of whether the student graduates.

**C. Graduation certificates:** Graduation certificates will be authenticated by the Coordinator and be issued only if all the curriculum requirements have been met, up to and including the "qualifying exam". All students meeting the FAA graduation or completion requirements will be issued the appropriate certificate. The certificates will contain the school's name, its certificate number, the approved license name, date of completion, School Administrator's signature and embossed seal.



**Sec. 147.31 — Attendance, Enrollment, Tests, and Credit for Prior Instruction or Experience**

**(a) A certificated aviation maintenance technician school may not require any student to attend classes of instruction more than 8 hours in any day or more than 6 days or 40 hours in any 7-day period.**

**(b) Each school shall give an appropriate test to each student who completes a unit of instruction as shown in that school's approved curriculum.**

**(c) A school may not graduate a student unless he has completed all of the appropriate curriculum requirements. However, the school may credit a student with instruction or previous experience as follows:**

**(1) A school may credit a student with instruction satisfactorily completed at—**

**(i) An accredited university, college, junior college;**

**(ii) An accredited vocational, technical, trade or high school;**

**(iii) A military technical school;**

**(iv) A certificated aviation maintenance technician school.**

**(2) A school may determine the amount of credit to be allowed—**

**(i) By an entrance test equal to one given to the students who complete a comparable required curriculum subject at the crediting school;**

**(ii) By an evaluation of an authenticated transcript from the student's former school; or**

**(iii) In the case of an applicant from a military school, only on the basis of an entrance test.**

**(3) A school may credit a student with previous aviation maintenance experience comparable to required curriculum subjects. It must determine the amount of credit to be allowed by documents verifying that experience, and by giving the student a test equal to the one given to students who complete the comparable required curriculum subject at the school.**

**(4) A school may credit a student seeking an additional rating with previous satisfactory completion of the general portion of an AMTS curriculum.**

**(d) A school may not have more students enrolled than the number stated in its application for a certificate, unless it amends its application and has it approved.**

**(e) A school shall use an approved system for determining final course grades and for recording student attendance. The system must show hours of absence allowed and show how the missed material will be made available to the student.**

## Time and Attendance

The DCC AMT Program ensures that typical time loss items do not affect approved curriculum hours. Student attendance requirements are specified in this section 147.31.

Attendance and reporting will be governed by the Federal Aviation Administration and DCC AMT Program. Any additional requirements of the FAA will be added to these minimum standards to ensure compliance with all applicable agencies.

## Attendance

Attendance requirements for our courses are programmed to meet the following:

- Each student must meet the minimum attendance hours.
- All absences must be made up in order to meet the hour 1904-hour requirement and in order for a student to earn an FAA passing grade (70% or higher).
- Instructor's approval is needed in order for the student to attend scheduled Make-up classes (Saturday or after school).
- It is the student's responsibility to schedule make-up time.
- **Exceeding 40 hours of make-up time in any semester will result in the immediate termination of the student's participation in the program. Students exceeding the 40 hour limits will be given the opportunity to enroll in a subsequent semester on a space-available basis. \*\*\*Rev 3 6/21/23**

## Enrollment

DCC AMT Program will not have more students enrolled than the number stated on the certificate application.

## Instructor/Student Ratio:

As per CFR 147.36, an Instructor/student ratio of 1:25 will be maintained with the appropriate rated personnel throughout the school day. Teachers will either be scheduled for the entire day from 8 am to 4:30pm or half day 8am to 12 noon Monday thru Friday for a 4 or 8-hour instruction a day.

Example: A student population of three Cohorts (classes) of 20 to 25 students can be accommodated with 3 teachers. This formula 1:25 instructor to student ratio used by the FAA will determine the number of teachers to be allocated by DCC AMT Program coordinator.

Each cohort is scheduled for 8.5 hours a day. The number of teachers required is then established.

- 1 teacher per Cohort of 20 -25 students.
- Practical assignments will have a maximum of 8 students to 1 project.

Total population: 60-75

Total teachers required: 3 teachers

**Prior Experience Credit:**

**DCC AMT Program may credit a student with instruction satisfactorily completed at—**

- An accredited university, college, junior college;
- An accredited vocational, technical, trade or high school;
- A military technical school;
- A certificated aviation maintenance technician school.

**DCC AMT Program Coordinator will determine the amount of credit to be allowed—**

- By an entrance test equal to one given to the students who complete a comparable required curriculum subject at the crediting school;
- By an evaluation of an authenticated transcript from the student's former school; or
- In the case of an applicant from a military school, only on the basis of an entrance test and Military documentation.

**Student Testing:**

DCC AMT Program shall give an appropriate final test to each student who completes a unit of instruction as shown in that school's approved curriculum. Lab Project Grading form 004 is the official school student grade record for each lab project. (See Appendix E **Forms and Documents**)

Any final grade below 70% will be considered a failing grade by the FAA standards. Students who fail one course section in any semester will have the opportunity to take only that course over again once that course is offered again and when they can fit it into their schedule. Students who fail a total of two course will be dropped from the program and have to take the entire program, semester, or course over again.

Testing is included as part of the required curriculum hours and is directly related to the subject matter covered.

1. Passing grades must be sufficient to achieve the required teaching level in part 147. Within the requirements, DCC AMT Program set its standards for passing grades in the laboratory, lab, and classroom at 70. FAA written tests also use the 70 percent standard.

2. All final exams and required practical projects for each subject listed in the curriculum are required to be individually passed with a 70% or higher. Additional lab practical projects will also be separately passed to this standard. Practical project testing and grading criteria is explicit. (Trade Skill/Project Rubric - Form 010). The requirements for successful completion of a project is sufficient to maximize objective grading and reduce any subjective project grading to a minimum.

3. Upon completion of each curriculum course, a final exam will be scheduled. In addition, teachers will schedule periodic quizzes.

4. Teachers will have a system to provide test security.

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

### **Computer Testing Center**

The will test at approved FAA Test Centers as per the guidelines set forth under FAA order 80806.

DCC students will have a choice of several PSI testing centers available to them.

- Take Flight Aviation 49 Hangar Rd, Montgomery, NY 12549
- Arrow Aviation at Danbury Airport 53 Miry Brook Rd, Danbury, CT 06810
- Richmor Aviation Ulster County Airport. 1155 Flatbush Rd, Kingston, NY 12401

The PSI Testing Center is authorized to administer the FAA Mechanic General, Airframe and Powerplant knowledge exams.

## Completion of All Program and Course Requirements

Successful completion of DCC's Aviation Maintenance Technical program and Airframe and Powerplant Technician Certificate require that a student has completed all of the appropriate curriculum requirements as outlined in the curriculum section of this document. This will require that students meet the minimum required classroom and lab hours and pass all final exams and practical assignments with a grade of 70% or higher.

Students not meeting the attendance requirements per area (General Airframe or Powerplant) that have not been made up will receive a failing grade no higher than 64%.

In order to support student success, DCC makes the following provisions for remediation and make-up of courses and instructional time.

## Provisions for Make-Up Time

- DCC AMT Program has provisions for the evaluation of students after failure. (see below)
- All absences must be made up to meet the 1904 hour requirement.
- Students have the opportunity to make up lost hours during scheduled school make-ups dates during that course semester.
- All classroom technical material missed during absences must be recovered no later than 5 days after that course section is over.
- Students will be encouraged to recover all needed work by attending the next available make up session.
- All practical projects missed because of absences must be recovered. These must be either the same projects missed or those assigned by the teacher that are similar. Projects must be completed according to the approved grading standards.

## Coursework Remediation

Note: when remediating project/coursework, the highest passing grade a student may earn is a 70%. Students who fail one course section will have the opportunity to take that course over again the next time it is offered. Students who fail two courses will be dropped from the program and have to take the course, semester or entire program over again.

*When remediating coursework, students must attend and complete the program from beginning to end.*

### \*Final Exam Remediation

- Students who fail (1) AMT course due to failing the final test, will have one opportunity to retake the final exam during schedule final exam retake times. Students will be advised of when final tests can be made up.  
\* *Note: maximum number of retakes for the entire program is 1.*
- Students must register in advance for final exam retest. Walk-ins will not be permitted.

### **Absences and Lateness**

- All must be made up in order to receive an FAA passing grade (70% or higher).
  - Example of allowable absences per semester: See Page 31.
- When extenuating medical circumstances arise, absences can be made up through teacher/student individualized instruction. The program coordinator has final approval on all make-ups.
- Lateness: Students who are late by 1 to 30 minutes will be docked a full 30 minutes of clock time “30-minute rule” – A lateness beyond 30 minutes is equivalent to one absence. Students are responsible for any lost lecture time when they arrive late to school.
- All make-up assignments must be completed no later than 5 school days after completion of that course section. Failure to do so will result in a non-FAA passing grade 64 or less.

### **Provisions for Remediation of Absences & Lateness**

- All absences must be made up in order to receive an FAA passing grade (70% or higher).
- All make up day assignments must be completed during that session.
- The 30-minute rule will also apply to students attending make-up days.
- Student remediation/make-up work (outside of school approved makeup sessions):
  - With prior approval of the instructor and the Program Coordinator, students may remediate coursework outside of DCC Make-up days. Under this method, students may remediate absences and/or failed coursework. When adopting this process, all records and/or documents including the “Make-up Session Receipt Document”, student answer sheets, job sheets and attendance documents must be kept on file as proof of completion. These records will be maintained in a binder by the “remediation/make-up teacher” and will be kept on file for a minimum of two years beyond the student’s graduation date. The teacher will also issue a copy of the “Make-up Session Receipt Document” to the student as proof of completion and will be required to enter the appropriate grade change onto the record system within 5 school days.
  - Students may be assessed additional fees for make-up times.

**Provisions for Student Work/ Hour Make-Up Time:**

1. The Make-up Session Receipt Document will be the official document used to indicate that a student has completed deficient coursework and met the required mandates for all make-up sessions.
2. The Make-Up Session Receipt Document must be completed as follows:
  - Student last name, first name and student ID number:
  - Fill in the student last and first name and ID number in the appropriate boxes.
  - College course code: Indicate the course code for the area in need of remediation
  - Course term: indicate year and term
  - Originating teacher: Name of teacher where failure occurred.
  - Coordinator's approval signature
  - Teacher and date line: Fill in remediation teacher's name and remediation completion date.
  - Work and/or time: Circle the appropriate area.
  - Brief statement: Briefly describe the work performed and attach proof of documents.
  - Signature of makeup teacher: Located on the bottom left hand corner of the document teacher's signature will indicate that all the information listed on the form is true and accurate. A sample of the form can be found in **Appendix E under Forms and Documents**

## **Student Grading Policy**

Instructors will follow the procedures outlined below to determine student's final grade.

### **1. Lab work = 50%**

#### ***Individual lab work projects***

The following should also be taken into consideration:

- Work traits such as quality, quantity, aptitude, accuracy, speed, care of tools, planning, following instructions, safety and attitude.
- Personal appearance and appropriate lab attire.
- Assistance in lab management (foreman, tool chief, team leader, etc.).
- Contributions towards lab maintenance and instructional materials.
- Punctuality: The "30-minute rule" will apply to all lateness issues. 30 minutes of lateness is equivalent to 1 absence per session.  
Students who exceed attendance/lateness limits can will not earn an FAA passing grade.
- Good citizenship which includes cooperation with teachers and other students, account for student's own actions, respect for school property and personal property of others, recognize and follow school rules.

### **2. Weekly quizzes, = 25%**

### **3. Final examination for course = 25%**

**Total = 100%**



## **Practical Projects**

1. The curriculum lists each “level 3” practical projects that must be completed for each subject item. There must be a sufficient number of practical projects to address the requirements of Appendices B, C, and D to part 147 as applicable. The curriculum includes detail to identify the practical projects for the correct teaching level and to clearly define performance standards and objective grading criteria.
2. The curriculum shows Estimated Instructional Time (EIT), Theory of Instruction (TI) and Lab hours (Lab) (see **Appendix B, C&D**).
3. The curriculum was designed so that each level 3 task (in each subject item) must be accomplished by all students. For example, if a subject element listed requires that the student inspect and repair to a level 3, a project in both inspection and repair is included in the curriculum/lesson. It is possible that one project may satisfy all the requirements for that subject element.
4. DCC AMT Program will adopt the format illustrated in the **Appendix E under Forms and Documents** for Job Sheet Form 009 and Trade Skill/Project Rubric Form 010.

**Sec. 147.33 — Records.**

(a) Each certificated aviation maintenance technician school shall keep a current record of each student enrolled, showing—

- (1) His attendance, tests, and grades received on the subjects required by this part;
- (2) The instruction credited to him under §147.31(c), if any; and
- (3) The authenticated transcript of his grades from that school.

It shall retain the record for at least two years after the end of the student's enrollment, and shall make each record available for inspection by the Administrator during that period.

(b) Each school shall keep a current progress chart or individual progress record for each of its students, showing the practical projects or laboratory work completed, or to be completed, by the student in each subject.

**Student Permanent Record (Form 002)**

Access to student records is governed by the Federal Family Education Rights and Privacy Act of 1974 (FERPA) which protects the privacy of student records. Students may have access to their records with appropriate notice and must provide permission in writing for Dutchess Community College to release information to other interested parties according to the College's published FERPA requirements.

1. The Permanent Records will be maintained on the DCC AMT Program On-line Student management system for recording grades. BANNER is a secure Web based student record system that will house all final grade and personal information for all students attending DCC AMT Program. The Program Coordinator will be responsible for collecting and storing on site all student attendance records as supplied by every instructor each semester.
2. The Permanent Record (documented on Form #2 DCC AMT Program), will be maintained for all students attending DCC AMT Program. This record will be kept on file for two years beyond student's graduation date and will be available to the FAA upon request.
3. The Permanent Record includes: student last name, first name, student's I.D.#, class name, year and term of course, teacher name, exam grade, class grade and student absences as required by Part 147.33.
4. The Permanent Record will be issued when a formal request has been received from the student or from any other interested party to whom the student has given permission in writing for DCC AMT Program to release such information.
5. The school shall maintain a student grade report for every student enrolled in the APC/AMT Program. This record will be documented on DCC forms 003, 004 & 005. The instructor will be required to monitor and document daily attendance, lateness and completed lab projects. Student progress records (roll books/Excel spreadsheet) will track the number of lateness's and the number of absences. Grade Reports will be maintained by every FAA instructor electronically or in a secured file cabinet.

Class Grade Reports will indicate:

- A. Attendance and punctuality record.
- B. Each completed practical project
- C. Grade earned for each project.
- D. Scores earned for each written examination

### Student Records – Attendance

Student daily attendance record (either in roll book form or through use of an Excel spreadsheet) is the official school document to record student attendance and lateness.

- Instructor roll call will commence at the beginning of each class session AM & PM.
- Instructor will monitor students and annotate class roll book/Excel spreadsheet when a student is either late or absent (a student who arrives late or leaves early will be required to make up any projects/instruction/test/time etc. lost during his/her absence).
- 30-minute rule: Students who are late 1 to 30 minutes will be docked and entire 30 minutes.
- Lateness exceeding 30 minutes (31 minutes) will be marked as absent for the entire session.
- When this occurs, the student must be marked “absent” for FAA purposes only. This policy must not be confused with SUNY Dutchess’ attendance policies and procedures.
- Left Early Rule: Students who leave 30 minutes or more prior to the end of the class will be marked absent for that session. When this occurs, the student must be marked “absent” for FAA purposes only.
- Absences: all absences must be recovered in order to receive an FAA passing grade (70% or higher).
- A student, who does not complete the required total hours for an Area (General, Airframe, Powerplant) due to extenuating circumstances, and fails to make-up the lost time, may not earn an FAA passing grade.
- See section “Provisions for Remediation of Absences and Lateness” page 24.

*General Section = approximately 401 hours*  
*Airframe Section = approximately 753 hours*  
*Powerplant Section = approximately 750 hours*

Class days are broken into 2 sessions per day, AM and PM sessions. Students missing only a morning or afternoon session will be credited for only the session they attended. 2 half session absences on any day will equal one full absence.

Students will be responsible for making up all missed work on half or full day absences.

***This policy must not be confused with SUNY Dutchess’ attendance policies and procedures.***

### **Maintenance of Student Records – Attendance**

It is the instructor's responsibility to complete this document each and every day. The document will be completed as indicated below (see sample document, next page).

- Period beginning and ending: enter the course start and end date. In addition, enter 1 of 3 following areas:  
a) *Attendance*, b) *lab projects*, c) *quiz/final exam*.
- Subject: enter course code and course name.
  - *Example- AMT 101/General Maintenance practices*
- Indicate calendar date: *enter current calendar date*
- Names: *enter the student last name and first name. One name per line. This will be the official record for student attendance.*
- When a student is present/on-time, simply enter a “backslash” (Roll Book) or “X” mark when using Excel  
Example: / or X
- When a student arrives late, enter arrival time in appropriate calendar month/day box
  - Example: 3/13 8:55.
- When a student is absent, enter an “A” in the appropriate calendar month/day box.
- If there is a legal holiday, enter an “H” in the calendar month/day box.
- If a student leaves early, enter “LE” and enter time in the appropriate month/day.
- If the student arrives to the class late or leaves before the scheduled class dismissal time, the instructor will be required to document the projects/assignments lost for that day. If necessary, lost time/projects may be documented in the empty columns on the far right-hand side of the roll book.
- All class grades must be entered onto BLACKBOARD within 5 business days from course completion date.
- The curriculum will highlight practical projects to be used for performance demonstrations and testing. All student records including daily attendance, lateness, test grades, final exam grades, performance grades, and practical project grades will be documented and made part of the instructor's class roll-book.

**\*\*These records must be kept on file for a minimum of two years beyond the student's graduation date. \*\***

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappinger Falls, New York 12590

**(Form 003) Example Attendance Sheet**

Attendance Period Beginning: January 2022      Period Ending: May 2022

**Subject: AMT103 / Basic Electricity**

Names	DATE														
	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	1/2	1/3	1/4	1/5	1/6	1/9	1/10	1/11	1/12	1/13	1/16	1/17	1/18	1/19	1/20
1 Abby, J	X	X	X	X	X	X	H	X	X	X	X	X	X	X	X
2 Brown, A	X	X	X	X	X	X	H	X	X	L 8:15	X	X	X	X	X
3 Connor, C	X	X	X	X	L 8:35	X	H	X	X	X	X	X	X	X	X
4 Daniels, S	X	X	X	A	X	X	H	X	X	X	X	X	X	X	X
5 Edwards, P	X	X	X	A	X	X	H	X	X	LE 1:30	X	X	X	X	X
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															

**Example above:**

Student Brown arrived at 8:15 am on the 13<sup>th</sup> of the month, & Connor C arrived at 8:35 on the 6<sup>th</sup> of the month.

1/10 was a Holiday for all.

Students Daniels, S and Edwards, P were both marked absent on 5<sup>th</sup>

Student Edwards left early on the 13<sup>th</sup>.

**Maintenance of Student Records**

Lab Project Grading Form (Form 004) is the official school student grade record for each lab project. The passing requirement for each lab project will be 70%. Any lab assignment grade below 70% will be considered a failing grade and students, if time permits and with teacher permission, will have the opportunity to remediate their work in order to receive a passing final course grade.

The student lab project grade form will be completed as follows:

**(Form 004) Example: Lab Project Grading Form**

**Lab Projects** Period Beginning: September 2021      Period Ending: November 2021

Subject: AMT 104 / Aircraft Systems

Names	Project numbers / TITLES											
	1) rigid line fabrication			2) flex line fabrication			3) changing hydraulic line			4) brake bleeding		
	Grade			Grade			Grade			Grade		
1 Abby, J		90						90				
2 Black, A		85									85	
3 Connor, C					80			90				
4 Daniels, S					75						85	
5 Edwards, P					80			90				
6												
7												
8												
9												

## (Form 005) Example: Final Grade Tally Sheet

### Maintenance of Student Records – Final Grade Tally Sheet (AMT Form 005)

Quiz Grades/Practical/ Final Exam = Course grade    Period Beginning: September 2021    Period Ending: November 2021

**Subject: AMT 104 / Aircraft Systems**

Names	Quiz 1:	Quiz 2	Quiz 3	Final Test	Project 1	Project 2	Project 3	Final grade
1 Abby, J	90	95	80	90	70	85	75	83.6
2 Black, A	100	80	80	90	85	90	85	87.1
3Connor, C	80	80	80	86	90	75	70	80.1
4 Daniels, S	85	75	88	75	75	85	85	81.1
5 Edwards, P	88	88	90	80	85	70	90	84.4

### Exam Answer Sheet (Form 006)

Quiz/Final Exam answer sheets must contain the following:

- Name: Enter the student’s first and last name
- Quiz/exam date: student will enter the date the quiz or exam was given and identify whether it was a quiz or final exam
- Subject: student’s will enter the subject and quiz number i.e.; Welding Quiz # 2 or Welding Final Exam
- Period and/or time: students will enter period and/or time where indicated
- Score: the instructor/Scranton machine will enter the final grade for the quiz/exam
- Any final exam grade that is below the required 70% passing grade must be remediated
- See (**Appendix E Forms & Documents 006**) for exam answer sheet sample

**Sec. 147.35 — Transcripts and Graduation Certificates**

(a) Upon request, each certificated aviation maintenance technician school shall provide a transcript of the student's grades to each student who is graduated from that school or who leaves it before being graduated. An official of the school shall authenticate the transcript. The transcript must state the curriculum in which the student was enrolled, whether the student satisfactorily completed that curriculum, and the final grades the student received. Fees may apply.

Upon request, DCC AMT Program will provide a transcript of the student's grades to each student who is graduated from that school or who leaves it before being graduated. The Registrar of DCC shall authenticate the transcript. The transcript will state the curriculum in which the student was enrolled, whether the student satisfactorily completed that curriculum, and the final grades the student received. Sample of transcripts can be found in **Appendix E under Forms & Documents**

(b) Each school shall give a graduation certificate or certificate of completion to each student that it graduates. An official of the school shall authenticate the certificate. The certificate must show the date of graduation and the approved curriculum title.

DCC AMT Program shall give a graduation certificate of completion to each student that it graduates. The Registrar of the school shall authenticate the certificate. The certificate shows the date of graduation and the approved curriculum title. (Form 001) Sample Graduation Certificate of Airframe and Powerplant Technician can be found in **Appendix E under Forms & Documents**.

**Procedures for Addressing Student Certification Needs and Inquiries:**

- Procedures for addressing certification needs regarding FAA certification and/or CFR Part 147 regulations must be directed to the Coordinator/FAA Liaison. The Coordinator/FAA Liaison is the only person authorized to approve or certify as students or alumni.
- Persons with lost written results or lost A&P licenses must log onto FAA.gov for information regarding replacement.
- Documents addressed to the FAA local Flight Standards District Office (FSDO) and/or Oklahoma City, must carry a school raised seal and the signature of the FAA Liaison signature (see signature page).
- The raised seal is kept locked and secured in the Registrar's office. Only the Registrar shall have access to it and with the Coordinator/FAA Liaisons recommendation, the seal will be affixed to the certificates and diplomas of students who successfully complete the program.



## **Qualifying Examination and Certificate of Graduation**

### Qualifying Examination

The school will require all students who satisfactorily complete the FAA curriculum (in Airframe and/or Powerplant) to score 85 percent or higher on the school administered “FAA Qualifying Examination”. This examination is administered upon completion of the course curriculum. Failure to meet this requirement will prevent a student from receiving his/her “Certificate of Graduation” (see **Appendix E Forms & Documents**).

### Qualifying Examination Retakes

One additional opportunity for all students after completing mandatory review hours.

## **Sec. 147.36 – Maintenance of Instructor Requirements**

A list of all qualified certificated instructors will be maintained by the FAA Coordinator/Liaison to include the instructor’s name, FAA certificate number and ratings. This list will be kept in the FAA Coordinator/Liaison’s office and an official copy sent to the FAA for their records. These lists will be verified true and correct and signed by the FAA Coordinator/Liaison. Specialized teachers who are not A&P certified may teach mathematics, science, welding and mechanical drawing as called for in the general curriculum and will be listed in **Appendix F List of Personnel**

This list is subject to an annual update in lieu of a revision.

Instructor’s names, license numbers and curriculum areas to be taught can be found in **Appendix F List of Personnel**

## **Sec. 147.37 — Maintenance of Facilities, Equipment, and Material**

(a) Each certificated aviation maintenance technician school shall provide facilities, equipment, and material equal to the standards currently required for the issue of the certificate and rating that it holds.

(b) A school may not make a substantial change in facilities, equipment, or material that have been approved for a particular curriculum, unless that change is approved in advance.

### **Maintenance of Facilities**

Under part 147, DCC AMT Program is required to continuously maintain the same standards as those under which it was certificated original. This includes the maintenance of all facilities and equipment required for initial certification.

### **Maintenance of Lab Equipment**

Lab equipment will be maintained in good working order and be in a condition for safe operation. All lab equipment and training aides will be maintained in a safe working operating condition by the instructors. Each piece of equipment will be maintained as per the:

- User/owner manuals
- Manufacturer maintenance handbook

All maintenance of lab equipment will be recorded in an equipment log book and maintained by the DCC AMT Program Lab Assistant and or Coordinator/FAA Liaison or his or her designee(s). An operation inspection for safety will be made by the “instructor” prior to use of any piece of critical equipment.

Routine maintenance/inspection of equipment will be performed as required as per equipment maintenance/operation manuals and logged in the equipment log book by the coordinator or his or her designee. If a piece of equipment is found to be unsafe or unserviceable it will be removed from service and tagged until it has been repaired or replaced and logged into the equipment log book.

### **Maintenance of Tools and Special Tools Supply:**

DCC AMT Program will continue to provide all tools and special tools specified in this manual. All precision tools will be maintained by the instructors and or lab assistant and taken out of service if they are deemed unsafe or out of calibration.

### **Maintenance of Technical Data Reference Materials**

DCC AMT Coordinator/FAA Liaison or his or her designee will be responsible for updating the technical data/text book/reference materials in the facilities’ library/testing room and online.

### **Maintenance of Instructional Materials:**

- DCC AMT Program will continue to provide handout materials provided by the instructor
- Class instructor will maintain and monitor all handouts.
- All materials will be filed in a cabinet and updated as required by the instructor.
- Project materials will be given out by the instructor or lab assistant when needed to complete a project.
- Class instructor and lab assistant will maintain and monitor all consumable items.
- These consumable items will be located in the tool/stock room and replenished when necessary.

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

*Intentionally Left  
blank*

## **Sec. 147.38 — Maintenance of Curriculum Requirements**

- (a) Each certificated aviation maintenance technician school shall adhere to its approved curriculum. With FAA approval, curriculum subjects may be taught at levels exceeding those shown in appendix A of this part.**
- (b) A school may not change its approved curriculum unless the change is approved in advance.**

### **Maintenance of Quality of Instruction:**

DCC AMT Program will continue to provide instruction of the same quality as it demonstrated to the FAA during certification. The instrument used by the FAA to measure AMTS instruction quality is a document titled “The National Passing Norms”. This norm is a measure of the performance DCC AMT Program will be required to meet or exceed on the National Passing Norms for students passing the FAA written examination for the first time.

- I. The school will provide instruction quality such that during any 24 calendar-period, a prescribed percentage of its graduates will be able to pass the appropriate FAA written test on the first attempt.
  - a. The following FAA forms will be reviewed and if the percentage falls below those specified in CFR 147.38 (a) corrective action will be initiated.
    - i. AC Form 8080-08
  - b. The FAA Coordinator/Liaison is responsible for performing this review and presenting it to the program chair.
- II. The FAA Coordinator/Liaison will:
  - i. Review the appropriate forms to determine which curriculum items are being missed.
  - ii. Review the specific curriculum with the instructors and set up a corrective action plan for the course/program to increase the first time passing rate to the national average.
  - iii. Keep the corrective action plan in place until the next national passing norms for students has met the required percentage.

The Coordinator/Liaison, working with the school instructors, will implement the corrective action plan and ensure that this plan is passed down to the students in the normal instruction process.

### **Revisions to Curriculum**

Changes to an approved curriculum must be approved by the FAA before DCC AMT Program can implement them. Changes in the curriculum may include changes in any of the following:

- Teaching level (Appendix A to part 147)
- Hours of instruction
- Business hours during which instruction is conducted
- Testing/grading criteria
- Make-up provisions
- Course content
- Equipment or facilities affecting instruction in theoretical subjects or the accomplishment of practical projects
- Addition or deletion of a rating

### **Curriculum Requirements:**

DCC AMT Program curriculum is comprised of the courses needed to meet CFR Part 147 requirements. Once approved by the FAA, the curriculum will illustrate how DCC AMT Program will train students for certification as Aviation Maintenance Technicians (AMTs) and how it will meet academic and regulatory requirements of the regulations. Because revisions may be required periodically and those revisions must be FAA approved, curriculum documents have a format that permits easy revision. The curriculum document has a revision control page that indicates the location of each revision and includes the approving FAA official's signature (see **Appendix H List of Revisions and Changes**).

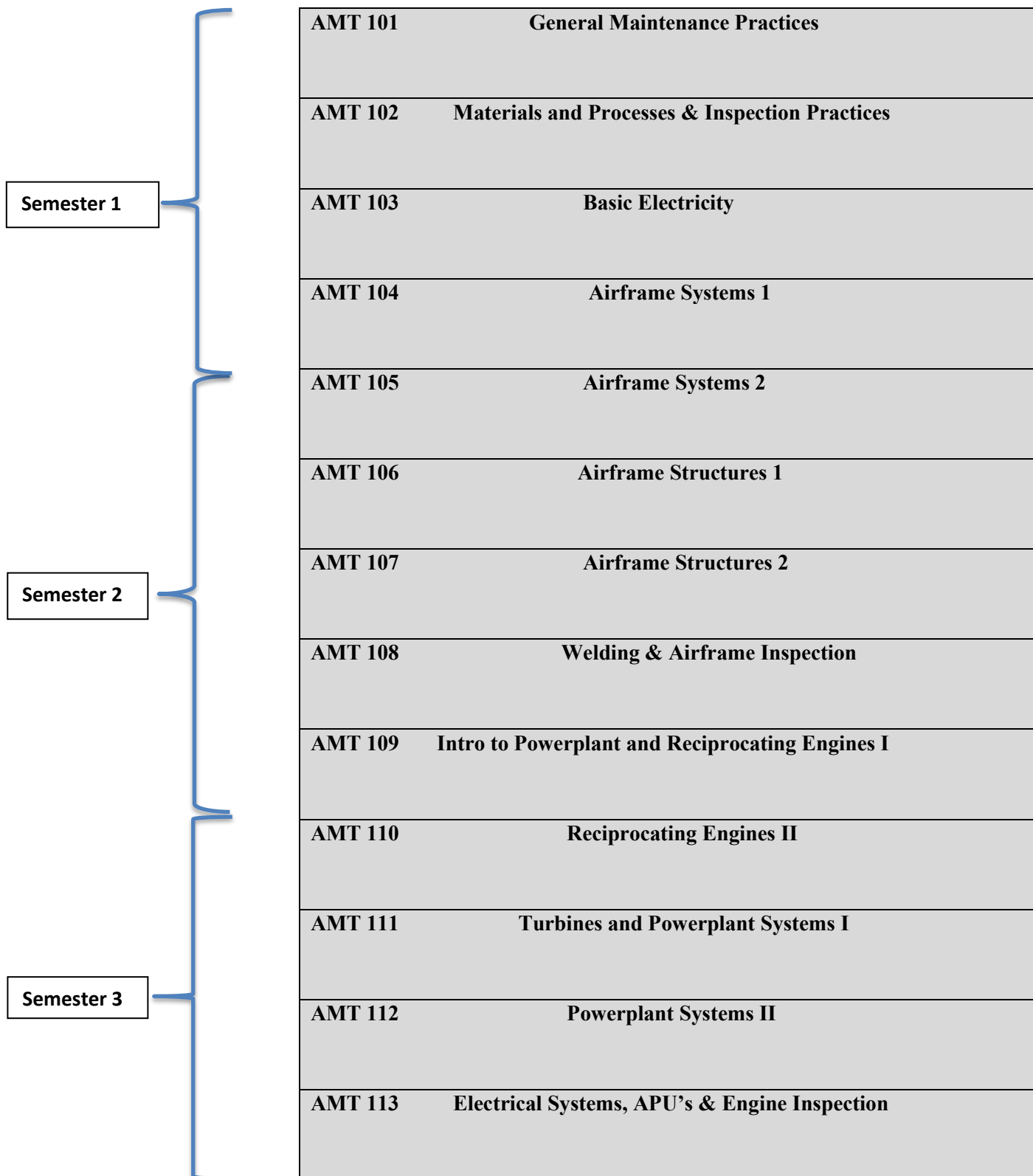
### **Revision Procedures and Operations Manual Control**

- It is the responsibility of the FAA Coordinator/Liaison, to initiate, write and complete all revisions to this manual. The FAA Coordinator/Liaison will submit all revisions to the FAA for review and approval prior to publishing and distributing changes.
- Revisions made to this manual will be found in **Appendix H List of Revisions and Changes** (a) Records of Revisions, b) List of Effective Pages and c) on the page where the change has occurred. The revision may be identified by three asterisks, i.e. \*\*\*. The asterisks must also contain the appropriate revision number and date of issuance.
- Records of Revision: will indicate revision number, revision page, date and person responsible for completing the revision and FAA approval with date.
- List of Effective Pages: will indicate page(s), revision number and date.
- The FAA Coordinator/Liaison or his/her delegate, will revise the manual when required and produce (in final form) a copy for FAA approval.
- The manual will be posted on the SUNY Dutchess website ([www.sunydutchess.edu](http://www.sunydutchess.edu)). This will be the official location of the current approved operations manual.

#### **When revision(s) are required the FAA Coordinator/Liaison will execute the following:**

- Will delete all required information from the effective page by using a strike through font(s). ex. ~~FONT~~
- Annotate the changes(s) in BOLD PRINT using 3 asterisks and date of effective change i.e. \*\*\***06-01-2020**
  - Note: Asterisk and date should be placed as close to the “revised area(s)” as possible.
- Document revision(s) onto the “List of Effective Pages”. Note appropriate section number when entering.
- Document revision(s) onto the “Revision Control Page”. Note appropriate section number when entering.
- Update “table of content” if necessary to reflect a new revision change.
- (see **Appendix H List of Revisions and Changes for any updates or changes**).

### Curriculum Flow Chart – Aviation Maintenance Certificate Program



**Sec. 147.39 — Display of Certificate**

**Each holder of an aviation maintenance technician school certificate and ratings shall display them at a place in the school that is normally accessible to the public and is not obscured. The certificate must be available for inspection by the Administrator.**

**Display of Certificate:** DCC AMT Program will display its FAA certificate in a prominent location that is accessible and visible to the public. The DCC AMT Program certificate may be found in the Coordinator's Office.

DCC AMT Program Coordinator/Liaison will also make the certificate available for FAA inspection.

**Sec. 147.41 — Change of Location**

**The holder of an aviation maintenance technician school certificate may not make any change in the school's location unless the change is approved in advance. If the holder desires to change the location he shall notify the Administrator, in writing, at least 30 days before the date the change is contemplated. If he changes its location without approval, the certificate is revoked.**

DCC AMT Program will not make any change in the school's location unless the change is approved by the FAA in advance. DCC AMT Program will notify the FAA in writing at least 30 days before the date change is contemplated. During the change in location, no disruption will be made to student instruction or normal classroom attendance. Equipment, facilities, and instructors will be at least at the same level as the standards approved for the vacated facilities.

**Sec. 147.43 — Inspection**

**The Administrator may, at any time, inspect an aviation maintenance technician school to determine its compliance with this part. Such an inspection is normally made once each six months to determine if the school continues to meet the requirements under which it was originally certificated. After such an inspection is made, the school is notified, in writing, of any deficiencies found during the inspection. Other informal inspections may be made from time to time.**

FAA inspections are conducted at any time to determine whether the school continues to meet its certification requirements. Any and all deficiencies will be corrected as needed so to comply with the FAA findings.

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

**Sec. 147.45 — Advertisement**

- (a) A certificated aviation maintenance technician school may not make any statement relating to itself that is false or is designed to mislead any person considering enrollment therein.**
- (b) Whenever an aviation maintenance technician school indicates in advertising that it is a certificated school, it shall clearly distinguish between its approved courses and those that are not approved.**

In all advertising and brochures, DCC AMT Program will indicate that it is a FAA certified school as per CFR 147.45. Course literature will clearly distinguish between those courses that have been approved by the FAA and those that have not.



## APPENDIX A

### Curriculum requirements

#### Appendix A to Part 147 – Curriculum Requirements

**This appendix defines terms used in appendices B, C, and D of this part, and describes the levels of proficiency at which items under each subject in each curriculum must be taught, as outlined in appendices B, C, and D.**

**(a) Definitions. As used in appendices B, C, and D:**

- (1) *Inspect* means to examine by sight and touch.**
- (2) *Check* means to verify proper operation.**
- (3) *Troubleshoot* means to analyze and identify malfunctions.**
- (4) *Service* means to perform functions that assure continued operation.**
- (5) *Repair* means to correct a defective condition. Repair of an airframe or powerplant system includes component replacement and adjustment, but not component repair.**
- (6) *Overhaul* means to disassemble, inspect, repair as necessary, and check.**

**(b) Teaching levels.**

**(1) Level 1 requires:**

- (i) Knowledge of general principles, but no practical application.
- (ii) No development of manipulative skill.
- (iii) Instruction by lecture, demonstration, and discussion.

**(2) Level 2 requires:**

- (i) Knowledge of general principles, and limited practical application.
- (ii) Development of sufficient manipulative skill to perform basic operations.
- (iii) Instruction by lecture, demonstration, discussion, and limited practical application.

**(3) Level 3 requires:**

- (i) Knowledge of general principles, and performance of a high degree of practical application.
- (ii) Development of sufficient manipulative skills to simulate return to service.
- (iii) Instruction by lecture, demonstration, discussion, and a high degree of practical application.

**(4) Troubleshoot**

To systematically analyze and identify malfunctions and to identify the source of in an airframe, powerplant, or aircraft component.

## Glossary of Terms

This glossary of terms clarifies some of the terms used throughout this manual. When used within the context of Part 147, these terms apply to SUNY DUTCHESS AMT AMC. This listing contains clarifications of some of the terms defined in 14 CFR part 147. When used within the context of part 147, these terms apply to Aviation Maintenance Technician School (AMTS) requirements and are not necessarily used the same way they are used in other Federal Aviation Administration (FAA) regulations; that is, 14 CFR part 145 repair stations.

1. Accreditation: This term refers exclusively to schools accredited with the United States and Canada.
2. Aviation Technician Education Council (ATEC): The AMTS Industry Association.
3. DCC AMT Program Advisory Council (DMAC) will be the official Industry Association.
4. Certified Instructors: Those instructors who hold FAA technician certificates and the ratings appropriate for the subjects to be taught.
5. Certification: This term refers to AMTS's certified by the FAA.
6. Check-to verify proper operation. A check is performed to verify a proper operation without the item necessarily qualifying for return to service condition. At an AMTS, the item checked does not have to be the item overhauled.
7. Common hand tools: small, ordinary tools such as ratchets and sockets.
8. Flight Standards District Office (FSDO): The local FAA office which oversees a particular Part 147 AMTS.
9. Instruction hour: The educational unit hour, as used by an AMTS, that consists of a time period of 50 to 60 minutes. This instructional time period conforms to the existing practices at many education institutions.
10. Instruction Aides: Equipment used to provide instruction. Examples include diagrams, visual aids, computers, interactive software, aircraft, and mock-ups of aircraft, engines, and components, as well as actual components, such as magnetos and fuels controls. An instructional aid is not required to meet return-to-service standards.
11. Laboratory: Facilities for providing instruction in general principles that may require student demonstrations or participation. Determination of what laboratory equipment is required depends on the subjects taught and the teaching level at which it is taught.
12. Overhaul: To disassemble, inspect, repair as necessary, and check in accordance with FAA acceptable instructions; that is, manufacturers' maintenance manuals, FAA directives and service bulletins. For an AMTS, the overhaul requirement in a teaching scenario does not require the overhauled component to meet return-to-service mechanical tolerances. For example, a run-out turbine powerplant may be adequate to teach students overhaul techniques, but could present a danger if operated.
13. Practical project: A hands-on assignment that requires the use of manipulative skills taught at a teaching level of 2 or 3. A practical project generally does not include non-manipulative activities such as book

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

reports. However, for certain required subjects such as maintenance publications, the use of FAA directives or manufacturers' data constitutes a practical project.

14. Instructor: The teacher who is assigned to the class". The instructor will be responsible for the upkeep and maintenance of the lab/room, equipment, tools, machinery, books, and instructional materials. The procurement materials i.e. sheet metal, composite materials, hardware, fuel etc. becomes the responsibility of ALL teachers assigned to DCC AMT AMC program working collaboratively.
15. Coordinator Inspectors: The representative of the Flight Standards District Office (FSDO) with Coordinator responsibility for the certification and audit of a part 147 AMTS.
16. Ratings: An AMTS may be certified for the following ratings: Airframe or Powerplant, the General portion of the required curriculum is not a rating, but it is a required part of all the ratings.
- 16A Remediation- Help with making up lost time, incomplete assignment and passing exams.
17. Return to Service: With respect to skills developed to make a part or component airworthy or to be in airworthy condition.
18. Lab: Facilities for providing instruction on projects taught at teaching level 2 or 3. The lab environment should resemble a typical aviation repair facility.
19. Lab Equipment: Machinery, such as fabricating devices, sheet metal equipment, and battery chargers.
20. Special Tools: Highly specialized tools, such as fabricating devices, sheet metal equipment, and battery chargers.
21. Specialized Instructors: Any AMT school must submit to the FAA a list of instructors and substitute instructors. The list must specify which subjects each instructor will teach. Then the FAA approves or disapproves each instructor individually. An instructor who does not hold an FAA mechanic certificate cannot be approved to teach subjects other than certain general curriculum subjects, such as mathematics, physics, and aircraft drawing. The list of approved instructors must be maintained by the FAA Liaison.

22. Teaching Levels:

Level 1: requires knowledge of general principles and instruction by lecture, demonstration, and discussion, but no practical application or development of manipulative skill. Teaching aids or instructional equipment may include charts, books, diagrams, or other visual teaching aids. If an AMTS chooses to teach level 1 course incorporating actual components, the components do not have to be operational.

Level 2: requires knowledge of general principles, limited practical application, and development of sufficient manipulative skill to perform basic operations, as well as instruction by lecture, demonstration, discussion, and limited practical application. This teaching level requires some hands-on manipulative skills and their accompanying actual or simulated components/equipment, but still may be taught primarily in the classroom environment.

Level 3: requires knowledge of general principles, performance of high degree of practical application, development of sufficient manipulative skills to simulate return to service, and instruction by lecture,

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

demonstrations and discussion. This teaching level requires hands-on manipulative skill, as well as sufficient and appropriate instructional aides to train the student to develop manipulative skills sufficient to simulate return to service. At this level, the teaching aids must be similar to, or the actual items of, equipment on which the student is expected to develop required skills levels. A level 3 subject cannot be taught solely by lecture in the classroom; the appropriate training aids and hands-on experience must be used.

23. Troubleshoot: To analyze and identify malfunctions, and to identify the source of trouble in an airframe, powerplant, or aircraft component. For the purposes of AMTS, the item of equipment or simulator training aids must be in operating condition. For example, a turbine powerplant must be operational for the student to troubleshoot.

### **Student Conduct**

Students are subject to all expectations processes and procedures as published in the DCC Student Code of Conduct published in MyDCC website <https://www.sunydutchess.edu/assets/StudentCodeofConduct.pdf> The AMT program has additional requirements.

Industries that employ aircraft maintenance technicians require a high level of professionalism. DCC AMT Program expects students to conduct themselves in the same professional manner whether in class and/or outside our school building.

Safety (students will be accountable for the following safety rules)

- Horse play will not be tolerated at any time.
- Safety glasses must be worn when operating machinery or engaged in any operation that may be dangerous to the eyes.
- Power tools may be used only if the student has received proper instruction and is working under the supervision of the instructor.
- Safety data sheets (SDS) must be reviewed and adhered to whenever using any hazardous materials.

Dress

- Open toe shoes/sandals or shorts are not allowed in FAA classrooms.

Clean up

- When lab cleanup is announced, all students are expected to stop work immediately, turn in any tools and/or equipment and follow classroom clean-up procedures.

Guest/children

- No guests/children are permitted in classroom/lab areas without prior authorization.

### **Temporary Medical Disabilities**

- Students who have a medical disability should advise their teachers and if necessary the Coordinator/FAA Liaison so that reasonable accommodations can be made.

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

*Intentionally Left  
blank*

## Appendix B

### General Curriculum Subjects

#### ***Mathematics***

This class will insure that the Aviation Maintenance Technician (AMT) has the basic skills to accurately and efficiently perform the various calculations and conversions necessary to perform their daily tasks.

#### **Performance Goals**

<b>Mathematics</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total Hours</b>	<b>Theory Hours</b>	<b>Lab Hours</b>
<b>3</b>	Extract roots and raise numbers to a given power.	<b>5.5</b>	<b>4.5</b>	<b>.5</b>
<b>3</b>	Determine areas and volumes of various geometrical shapes.	<b>5.5</b>	<b>4.5</b>	<b>.5</b>
<b>3</b>	Solve ratio, proportion, and percentage problems	<b>5.5</b>	<b>4.5</b>	<b>.5</b>
<b>3</b>	Perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers	<b>3.5</b>	<b>2.5</b>	<b>.5</b>
<b>Total Hours: General/ Mathematics</b>		<b>18</b>	<b>16</b>	<b>2</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Mathematics in Aviation Maintenance

#### **Subject Outline**

- 1) Whole Numbers
  - a) Addition
  - b) Subtraction
  - c) Multiplication
  - d) Division
- 2) Fractions
  - a) Least Common Denominator
  - b) Addition
  - c) Subtraction
  - d) Multiplication
  - e) Division
  - f) Reducing Fractions
- 3) Mixed Numbers
  - a) Addition of Mixed Numbers
  - b) Subtraction of Mixed Numbers
- 4) The Decimal Number System
  - a) The Origin and Definition
  - b) Addition of Decimal Numbers
  - c) Subtraction of Decimal Numbers
  - d) Multiplication of Decimal Numbers
  - e) Division of Decimal Numbers
  - f) Rounding of Decimal Numbers
  - g) Converting Decimal Numbers to Fractions
  - h) Converting Fractions to Decimals

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 5) Ratios
  - a) Aviation Applications
- 6) Proportion
  - a) Extremes and Means
  - b) Solving Proportions
- 7) Percentage
  - a) Expressing a Decimal Number as a Percentage
  - b) Expressing a Percentage as a Decimal Number
  - c) Expressing Fraction as a Percentage
  - d) Finding a Percentage of a Given Number
  - e) Finding What Percentage One Number Is of Another
  - f) Finding a Number When a Percentage of it is Known
- 8) Positive and Negative Numbers (Signed Numbers)
  - a) Addition of Positive and Negative Numbers
  - b) Subtraction of Positive and Negative Numbers
  - c) Multiplication of Positive and Negative Numbers
  - d) Division of Positive and Negative Numbers
- 9) Powers
  - a) Special Powers
  - b) Negative Powers
  - c) Law of Exponents
  - d) Powers of Ten
  - e) Roots
  - f) Square Roots
  - g) Cube Roots
  - h) Fractional Powers
- 10) Scientific Notation
  - a) Conversion from Standard Notation to Scientific Notation
  - b) Conversion from Scientific Notation to Standard Notation
  - c) Addition, Subtraction, Multiplication, and Division of Scientific Numbers
- 11) Algebra
  - a) Equations
  - b) Algebraic Rules
  - c) Solving for a Variable
  - d) Use of Parentheses
  - e) Order of Operation
  - f) Order of Operation for Algebraic Equations
- 12) Computing Area of Two-dimensional Solids
  - a) Rectangles
  - b) Square
  - c) Triangle
  - d) Parallelogram
  - e) Trapezoid
  - f) Circle
  - g) Ellipse
  - h) Wing Area
  - i) Units of Area
- 13) Computing Volume of Three Dimensional Solids
  - a) Rectangular Solid
  - b) Cube
  - c) Cylinder
  - d) Sphere
  - e) Cone
- 14) Trigonometric Functions
  - a) Right Triangle, Sides and Angles
  - b) Sine, Cosine and Tangent
  - c) Pythagorean Theorem



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 15) Measurement Systems
  - a) Conventional (US or English) System
  - b) Metric System
  - c) Measurement Systems and Conversions
- 16) The Binary Number System
  - a) Place Values
  - b) Converting Binary Number to Decimal Numbers
  - c) Converting Decimal Numbers to Binary Numbers

**Review and Test** – Mathematics – 25 to 50 questions (Random)

**Subject Projects**

**Project 1:** Students will complete a worksheet extracting roots and raising numbers to a given power.

**Project 2:** Students will complete a worksheet determining areas and volumes of various geometrical shapes.

**Project 3:** Students will complete a worksheet solving ratio, proportion, and percentage problems

**Project 4:** Students will complete a worksheet and perform algebraic operations involving addition, subtraction, multiplication, and divisions of positive and negative numbers.

**Equipment**

N/A

## ***Aircraft Drawings***

This class will review the types of drawings used by the Aircraft Maintenance Technician (AMT) to service aircraft. The student will learn how to read drawings and identify aircraft components from drawings.

### **Performance Goals**

<b>Aircraft Drawings</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Use of aircraft drawings, symbols and system schematics.	<b>7</b>	<b>4</b>	<b>3</b>
<b>3</b>	Draw sketches of repairs and alterations.	<b>5</b>	<b>2</b>	<b>3</b>
<b>3</b>	Use blueprint information	<b>5</b>	<b>2</b>	<b>3</b>
<b>3</b>	Use graphs and charts	<b>4</b>	<b>2</b>	<b>2</b>
<b>Total Hours: General/Aircraft Drawings</b>		<b>21</b>	<b>10</b>	<b>11</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Aircraft Drawings

### **Subject Outline**

- 1) Aircraft Drawings
- 2) Computer Graphics
- 3) Purpose and Function of Aircraft Drawings
- 4) Care and Use of Drawings
- 5) Types of Drawings
  - a) Detail Drawing
  - b) Assembly Drawing
  - c) Installation Drawing
  - d) Sectional View Drawings
    - i) Full Section
    - ii) Half Section
    - iii) Revolved Section
    - iv) Removed Section
- 6) Title Blocks
  - a) Drawing or Print Numbers
  - b) Reference and Dash Numbers
- 7) Universal Numbering System
- 8) Bill of Materials
- 9) Other Drawing Data
  - a) Revision Block
  - b) Notes
  - c) Zone Numbers
  - d) Station Numbers and Location Identification on Aircraft
  - e) Allowances and Tolerances
  - f) Finish Marks
  - g) Scale
  - h) Application
- 10) Methods of Illustration
  - a) Applied Geometry
  - b) Orthographic Projection Drawings
  - c) Detail View
  - d) Pictorial Drawings
    - i) Perspective Drawings

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- ii) Isometric Drawings
  - iii) Oblique Drawings
  - iv) Exploded View Drawings
  - e) Diagrams
    - i) Installation Diagrams
    - ii) Schematic Diagrams
    - iii) Block Diagrams
    - iv) Wiring Diagrams
  - f) Flowcharts
    - i) Troubleshooting Flowchart
    - ii) Logic Flowchart
  - 11) Lines and Their Meanings
    - a) Centerlines
    - b) Dimension Lines
    - c) Extension Lines
    - d) Sectioning Lines
    - e) Phantom Lines
    - f) Break Lines
    - g) Leader Lines
    - h) Hidden Lines
    - i) Outline or Visible Lines
    - j) Stitch Lines
    - k) Cutting Plane and Viewing Plane Lines
  - 12) Drawing Symbols
    - a) Material Symbols
    - b) Shape Symbols
    - c) Electrical Symbols
  - 13) Reading and Interpreting Drawings
  - 14) Drawing Sketches
    - a) Sketching Techniques
    - b) Basic Shapes
    - c) Repair Sketches
  - 15) Care of Drafting Instruments
  - 16) Graphs and Charts
    - a) Reading and Interpreting Graphs and Charts
    - b) Nomograms
  - 17) Microfilm and Microfiche
  - 18) Digital Images
- Review and Test** – Aircraft Drawings – 25 to 50 Questions (Random)

### Subject Projects

#### Project 5: Drawings, Station Numbers and Charts \*\*\*6/7/22 Revision 2

- Students will draw ~~all~~ **some** sketches of ~~aileron~~ sheetmetal projects, using drawing symbols, lines and ~~with title blocks and dimensions.~~
- **Use manual drawings and prints with station and water lines to locate parts of an aircraft structure.**
- **Read and interpret charts and graphs.**

~~Project 6: Students will use manual drawings and prints with station and water lines to locate parts of an aircraft structure.~~

~~Project 7: Students will use the electrical cable chart in AC 43, 13-1, and determine the sizes for current carrying capacity of an aluminum cable required for their electrical trainers.~~

**Equipment** N/A

## **Physics**

In this class the Aviation Maintenance Technician will use and understand the principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.

### **Performance Goals**

<b>Basic Physics</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Use and understand the principles of simple machines; sound, fluid, heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.	<b>12</b>	<b>10</b>	<b>2</b>
<b>Total Hours: General/Physics</b>		<b>12</b>	<b>10</b>	<b>2</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Physics for Aviation

### **Subject Outline**

- 1) Matter
  - a) Characteristics of Matter
    - i) Mass and Weight
    - ii) Attraction
    - iii) Porosity
    - iv) Impenetrability
    - v) Density
    - vi) Specific Gravity
- 2) Energy
  - a) Potential Energy
  - b) Kinetic Energy
- 3) Force, Work, Power, and Torque
  - a) Force
  - b) Work
  - c) Friction and Work
    - i) Static Friction
    - ii) Sliding Friction
    - iii) Rolling Friction
  - d) Power
  - e) Torque
- 4) Simple Machines
  - a) Mechanical Advantage of Machine
  - b) The Lever
    - i) First Class Lever
    - ii) Second Class Lever
    - iii) Third Class Lever
  - c) The Pulley
    - i) Single Fixed Pulley
    - ii) Single Moveable Pulley
    - iii) Block and Tackle
  - d) The Gear
  - e) Inclined Plane
- 5) Stress

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- a) Tension
  - b) Compression
  - c) Torsion
  - d) Bending
  - e) Shear
  - f) Strain
- 6) Motion
- a) Uniform Motion
  - b) Speed and Velocity
  - c) Acceleration
  - d) Newton's Law and Motion
    - i) First Law
    - ii) Second Law
    - iii) Third Law
  - e) Circular Motion
- 7) Heat
- a) Heat Energy Units
  - b) Heat Energy and Thermal Efficiency
  - c) Heat Transfer
    - i) Conduction
    - ii) Convection
    - iii) Radiation
  - d) Specific Heat
  - e) Temperature
  - f) Thermal Expansion/Contraction
- 8) Pressure
- a) Gauge Pressure
  - b) Absolute Pressure
  - c) Differential Pressure
- 9) Gas Laws
- a) Boyle's Law
  - b) Charles' Law
  - c) General Gas Law
  - d) Dalton's Law
- 10) Fluid Mechanics
- a) Buoyancy
  - b) Fluid Pressure
  - c) Pascal's Law
  - d) Bernoulli's Principle
- 11) Sound
- a) Wave Motion
  - b) Speed of Sound
  - c) Mach Number
  - d) Frequency of Sound
  - e) Loudness
  - f) Measurement of Sound Intensity
  - g) Doppler Effect
  - h) Resonance
- 12) The Atmosphere
- a) Composition of the Atmosphere
  - b) Atmospheric Pressure
  - c) Atmospheric Density
  - d) Water Content of the Atmosphere
    - i) Absolute Humidity
    - ii) Relative Humidity
    - iii) Dew Point
    - iv) Vapor Pressure

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- e) Standard Atmosphere
- 13) Aircraft Theory of Flight
  - a) Four Forces of Flight
  - b) Bernoulli's Principle and Subsonic Flow
  - c) Lift and Newton's Third Law
  - d) Airfoils
    - i) Camber
    - ii) Chord Line
    - iii) Relative Wind
    - iv) Angle of Attack
  - e) Boundary Layer Airflow
    - i) Boundary Layer Control
  - f) Wingtip Vortices
  - g) Axes of an Aircraft
  - h) Aircraft Stability
    - i) Static Stability
    - ii) Dynamic Stability
    - iii) Longitudinal Stability
    - iv) Lateral Stability
    - v) Directional Stability
    - vi) Dutch Roll
  - i) Flight Control Surfaces
    - i) Flight Controls and the Lateral Axis
    - ii) Flight Controls and the Longitudinal Axis
    - iii) Flight Controls and the Vertical Axis
    - iv) Tabs
    - v) Supplemental Lift-Modifying Devices
  - j) High-Speed Aerodynamics
    - i) Compressibility Effect
    - ii) Speed of Sound
    - iii) Subsonic, Transonic and Supersonic Flight
    - iv) Shock Waves
    - v) High-Speed Airfoils
    - vi) Aerodynamic Heating
  - k) Helicopter Aerodynamics
    - i) Helicopter Structures and Airfoils
    - ii) Helicopter Axes of Flight
    - iii) Helicopters in Flight
  - l) Weight-Shift Control, Flexible Wing Aircraft Aerodynamics
  - m) Powered Parachute Aerodynamics

**Review and Test** – Physics 25 to 50 Questions (Random)

**Subject Projects**

**Project 8:** The students using worksheets perform calculations on force, energy and work.

**Equipment**

***Weight & Balance:***

This class will ensure that the student understands the critical need to perform careful weight and balance measurements and calculations. This class will take the student through weighing, and performing various mathematical and conformance checks to verify that the aircraft is safe for flight. All assignments will be performed to a return-to-service standard.

**Performance Goals**

<b>Weight and Balance</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Weigh Aircraft	<b>15</b>	<b>10</b>	<b>5</b>
<b>3</b>	Perform complete weight and balance check and record data.	<b>20</b>	<b>10</b>	<b>10</b>
<b>Total Hours: General/Weight &amp; Balance</b>		<b>35</b>	<b>20</b>	<b>15</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Aircraft Weight and Balance

**Subject Outline**

- 14) Aircraft Weight and Balance
- 15) Need and Requirements for Aircraft Weighing
- 16) Weight and Balance Terminology
  - a) Datum
  - b) Arm
  - c) Moment
  - d) Center of Gravity
  - e) Maximum Weight
  - f) Maximum Ramp Weight
  - g) Maximum Takeoff Weight
  - h) Maximum Landing Weight
  - i) Maximum Zero Fuel Weight
  - j) Empty Weight
  - k) Empty Weight Center of Gravity
  - l) Useful Load
  - m) Minimum Fuel
  - n) Tare Weight
- 17) Procedures for Weighing an Aircraft
  - a) General Concepts
  - b) Weight and Balance Data
    - i) Aircraft Specifications
    - ii) Aircraft Operating Limitations
    - iii) Aircraft Flight Manual
    - iv) Aircraft Weight and Balance Report
    - v) Aircraft Type Certificate Data Sheet
  - c) Weight and Balance Equipment
    - i) Scales
    - ii) Spirit Level
    - iii) Plumb Bob
    - iv) Hydrometer
  - d) Preparing an Aircraft for Weighing

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- i) Fuel System
- ii) Oil System
- iii) Miscellaneous Fluids
- iv) Flight Controls
- v) Other Considerations
- vi) Weighing Points
- e) Center of Gravity Range
  - i) Empty Weight Center of Gravity Range
  - ii) Operating Center of Gravity Range
- f) Standard Weights Used for Aircraft Weight and Balance
- 18) Loading and Aircraft for Flight
- 19) Weight and Balance Extreme Conditions
- 20) Equipment Change and Aircraft Alteration
- 21) The Use of Ballast
- 22) Loading Graphs and Center of Gravity (CG) Envelopes
- 23) Helicopter Weight and Balance
  - a) General Concepts
  - b) Helicopter Weighing
- 24) Weight and Balance – Weight Shift Control Aircraft and Powered Parachutes
  - a) Weight Shift Control Aircraft
  - b) Powered Parachutes
- 25) Weight and Balance for Large Aircraft
  - a) Built in Electronic Weighing
  - b) Mean Aerodynamic Chord
- 26) Weight and Balance Records

**Review and Test** – Weight and Balance 50 questions (Random)

### Subject Projects

**Project 9:** Students will weigh an aircraft and compute net empty weight and empty weight center of gravity position and using the weight and balance info, calculate an equipment move or addition to one station to another. Determine the new empty weight, new empty weight center of gravity, new useful load and fore and aft CG position and complete worksheet problems.

### Equipment

- 1) Aircraft Scales, Maintenance manuals & Aircraft



## ***Material, Processes & Hardware***

In this class the student will learn about the different types of metals used in aircraft construction and maintenance. There will also be a thorough review of the acceptable hardware used in maintaining aircraft as well as testing aircraft materials for defects.

### **Performance Goals**

<b>Materials and Processes</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>1</b>	Identify and select appropriate nondestructive testing methods.	<b>5</b>	<b>5</b>	<b>0</b>
<b>2</b>	Perform dye penetrant, eddy current, ultrasonic, and magnetic particle inspections.	<b>25</b>	<b>10</b>	<b>15</b>
<b>1</b>	Familiarize students with basic heat treating processes	<b>7</b>	<b>7</b>	<b>0</b>
<b>3</b>	Identify and select aircraft hardware, composites and materials	<b>10</b>	<b>5</b>	<b>5</b>
<b>3</b>	Inspect and check welds	<b>3</b>	<b>1</b>	<b>2</b>
<b>3</b>	Perform precision measurements	<b>15</b>	<b>5</b>	<b>10</b>
<b>Total Hours: General/Materials, Processes &amp; Hardware</b>		<b>65</b>	<b>33</b>	<b>32</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Aircraft Materials, Processes and Hardware

### **Subject Outline**

- 19) Aircraft Metals
  - a) Property of Metals
    - i) Hardness
    - ii) Strength
    - iii) Density
    - iv) Malleability
    - v) Ductility
    - vi) Elasticity
    - vii) Toughness
    - viii) Brittleness
    - ix) Fusibility
    - x) Conductivity
    - xi) Thermal Expansion
  - b) Ferrous Aircraft Metals
    - i) Iron
    - ii) Steel and Steel Alloys
    - iii) Types, Characteristics, and Uses of Alloyed Steels
  - c) Electrochemical Test
  - d) Nonferrous Aircraft Metals
    - i) Aluminum and Aluminum Alloys
    - ii) Wrought Aluminum
    - iii) Effect of Alloying Element
      - (1) 1000 Series
      - (2) 2000 Series
      - (3) 3000 Series
      - (4) 4000 Series
      - (5) 5000 Series
      - (6) 6000 Series
      - (7) 7000 Series
  - e) Hardness Identification

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- f) Magnesium and Magnesium Alloys
- g) Titanium and Titanium Alloys
  - i) Titanium Designations
    - (1) A (alpha)
    - (2) B (beta)
    - (3) C (combined)
  - ii) Corrosion Characteristics
- h) Copper and Copper Alloys
- i) Nickel and Nickel Alloys
- 20) Substitution of Aircraft Metals
- 21) Metalworking Processes
  - a) Hot Working
  - b) Internal Structure of Metals
  - c) Heat Treating Equipment
  - d) Soaking
  - e) Cooling
  - f) Quenching Media
  - g) Quenching Equipment
- 22) Heat Treatment of Ferrous Metals
  - a) Behavior of Steel During Heating and Cooling
  - b) Hardening
  - c) Hardening Precautions
  - d) Tempering
  - e) Annealing
  - f) Normalizing
  - g) Casehardening
- 23) Heat Treatment of Nonferrous Metals
  - a) Aluminum Alloys
  - b) AL clad Aluminum
  - c) Solution Heat Treatment
  - d) Straightening After Solution Heat Treatment
  - e) Precipitation Heat Treatment
  - f) Heat Treatment of Aluminum Alloy Rivets
  - g) Heat Treatment of Magnesium Alloys
  - h) Heat Treatment of Titanium
  - i) Hardness Testing
    - i) Brinell Tester
    - ii) Rockwell Tester
    - iii) Barcol Tester
  - j) Forging
  - k) Casting
  - l) Extruding
  - m) Cold Working/Hardening
- 24) Nonmetallic Aircraft Materials
  - a) Wood
  - b) Plastics
  - c) Transparent Plastics
  - d) Composite Materials
    - i) Advantages / Disadvantages of Composites
    - ii) Composite Safety
    - iii) Fiber Reinforced Materials
    - iv) Laminated Structures
    - v) Reinforced Plastic
  - e) Rubber
    - i) Natural Rubber
    - ii) Synthetic Rubber
- 25) Shock Absorber Cord

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 26) Seals
  - a) Packings
  - b) O-Ring Packings
  - c) Backup Rings
  - d) V-Ring Packings
  - e) U-Ring Packings
  - f) Gaskets
  - g) Wipers
  - h) Sealing Compounds
  - i) One Part Sealants
  - j) Two Part Sealants
- 27) Aircraft Hardware
  - a) Identification
  - b) Threaded Fasteners
    - i) Classification of Threads
    - ii) Aircraft Bolts
      - (1) General Purpose Bolts
      - (2) Close Tolerance Bolts
      - (3) Internal Wrenching Bolts
      - (4) Identification and Coding
      - (5) Special Purpose Bolts
      - (6) Aircraft Nuts
    - iii) Aircraft Washers
      - (1) Lockwashers
      - (2) Shakeproof Lockwashers
      - (3) Special Washers
    - iv) Installation of Nuts, Washers and Bolts
      - (1) Bolt and Hole Sizes
      - (2) Installation Practices
      - (3) Safetying of Bolts and Nuts
    - v) Repair of Damaged Internal Threads
      - (1) Replacement Bushings
      - (2) Helicoils
    - vi) Fastener Torque
      - (1) Torque and Torque Wrenches
      - (2) Cotter Pin Hole Line Up
- 28) Aircraft Rivets
  - a) Standards and Specifications
  - b) Solid Shank Rivets
  - c) Blind Rivets
  - d) Rivet Identification
  - e) Special Shear and Bearing Load Fasteners
- 29) Screws
  - a) Structural Screws
  - b) Machine Screws
  - c) Self-Tapping Screws
  - d) Drive Screws
  - e) Identification and Coding for Screws
- 30) Riveted and Rivetless Nutplates
  - a) Nutplates
  - b) Rivnuts
  - c) Dill Lok-Skrus and Dill Lok-Rivets
  - d) Deutsch Rivets
  - e) Sealing Nutplates
- 31) Hole Repair and Hole Repair Hardware
  - a) Repair of Damaged Holes with Acres Fastener Sleeves
    - i) Advantages and Limitations

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- ii) Identification
- iii) Hole Preparation
- iv) Installation
- v) Sleeve Removal
- 32) Control Cable and Terminal
  - a) Cable Construction
- 33) Safelying Methods
  - a) Pins
    - i) Taper Pins
    - ii) Flathead Pins
    - iii) Cotter Pins
    - iv) Roll Pins
  - b) Safety Wiring
    - i) Nuts, Bolts, Screws
    - ii) Oil Caps, Drain Cocks and Valves
    - iii) Electrical Connectors
    - iv) Turnbuckles
    - v) Double Wrap Method
    - vi) Single Wrap method
    - vii) General Safety Wiring Rules
    - viii) Cotter Pin Safelying
    - ix) Snap Rings

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Hand Tools and Measuring Devices

**Subject Outline**

- 1) General Purpose Tools
  - a) Hammers and Mallets
  - b) Screwdrivers
  - c) Pliers and Plier-Type Cutting Tools ....
  - d) Punches
  - e) Wrenches
  - f) Special Wrenches
  - g) Torque Wrench
  - h) Strap Wrenches
  - i) Impact Drivers
- 2) Metal Cutting Tools
  - a) Hand Snips
  - b) Hacksaws
  - c) Chisels
  - d) Files
    - i) Files — Care and Use
    - ii) Most Commonly Used Files
    - iii) Care of Files
  - e) Drills
    - i) Twist Drills
  - f) Reamers
    - i) Countersink
- 3) Taps and Dies
- 4) Layout and Measuring Tools
  - a) Rules
  - b) Combination Sets
  - c) Scriber
  - d) Dividers and Pencil Compasses

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- e) Calipers
  - i) Slide Calipers
  - ii) Micrometer Calipers
    - (1) Micrometer Parts
    - (2) Reading a Micrometer
    - (3) Vernier Scale
    - (4) Using a Micrometer

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Inspection Fundamentals

**Subject Outline**

- 1) Basic Inspection Techniques / Practices
- 2) Preparation
- 3) Aircraft Logs
- 4) Checklists
- 5) Publications
  - a) Manufactures' Service Bulletins/Instructions
  - b) Maintenance Manual
  - c) Overhaul Manual
  - d) Structural Repair Manual
  - e) Illustrated Parts Catalog
  - f) Code of Federal Regulations (CFRs)
  - g) Airworthiness Directives
  - h) Type Certificate Data Sheets
- 6) Routine/Required Inspections
  - a) Preflight/Post flight Inspections
  - b) Annual/100-Hour Inspections
  - c) Progressing Inspections
  - d) Continuous Inspections
  - e) Altimeter and transponder Inspections
- 7) ATA iSpec 2200
  - a) ATA Specification 100 Systems
- 8) Special Inspections
  - a) Severe Turbulence Inspections/Over "G"
  - b) Lightning Strike
  - c) Fire Damage
  - d) Flood Damage
  - e) Seaplanes
  - f) Aerial Application Aircraft
- 9) Special Flight Permits
- 10) Nondestructive Inspection/Testing
  - a) General Techniques
  - b) Visual Inspection
  - c) Borescope
  - d) Liquid Penetrant Inspection
    - i) Interpretation of Results
    - ii) False Indications
  - e) Eddy Current Inspection
    - i) Basic Principles
  - f) Ultrasonic Inspection
    - i) Pulse Echo
    - ii) Through Transmission
    - iii) Resonance
  - g) Acoustic Emission Inspection
  - h) Magnetic Particle Inspection

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- i) Development of Indications
  - ii) Types of Discontinuities Disclosed
  - iii) Preparation of Parts for Testing
  - iv) Effect of Flux Direction
  - v) Effect of Flux Density
  - vi) Magnetizing Methods
  - vii) Identification of Indications
  - i) Magnaglo Inspection
    - i) Magnetizing Equipment
      - (1) Fixed (Nonportable) General Purpose Unit
      - (2) Portable General Purpose Unit
    - ii) Indicating Mediums
    - iii) Demagnetizing
    - iv) Standard Demagnetizing Practice
  - j) Radiographic Inspection
    - i) Preparation and Exposure
    - ii) Film Processing
    - iii) Radiographic Interpretation
    - iv) Radiation Hazards
- 11) Inspection of Composites
- a) Tap testing
  - b) Electrical Conductivity
- 12) Inspection of Welds

**Review and Test:**

Aircraft Materials Processes and Hardware – 25 to 50 Questions (Random)

Inspection Fundamentals – 25 to 50 Questions (Random)

Hand Tools and Measuring Devices – 25 to 50 Questions (Random)

**Subject Projects**

13) **Project 10:** Students will use precision measuring tools to determine conformity of components to manufacture's specifications and demonstrate the ability to select aircraft hardware, torque to specification(s) and safety wire aircraft components.

~~14) **Project 11:** Students will inspect and check welds for defects and will use dye penetrant and non-destructive equipment to locate and identify flaws.\*\*\* 6/7/22 Revision 2~~

Equipment:

Safety Wire Practice Box - Measuring tools and inspection equipment- non-destructive equipment

## ***Aircraft Cleaning and Corrosion Control***

Introduction to the types of corrosion found on aircraft structures how to inspect for corrosion and treat the aircraft structure if corrosion is found. All work is to be completed to a return to service standard.

### **Performance Goals**

<b>Cleaning and Corrosion Control</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>3</b>	Identify and select cleaning materials and perform aircraft cleaning	<b>13</b>	<b>8</b>	<b>5</b>
<b>3</b>	Identify, remove, and treat aircraft corrosion.	<b>13</b>	<b>8</b>	<b>5</b>
<b>3</b>	Inspect aircraft for corrosion.	<b>9</b>	<b>4</b>	<b>5</b>
<b>Total Hours: General/Aircraft Cleaning &amp; Corrosion Control</b>		<b>35</b>	<b>20</b>	<b>15</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Aircraft Cleaning and Corrosion Control

### **Subject Outline**

- 34) Corrosion Control
  - a) Types of Corrosion
    - i) Direct Chemical Attack
    - ii) Electrochemical Attack
- 35) Forms of Corrosion
  - a) Surface Corrosion
  - b) Dissimilar Metal Corrosion
  - c) Intergranular Corrosion
  - d) Stress Corrosion
  - e) Fretting Corrosion
- 36) Factors Affecting Corrosion
  - a) Climate
  - b) Foreign Materials
- 37) Preventative Maintenance
- 38) Inspection
- 39) Corrosion Prone Areas
  - a) Exhaust Trail Areas
  - b) Battery Compartments and Battery Vent Areas
  - c) Bilge Areas
  - d) Wheel Well and Landing Gear
  - e) Water Entrapment Areas
  - f) Engine Frontal Areas and Cooling Air Vents
  - g) Wing Flap and Spoiler Recesses
  - h) External Skin Areas
  - i) Miscellaneous Trouble Areas
- 40) Corrosion Removal
  - a) Surface Cleaning and Paint Removal
- 41) Corrosion of Ferrous Metals
  - a) Mechanical Removal of Iron Rust
  - b) Chemical Removal of Rust
  - c) Chemical Surface Treatment of Steel
  - d) Removal of Corrosion from Highly Stressed Steel Parts

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 42) Corrosion of Aluminum and Aluminum Alloys
  - a) Treatment of Unpainted Aluminum Surfaces
  - b) Treatment of Anodized Surfaces
  - c) Treatment of Intergranular Corrosion in Heat-Treated Aluminum Surfaces
- 43) Corrosion of Magnesium Alloys
  - a) Treatment of Wrought Magnesium Sheet and Forgings
  - b) Treatment of Installed Magnesium Castings
- 44) Treatment of Titanium and Titanium Alloys
- 45) Protection of Dissimilar Metal Contacts
  - a) Contacts Not Involving Magnesium
  - b) Contacts Involving Magnesium
- 46) Corrosion Limits
- 47) Processes and Materials Used in Corrosion Control
  - a) Metal Finishing
  - b) Surface Preparation
- 48) Chemical Treatments
  - a) Anodizing
  - b) Alodizing
  - c) Chemical Surface Treatment and Inhibitors
  - d) Chromic Acid Inhibiter
  - e) Sodium Dichromate Solution
  - f) Chemical Surface Treatments
- 49) Protective Paint Finishes
- 50) Aircraft Cleaning
  - a) Exterior Cleaning
  - b) Interior Cleaning
    - i) Type of Cleaning Operations
    - ii) Non-Flammable Aircraft Cabin Cleaning Agents and Solvents
    - iii) Flammable and Combustible Agents
    - iv) Container Controls
    - v) Fire Prevention Precautions
    - vi) Fire Protection Recommendations
- 51) Powerplant Cleaning
- 52) Solvent Cleaners
  - a) Dry Cleaning Solvent
  - b) Aliphatic and Aromatic Naphtha
  - c) Safety Solvent
  - d) Methyl Ethyl Ketone (MEK)
  - e) Kerosene
  - f) Cleaning Compound for Oxygen Systems
- 53) Emulsion Cleaners
  - a) Water Emulsion Cleaner
  - b) Solvent Emulsion Cleaners
- 54) Soaps and Detergent Cleaners
  - a) Cleaning Compound, Aircraft Surfaces
  - b) Non-Ionic Detergent Cleaners
- 55) Mechanical Cleaning Materials
  - a) Mild Abrasive Materials
  - b) Abrasive Papers
- 56) Chemical Cleaners
  - a) Phosphoric-Citric Acid
  - b) Baking Soda



**Review and Test** – Aircraft Cleaning and Corrosion Control – 25 to 50 questions (Random)

**Subject Projects**

**Project 12:** Students will identify and select cleaning materials for various forms of corrosion on specific parts assigned by the instructor and then inspect, treat, protect and preserve aircraft surface, and/or parts selecting the proper agents for the structure.

**Equipment:**

Various cleaning solvents  
Aircraft parts and aircraft

## ***Fluid Lines & Fittings***

Introduction to the basics of the manufacture, installation, and repair of ridged and flexible aircraft fluid lines for fuel, oil, coolant, oxygen, instrument, and hydraulic lines.

### **Performance Goals**

<b>Fluid Lines and Fittings</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>3</b>	Fabricate and install rigid and flexible fluid lines and fittings	<b>30</b>	<b>20</b>	<b>10</b>
<b>Total Hours: General/Fluid Lines &amp; Fittings</b>		<b>30</b>	<b>20</b>	<b>10</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Fluid Lines and Fittings

### **Subject Outline**

- 1) Rigid Fluid Lines
  - a) Tubing Materials
    - i) Copper
    - ii) Aluminum Alloy Tubing
    - iii) Steel
    - iv) Titanium 3AL-2.5V
  - b) Material Identification
  - c) Sizes
  - d) Fabrication of Metal Tube Lines
    - i) Tube Cutting
    - ii) Tube Bending
    - iii) Tube Flaring
    - iv) Fittings
    - v) Beading
  - e) Fluid Line Identification
  - f) Fluid Line End Fittings
    - i) Universal Bulkhead Fittings
    - ii) AN Flared Fittings
  - g) MS Flareless Fittings
    - i) Swaged Fittings
    - ii) Cryofit Fittings
  - h) Rigid Tubing Installation and Inspection
    - i) Connection and Torque
    - ii) Flairless Tube Installation
    - iii) Rigid Tubing Inspection and Repair
- 2) Flexible Hose Fluid Lines
  - a) Hose Materials and Construction
    - i) Low Medium and High Pressure Hoses
    - ii) Hose Identification
  - b) Flexible Hose Inspection
  - c) Fabrication and Replacement of Flexible Hose
    - i) Flexible Hose Testing
  - d) Size Designations
  - e) Hose Fittings
  - f) Installation of Flexible Hose Assemblies

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- i) Slack
- ii) Flex
- iii) Twisting
- iv) Bending
- v) Clearance
- g) Hose Clamps

**Review and Test** – Fluid Lines and Fittings 25-50 questions (Random)

**Subject Projects**

**Project 13:** Students will make up a replacement fluid line (rigid and flexible) and check on hydraulic test bench and pressure test for leaks and complete a FAA form 8130.

**Equipment**

- 1) Hydraulic test board (simple board with 2 bulkhead fittings attached)
- 2) FLARING TOOL 37°
- 3) Tube Bender
- 4) TUBE CUTTER
- 5) Hydrostatic Test bench
- 6) MS-6M Hose Mandrel
- 7) 3/8 5052-0 Aluminum Tubing, (2) Nut, (2) Sleeve (2) (3/8) Aeroquip 491 Hose Fitting, 2' 303-6 Aeroquip 303 hose

***Basic Electricity:***

Basic electricity introduces the student to electrical theory and provides them with the foundation for more advanced circuits and troubleshooting in later classes.

**Performance Goals**

<b>Aircraft Electrical Introduction</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>Basic Electricity</b>				
<b>2</b>	Calculate and measure capacitance and inductance	<b>6</b>	<b>3</b>	<b>3</b>
<b>2</b>	Calculate and measure electrical power.	<b>5</b>	<b>3</b>	<b>2</b>
<b>3</b>	Measure voltage, current, resistance, and continuity.	<b>12</b>	<b>9</b>	<b>3</b>
<b>3</b>	Determine the relationship of voltage, current, and resistance in electrical circuits.	<b>29</b>	<b>24</b>	<b>5</b>
<b>3</b>	Read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions.	<b>26</b>	<b>16</b>	<b>10</b>
<b>3</b>	Inspect and service batteries.	<b>7</b>	<b>5</b>	<b>2</b>
<b>Total Hours: General/Basic Electricity</b>		<b>85</b>	<b>60</b>	<b>25</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Fundamentals of Electricity and Electronics

**Subject Outline:**

- 1) Introduction to Electricity and Electronics
- 2) General Composition of Matter
  - a) Matter
  - b) Element
  - c) Compound
  - d) The Molecule
  - e) The Atom
  - f) Electrons, Protons, and Neutrons
  - g) Electron Shells and Energy Levels
    - i) Valence Electrons
    - ii) Ions
    - iii) Free Electrons
  - h) Electron Movement
    - i) Conductors
    - ii) Insulators
    - iii) Semiconductors
- 3) Metric Based Prefixes Used for Electrical Calculations
- 4) Static Electricity
  - a) Attractive and Repulsive Forces
  - b) Electrostatic Field
  - c) ESD Considerations
- 5) Magnetism
  - a) Types of Magnets
  - b) Electromagnetism
- 6) Conventional Flow and Electron Flow
  - a) Conventional Flow
  - b) Electron Flow

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 7) Electromotive Force (Voltage)
- 8) Current
- 9) Ohm's Law (Resistance)
- 10) Resistance of a Conductor
  - a) Factors Affecting Resistance
  - b) Resistance and Its Relation to Wire Sizing
    - i) Circular Conductors (Wires/Cables)
    - ii) Rectangular Conductors (Bus Bars)
- 11) Power and Energy
  - a) Power in an Electrical Circuit
  - b) Power Formulas Used in the Study of Electricity
  - c) Power in a Series and Parallel Circuit
  - d) Energy in an Electrical Circuit
  - e) Sources of Electricity
    - i) Pressure Source
    - ii) Chemical Source
    - iii) Thermal Sources
    - iv) Light Sources
- 12) Schematic Representation of Electrical Components
- 13) Resistors
  - a) Types of Resistors
  - b) Fixed Resistor
  - c) Carbon Composition
  - d) Resistor Ratings
  - e) Wire-Wound
  - f) Variable Resistors
  - g) Rheostat
  - h) Potentiometer
  - i) Linear Potentiometers
  - j) Tapered Potentiometers
  - k) Thermistors
  - l) Photoconductive Cells
- 14) Circuit Protection Devices
  - a) Fuse
  - b) Current Limiter
  - c) Circuit Breaker
    - i) Arc Fault Circuit Breaker
    - ii) Thermal Protectors
- 15) Control Devices
  - a) Switches
  - b) Toggle Switch
  - c) Pushbutton Switches
  - d) Microswitches
  - e) Rotary Selector Switches
  - f) Lighted Pushbutton Switches
  - g) DIP Switches
  - h) Relays
- 16) Series DC Circuits
  - a) Introduction
  - b) Voltage Drops and Further Application of Ohm's Law
  - c) Voltage Sources in Series
  - d) Kirchhoff's Voltage Law
  - e) Voltage Dividers
  - f) Determining the Voltage Divider Formula
- 17) Parallel DC Circuits
  - a) Overview
  - b) Voltage Drops

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- c) Total Parallel Resistance
- d) Resistors in Parallel
  - i) Two Resistors in Parallel
- e) Current Source
- f) Kirchhoff's Current Law
- g) Current Dividers
- 18) Series-Parallel DC Circuits
  - a) Overview
  - b) Determining the Total Resistance
- 19) Alternating Current and Voltage
  - a) AC and DC Compared
- 20) Generator Principles
  - a) Generators of Alternating Current
    - i) Position 1
    - ii) Position 2
    - iii) Position 3
    - iv) Position 4
    - v) Position 5
  - b) Cycle and Frequency
    - i) Cycle Defined
    - ii) Frequency Defined
    - iii) Period Defined
    - iv) Wavelength Defined
  - c) Phase Relationships
    - i) In Phase Condition
    - ii) Out of Phase Condition
  - d) Values of Alternating Current
    - i) Instantaneous Value
    - ii) Peak Value
    - iii) Effective Value
- 21) Capacitance
  - a) Capacitors in Direct Current
  - b) The RC Time Constant
  - c) Units of Capacitance
  - d) Voltage Rating of a Capacitor
  - e) Factors Affecting Capacitance
  - f) Types of Capacitors
    - i) Fixed Capacitors
    - ii) Variable Capacitors
  - g) Capacitors in Series
  - h) Capacitors in Parallel
  - i) Capacitors in Alternating Current
  - j) Capacitive Reactance  $X_c$
  - k) Capacitive Reactances in Series and in Parallel
  - l) Phase of Current and Voltage in Reactive Circuits
- 22) Inductance
  - a) Characteristics of Inductance
  - b) The RL Time Constant
  - c) Physical Parameters
  - d) Self-Inductance
  - e) Types of Inductors
  - f) Units of Inductance
  - g) Inductors in Series
  - h) Inductors in Parallel
  - i) Inductive Reactance
- 23) AC Circuits
  - a) Ohm's Law for AC Circuits

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- b) Series AC Circuits
  - c) Parallel AC Circuits
  - d) Resonance
  - e) Power in AC Circuits
    - i) True Power Defined
    - ii) Apparent Power Defined
  - f) Transformers
  - g) Current Transformers
  - h) Transformer Losses
  - i) Power in Transformers
- 24) DC Measuring Instruments
- a) D'Arsonval Meter Movement
  - b) Current Sensitivity and Resistance
  - c) Damping
  - d) Electrical Damping
  - e) Mechanical Damping
  - f) A Basic Multi-Range Ammeter
    - i) Precautions
- 25) The Voltmeter
- a) Voltmeter Sensitivity
  - b) Multiple Range Voltmeters
  - c) Voltmeter Circuit Connections
- 26) Influence of the Voltmeter in the Circuit
- a) The Ohmmeter
  - b) Zero Adjustment
  - c) Ohmmeter Scale
  - d) The Multi-Range Ohmmeter
  - e) Megger (Megohmmeter)
- 27) AC Measuring Instruments
- a) Electrodynamometer Meter Movement
  - b) Moving Iron Vane Meter
- 28) Inclined Coil Iron Vane Meter
- a) Varmeters
  - b) Wattmeter
  - c) Frequency Measurement/Oscilloscope
  - d) Horizontal Deflection
  - e) Vertical Deflection
  - f) Tracing a Sine Wave
  - g) Control Features on an Oscilloscope
  - h) Flat Panel Color Displays for Oscilloscopes
  - i) Digital Multimeter
- 29) Basic Circuit Analysis and Troubleshooting
- a) Voltage Measurement
  - b) Current Measurement
  - c) Checking Resistance in a Circuit
  - d) Continuity Checks
  - e) Capacitance Measurement
  - f) Inductance Measurement
  - g) Troubleshooting the Open Faults in Series Circuit
  - h) Tracing Opens with the Voltmeter
  - i) Tracing Opens with the Ohmmeter
  - j) Troubleshooting the Shorting Faults in Series Circuit
  - k) Tracing Shorts with the Ohmmeter
  - l) Tracing Shorts with the Voltmeter
  - m) Troubleshooting the Open Faults in Parallel Circuit
  - n) Tracing an Open with an Ammeter
  - o) Tracing an Open with an Ohmmeter

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- p) Troubleshooting the Shorting Faults in Parallel Circuit
- q) Troubleshooting the Shorting Faults in Series-Parallel Circuit
  - i) Logic in Tracing an Open
  - ii) Tracing Opens with the Voltmeter
- 30) Batteries
  - a) Primary Cell
  - b) Secondary Cell
  - c) Battery Ratings
  - d) Life Cycle of a Battery
  - e) Lead-Acid Battery Testing Methods
  - f) Lead-Acid Battery Charging Methods
  - g) Nickel-Cadmium Batteries
    - i) Chemistry and Construction
    - ii) Operation of Nickel-Cadmium Cells
      - (1) General Maintenance and Safety Precautions
  - h) Sealed Lead Acid Batteries
- 31) Inverters
  - a) Rotary Inverters
  - b) Permanent Magnet Rotary Inverter
  - c) Inductor-Type Rotary Inverter
  - d) Static Inverters
- 32) Semiconductors
  - a) Doping
  - b) PN Junctions and the Basic Diode
  - c) Forward Biased Diode
  - d) Reverse Biased Diode
- 33) Rectifiers
  - a) Half-Wave Rectifier
  - b) Full-Wave Rectifier
  - c) Dry Disk
  - d) Types of Diodes
    - i) Power Rectifier Diodes
    - ii) Zener Diodes
    - iii) Special Purpose Diodes
    - iv) Light-Emitting Diode (LED)
    - v) Liquid Crystal Displays (LCD)
    - vi) Photodiode
    - vii) Varactors
    - viii) Schottky Diodes
  - e) Diode Identification
- 34) Introduction to Transistors
  - a) Classification
  - b) Transistor Theory
  - c) PNP Transistor Operation
  - d) Identification of Transistors
  - e) Field Effect Transistors
  - f) Metal-Oxide-Semiconductor FET (MOSFET)
  - g) Common Transistor Configurations
  - h) Common-Emitter Configuration
  - i) Common-Collector Configuration
  - j) Common-Base Configuration
- 35) Vacuum Tubes
- 36) Filtering
  - a) Filtering Characteristics of Capacitors
  - b) Filtering Characteristics of Inductors
  - c) Common Filter Configurations
  - d) Basic LC Filters



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- i) Low-Pass Filter
  - ii) High-Pass Filter
  - iii) Band-Pass Filter
  - iv) Band-Stop Filter
- 37) Amplifier Circuits
- a) Classification
    - i) Class A
    - ii) Class AB
    - iii) Class B
    - iv) Class C
  - b) Methods of Coupling
    - i) Direct Coupling
    - ii) RC Coupling
    - iii) Impedance Coupling
    - iv) Transformer Coupling
  - c) Feedback
  - d) Operational Amplifiers
    - i) Applications
  - e) Magnetic Amplifiers
    - i) Saturable-Core Reactor
- 38) Logic Circuits
- a) Logic Polarity
    - i) Positive
    - ii) Negative
  - b) Pulse Structure
  - c) Basic Logic Circuits
    - i) The Inverter Logic
    - ii) The AND Gate
    - iii) The OR Gate
    - iv) The NAND Gate
    - v) The NOR Gate
    - vi) Exclusive OR Gate
    - vii) Exclusive NOR Gate
  - d) The Integrated Circuit
  - e) Microprocessors
- 39) DC Generators
- a) Theory of Operation
  - b) Generation of a DC Voltage
    - i) Position A
    - ii) Position B
    - iii) Position C
    - iv) Position D
    - v) The Neutral Plane
  - c) Construction Features of DC Generators
  - d) Field Frame
  - e) Armature
  - f) Gramme-Ring Armature
  - g) Drum-Type Armature
  - h) Commutators
  - i) Armature Reaction
  - j) Compensating Windings
  - k) Interpoles
  - l) Types of DC Generators
    - i) Series Wound DC Generators
    - ii) Shunt Wound DC Generators
    - iii) Compound Wound DC Generators
  - m) Generator Ratings

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- n) Generator Terminals
- o) DC Generator Maintenance
  - i) Inspection
  - ii) Condition of Generator Brushes
- 40) DC Motors
  - a) Force between Parallel Conductors
  - b) Developing Torque
  - c) Basic DC Motor
    - i) Position A
    - ii) Position B
    - iii) Position C
    - iv) Position D
  - d) DC Motor Construction
    - i) Armature Assembly
    - ii) Field Assembly
    - iii) Brush Assembly
    - iv) End Frame
  - e) Types of DC Motors
    - i) Series DC Motor
    - ii) Shunt DC Motor
    - iii) Compound DC Motor
  - f) Counter Electromotive Force (emf)
    - i) Types of Duty
    - ii) Reversing Motor Direction
    - iii) Motor Speed
      - Energy Losses in DC Motors
    - iv) Inspection and Maintenance of DC Motors
- 41) AC Motors
  - a) Types of AC Motors
  - b) Three Phase Induction Motor
  - c) Rotating Magnetic Field
  - d) Construction of Induction Motor
  - e) Induction Motor Slip
  - f) Single Phase Induction Motor
  - g) Shaded Pole Induction Motor
  - h) Split Phase Motor
  - i) Capacitor Start Motor
  - j) Direction of Rotation of Induction Motors
  - k) Synchronous Motor
  - l) AC Series Motor
  - m) Maintenance of AC Motors
- 42) Alternators
  - a) Basic Alternators and Classifications
  - b) Method of Excitation
  - c) Number of Phases
  - d) Armature or Field
  - e) Rotation
  - f) Single Phase Alternator
  - g) Two Phase Alternator
  - h) Three Phase Alternator
  - i) Wye Connection (Three Phase)
  - j) Delta Connection (Three Phase)
  - k) Alternator Rectifier Unit
  - l) Brushless Alternator
  - m) Alternator Rating, Alternator Frequency, Alternator Maintenance
  - n) Regulation of Generator Voltage
  - o) Voltage Regulation with a Vibrating-Type Regulator

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- p) Three Unit Regulators
  - q) Differential Relay Switch
  - r) Overvoltage and Field Control Relays
- 43) Generator Control Units (GCU)
- a) Basic Functions of a Generator
  - b) Control Unit Voltage Regulation
  - c) Overvoltage Protection
  - d) Parallel Generator Operations
  - e) Over-Excitation Protection
  - f) Differential Voltage
  - g) Reverse Current Sensing
- 44) Alternator Constant Speed Drive System
- 45) Hydraulic Transmission
- 46) Voltage Regulation of Alternators
- a) Alternator Transistorized Regulators

**Review and Test** – Basic Electricity – 25 to 50 questions (Random)

**Practical Projects**

**Project 14:** Students will draw electrical schematics of the circuits they are going to build on their trainers and label all components using proper symbols and then will wire an electrical trainer as specified by the instructor in series, parallel and series-parallel complete worksheets to determine: Voltage, current, resistance.

**Project 15:** Students will inspect clean, and charge either lead acid or NiCad batteries.

**Equipment**

- 1) 12/24-Volt Lead Acid Battery Charger & Capacity Tester
- 2) Student Multi-Meters
- 3) Lead Acid Batteries
- 4) Nickel-Cadmium Batteries
- 5) Students electrical trainers

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappinger Falls, New York 12590

***Safety, Ground Operations & Servicing***

This class will review the dangers of working in the airport environment and shop areas. The class will also review fire prevention operations, ground support equipment operation, aircraft fueling and aircraft movement.

**Performance Goals**

<b>Ground Operation and Servicing</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
2	Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards. For aircraft starting and ground movement operations a high fidelity simulator may be used with prior FAA approval	19	11	8
2	Identify and select fuels from among the common types of aircraft fuels in current use	5	4	1
<b>General/Ground Operations &amp; Servicing</b>				
<b>Fire Protection</b>				
<b>Teaching Level</b>	<b>Material</b>			
1	Inspect, check, and service smoke and carbon monoxide smoke detection systems	1	1	0
3	Inspect, check, service and troubleshoot and repair aircraft fire detection and extinguishing systems.	2	1	1
<b>General/Ground Operations &amp; Servicing</b>		<b>27</b>	<b>17</b>	<b>10</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Safety, Ground Operations and Servicing

**Subject Outline**

Shop Safety

- a) Electrical Safety
  - i) Physiological Safety
  - ii) Fire Safety
- b) Safety Around Compressed Gases
- c) Safety Around Hazardous Materials
- d) Safety Around Machine Tools
- 2) Flight Line Safety
  - a) Hearing Protection
  - b) Foreign Object Damage (FOD)
  - c) Safety Around Airplanes
  - d) Safety Around Helicopters
  - e) Fire Safety
- 3) Fire Protection
  - a) Requirements for Fire to Occur
  - b) Classification of Fires
  - c) Types and Operation of Shop and Flight Line Fire Extinguishers
  - d) Inspection of Fire Extinguishers
  - e) Identifying Fire Extinguishers
  - f) Using Fire Extinguishers
- 4) Tie down Procedures
  - a) Preparation of Aircraft

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- b) Tie down Procedures for Land Planes
  - c) Securing Light Aircraft
  - d) Securing Heavy Aircraft
  - e) Tie down Procedures for Seaplanes
  - f) Tie down Procedures for Ski Planes
  - g) Tie down Procedures for Helicopters
  - h) Procedures for Securing Weight-Shift Control Aircraft
  - i) Procedures for Securing Powered Parachutes
- 5) Ground Movement of Aircraft
- a) Engine Starting and Operation
  - b) Reciprocating Engines
  - c) Hand Cranking Engines
  - d) Extinguishing Engine Fires
  - e) Turboprop Engines....
    - i) Turboprop Starting Procedures
  - f) Turbofan Engines
    - i) Starting a Turbofan Engine
  - g) Auxiliary Power Units (APUs)
  - h) Unsatisfactory Turbine Engine Starts
    - i) Hot Start
    - ii) False or Hung Start
    - iii) Engine Will Not Start
  - i) Towing of Aircraft
  - j) Taxiing Aircraft
  - k) Taxi Signals
- 6) Servicing Aircraft
- a) Servicing Aircraft Air/Nitrogen, Oil, and Fluids
  - b) Ground Support Equipment
    - i) Electric Ground Power Units
    - ii) Hydraulic Ground Power Units
    - iii) Ground Support Air Units
    - iv) Ground Air Heating and Air Conditioning
  - c) Oxygen Servicing Equipment
  - d) Oxygen Hazards
- 7) Fuel Servicing of Aircraft
- a) Types of Fuel and Identification
  - b) Contamination Control
  - c) Fueling Hazards
  - d) Fueling Procedures
  - e) Defueling

**Review and Test** – Safety, Ground Operations and Servicing – 25 to 50 questions (Random)

**Subject Projects**

**Project 16:** The teacher and student will use the manufactures procedures to start, operate and shutdown an aircraft engine or trainer **and perform F.O.D. control procedure.** \*\*\* 6/7/22 Rev. 2

**Project 17:** Students will complete a worksheet and demonstrate the proper marshalling hand signals asked by the teacher.

**Project 18:** Students will identify fuel samples provided by the instructor.

~~—Students will inspect and identify fire detection equipment and service fire detection systems if necessary.~~

**Students will apply etching solutions and conversion coating.** \*\*\*6/7/22 Rev. 2

**Equipment**

- 1) Run-Up Stand with Control Cab with operable engine or aircraft. Fuel samples. Fire extinguishers and fire detection trainers.

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

### ***Publications, Forms & Records***

In this class the Aviation Maintenance Technician (AMT) student will focus on understanding the Federal Regulations that affect the work that the AMT performs and the forms and records that document the tasks and activities that they perform. All work is to be performed to a return to service standard.

#### **Performance Goals**

<b>Maintenance Forms and Records</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>3</b>	Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records.	<b>6</b>	<b>3</b>	<b>3</b>
<b>3</b>	Complete required maintenance forms, records, and inspection reports.	<b>9</b>	<b>5</b>	<b>4</b>
<b>Total hours General/Forms &amp; Records:</b>				

<b>Maintenance Publications</b>				
<b>3</b>	Demonstrate ability to read, comprehend, and apply information contained in FAA and manufactures' aircraft maintenance specifications, ATA codes, air carrier background elements, minimum equipment lists, configuration deviation lists, data sheets, manuals, publications, and related federal aviation regulations, AD, and advisory material.	<b>6</b>	<b>3</b>	<b>3</b>
<b>3</b>	Read technical data	<b>6</b>	<b>3</b>	<b>3</b>
<b>Total hours General/Publications:</b>				
<b>Total Hours Combined: General</b>		<b>27</b>	<b>14</b>	<b>13</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** Publications, Forms and Records

#### **Subject Outline**

- 1) Title 14 of the Code of Federal Regulations (14 CFR)
  - a) Maintenance Related Regulations
    - i) CFR Part 1 — Definitions and Abbreviations
    - ii) CFR Part 21 — Certification Procedures for Products and Parts
    - iii) CFR Part 23—Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter Category Airplanes
    - iv) CFR Part 25—Airworthiness Standards: Transport Category Airplanes
    - v) CFR Part 27—Airworthiness Standards: Normal Category Rotorcraft
    - vi) CFR Part 29—Airworthiness Standards: Transport Category Rotorcraft
    - vii) CFR Part 33—Airworthiness Standards: Aircraft Engines
    - viii) CFR Part 35—Airworthiness Standards: Propellers
    - ix) CFR Part 39—Airworthiness Directives
    - x) CFR Part 43 — Maintenance, Preventive Maintenance, Rebuilding, and Alteration

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- xi) CFR Part 45 — Identification and Registration Marking
  - xii) CFR Part 47 — Aircraft Registration
  - xiii) CFR Part 65 — Certification: Airmen Other Than Flight Crewmembers
  - xiv) CFR Part 91 — General Operating and Flight Rules
  - xv) CFR Part 119 — Certification: Air Carriers and Commercial Operators
  - xvi) CFR Part 121 — Operating Requirements: Domestic, Flag, and Supplemental Operations
  - xvii) CFR Part 125 — Certification and Operations: Airplanes Having a Seating Capacity of 20 or More Passengers or a Maximum Payload Capacity of 6,000 Pounds or More; and Rules Governing Persons on Board Such Aircraft
  - xviii) CFR Part 135 — Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons on Board Such Aircraft
  - xix) CFR Part 145 — Repair Stations
  - xx) CFR Part 147—Aviation Maintenance Technician Schools
  - xxi) 14 CFR Part 183 — Representatives of the Administrator
- 2) Detailed Explanation of Primary Regulations (Parts 43 and 91)
- a) 14 CFR Part 43 — Maintenance, Preventive Maintenance, Rebuilding, and Alteration
    - i) CFR Part 43.1 Applicability
    - ii) CFR Part 43.2 Records of overhaul and rebuilding
    - iii) CFR Part 43.3 Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations
    - iv) CFR Part 43.5 Approval for return to service after maintenance, preventive maintenance, rebuilding, or alteration
    - v) CFR Part 43.7 Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration
    - vi) CFR Part 43.9 Content, form and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with parts 91 and 125, and CFR Part 135.411(a)(1) and CFR Part 135.419 of this chapter).
    - vii) CFR Part 43.10 Disposition of life-limited aircraft parts
    - viii) CFR Part 43.11 Content, form, and disposition of records for inspections conducted under parts 91 and 125, and CFR Part 135.411(a)(1) and CFR Part 135.419 of this chapter
    - ix) CFR Part 43.12 Maintenance records: Falsification, reproduction, or alteration
    - x) CFR Part 43.13 Performance rules (general)
    - xi) CFR Part 43.15 Additional Performance Rules for Inspections
    - xii) CFR Part 43.16 Airworthiness limitations
    - xiii) CFR Part 43.17 Maintenance, preventive maintenance, or alterations performed on U.S. aeronautical products by certain Canadian persons
    - xiv) Appendix A — Major Alterations, Major Repairs, and Preventive Maintenance
    - xv) Appendix B — Recording of Major Repairs and Major Alterations
    - xvi) Appendix D — Scope and Detail of Items to Be Included in Annual and 100-Hour Inspections
    - xvii) Appendix E—Altimeter System Test and Inspection
    - xviii) Appendix F—ATC Transponder Tests and Inspections
  - b) 14 CFR Part 91 — General Operating and Flight Rules
    - i) Subpart A— General
    - ii) Subpart E — Maintenance, Preventive Maintenance, and Alterations
- 3) Civil Air Regulations (CARs)
- a) CAR 3 — Airplane Airworthiness — Normal, Utility, Aerobatic, and Restricted Purpose Categories
  - b) CAR 4a — Airplane Airworthiness
- 4) Suspected Unapproved Parts (SUPs)
- 5) Other FAA Documents
- a) Advisory Circulars (ACs)
  - b) Airworthiness Directives (ADs)
    - i) AD Content
    - ii) AD Number
    - iii) Applicability and Compliance
    - iv) Alternative Method of Compliance
  - c) Aircraft Listings
  - d) Aircraft Specifications
  - e) Aviation Maintenance Alerts (AC 43-16)
  - f) Supplemental Type Certificates (STC)
  - g) Type Certificate Data Sheets (TCDS)

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 6) Non-FAA Documents
  - a) Air Transport Association (ATA) 100
  - b) Manufacturers' Published Data
  - c) Airworthiness Limitations
  - d) Service Bulletins (SB)
  - e) Structural Repair Manual (SRM)
- 7) Forms
  - a) Airworthiness Certificates
  - b) Aircraft Registration
  - c) Radio Station License
  - d) Form 337 — Major Repair and Alteration
- 8) Records
  - a) Making Maintenance Record Entries
  - b) Temporary Records — 14 CFR Part 91.417(a)(1) and (b)(1)
  - c) Permanent Records — 14 CFR Part 91.417(a)(2) and (b)(2)
- 9) Electronic Records
- 10) Sport Aircraft (LSA) Maintenance
  - a) Aircraft Maintenance Manual
  - b) Maintenance, Repairs, and Alterations
  - c) Repairs and Alterations

**Review and Test** – Publications, Forms, & Records 25 to 50 Questions (Random)

### Subject Projects

**Project 19:** Students will use ATA (Spec2000) chapters to locate parts and maintenance manual procedures for a repair specified by the instructor and make an entry to the proper maintenance record reflecting a repair made to an aircraft, engine or to their metal project.  
Students will locate and list all applicable AD's for at least one make, model, and serial number of an aircraft, engine, propeller or appliance and complete a form 337 for a major repair.  
Students will make an entry to the proper maintenance record reflecting return to service after completing a 100-hour inspection, annual inspection or progressive/continuous inspection.

### Equipment:

Maintenance manuals, AC 43-13A



***The Mechanics Privileges and Limitations/Certificate:***

In this class the student will learn what it means to be an AMT, and the conduct expected of him/her. It will also introduce the student to the subject of human factors, how errors occur and steps the AMT can take to reduce errors in the workplace.

**Performance Goals**

<b>Mechanic Privileges and Limitations</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>3</b>	Exercise mechanic privileges and limitations prescribed by part 65 of this chapter	<b>16</b>	<b>15</b>	<b>1</b>
<b>Total Hours: General/Mechanics Certificate</b>		<b>16</b>	<b>15</b>	<b>1</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – General FAA-H-8083-30A (as amended)

**Chapter:** The Mechanic Certificate

**Subject Outline**

Overview of the Maintenance Technician

The Mechanic Certificate — Maintenance Technician Privileges and Limitations

- 1) Mechanic Certification — General (by 14 CFR Section)
  - a) 65.3 Certification of Foreign Airmen Other Than Flight Crewmembers
  - b) 65.11 Application and Issue
  - c) 65.12 Offenses Involving Alcohol and Drugs
  - d) 65.13 Temporary Certificate
  - e) 65.14 Security Disqualification
  - f) 65.15 Duration of Certificate
  - g) 65.16 Change of Name: Replacement of Lost or Destroyed Certificate
  - h) 65.17 Test: General Procedure
  - i) 65.18 Written Tests: Cheating or Other Unauthorized Content
  - j) 65.19 Retesting After Failure
  - k) 65.20 Applications, Certificates, Logbooks, Reports, and Records: Falsification, Reproduction, or Alteration
  - l) 65.21 Change of Address
  - m) 65.23 Refusal to Submit to a Drug or Alcohol Test
- 2) Mechanic Certification—Specific (by 14 CFR Section)
  - a) 65.71 Eligibility Requirements: General
  - b) 65.73 Ratings
  - c) 65.75 Knowledge Requirements
  - d) 65.77 Experience Requirements
  - e) 65.79 Skill Requirements
  - f) 65.80 Certificated Aviation Maintenance Technician School Students
  - g) 65.81 General Privileges and Limitations
  - h) 65.83 Recent Experience Requirements
  - i) 65.85 Airframe Rating: Additional Privileges
  - j) 65.87 Powerplant Rating: Additional Privileges
  - k) 65.89 Display of Certificate
- 3) Inspection Authorization (by 14 CFR Section)
  - a) 65.91 Inspection Authorization
  - b) 65.92 Inspection Authorization: Duration
  - c) 65.93 Inspection Authorization: Renewal
  - d) 65.95 Inspection Authorization: Privileges and Limitations
- 4) Ethics
  - i) A Scenario Final Observation
- 5) Professionalism

**Review and Test – Mechanic Privileges – 25 to 50 Questions (Random)Subject Projects**

**Project 20:** Students will list on a worksheet all the privileges an A&P and I.A. can perform.

### ***General Aircraft Inspection Principles***

Performance goals

<b>General Inspection</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>3</b>	Perform a capstone inspection module. Students will research paperwork into regulations, maintenance manuals, TCDS, and other documentation encountered during a normal 100 hr inspection.	<b>20</b>	<b>0</b>	<b>20</b>
<b>Total Hours: General Inspection/Capstone</b>		<b>20</b>	<b>0</b>	<b>20</b>

***This module is one part of a 3 part 100-hour inspection project.***

***Subject project:*** Performance Goals

<b>Airframe Inspection</b>	
<b>Task</b>	<b>Teaching Level</b>
Perform airframe conformity and airworthiness inspections.	3

#### **Subject Projects**

**Project 21:** Students will research all paperwork to perform a conformity and complete 100 Hour inspection on an aircraft specified by the instructor.

**Students will compare equipment list for an aircraft to equipment installed. \*\*\*6/7/22 Rev. 2**

**Equipment:** Type certificated aircraft FAA website, manuals, logbooks

## Appendix C

### Airframe Curriculum Subjects

### Airframe Structures

#### *Wood Structures*

The class will review the acceptable methods of inspection, and repair of wood structures.

#### Performance Goals

Wood Structures				
Teaching Level	Material	Total hours	Theory hours	Lab hours
1	Service and repair wood structures.	-4- 3	-4- 3	0
1	Identify wood defects.	-4- 3	-4- 3	0
1	Inspect wood structures.	1	1	0
<b>Total Hours: Airframe/Wood Structures</b>		<b>-9- 7</b>	<b>-9- 7</b>	<b>0</b>

\*\*\*6/7/22  
 Revision 2

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 1 FAA-H-8083-30A (as amended)

**Chapter:** Aircraft Wood

#### Subject Outline

- 1) Wood Aircraft Construction and Repairs
  - a) Inspection of Wood Structures
    - i) External and Internal Inspection
    - ii) Glued Joint Inspection
    - iii) Wood Condition
- 2) Repair of Wood Aircraft Structures
  - a) Materials
  - b) Suitable Wood
    - i) Defects Permitted, Defects Not Permitted
    - ii) Glues (Adhesives)
    - iii) Definition of Terms Used in the Glue Process
  - c) Preparation of Wood for Gluing
    - i) Preparing Glues for Use, Applying the Glue/Adhesive
    - ii) Pressure on the Joint
    - iii) Testing Glued Joints
  - d) Repair of Wood Aircraft Components
    - i) Wing Rib Repairs
    - ii) Wing Spar Repairs
    - iii) Bolt and Bushing Holes
  - e) Plywood Skin Repairs
    - i) Fabric patch
    - ii) Splayed Patch
    - iii) Surface Patch
    - iv) Plug Patch
    - v) Scarf Patch
    - vi) The Back of the Skin is Accessible for Repair
    - vii) The Back of the Skin Is Not Accessible for Repair

**Review and Test** – Aircraft Metal Structural Repair 25- 50 Questions Random

<b>Subject Projects</b> N/A	<b>Equipment</b> N/A	
-----------------------------	----------------------	--

## *Aircraft Coverings*

The class will cover the approved materials, covering processes, inspection, testing and repair of fabric coverings for aircraft.

### Performance Goals

<b>Aircraft Covering</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>1</b>	Select and apply fabric and fiberglass covering materials	<b>5</b>	<b>4</b>	<b>0</b>
<b>1</b>	Inspect, test, and repair fabric and fiberglass	<b>4</b>	<b>5</b>	<b>0</b>
<b>Total Hours: Airframe/Aircraft Coverings</b>		<b>9</b>	<b>9</b>	<b>0</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 1 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Fabric Covering

### Subject Outline

- 1) General History
- 2) Fabric Terms
- 3) Legal Aspects of Fabric Covering
- 4) Approved Materials
  - a) Fabric
    - i) Other Fabric Covering Materials
    - ii) Anti-Chafe Tape
    - iii) Reinforcing Tape
    - iv) Rib Bracing
    - v) Surface Tape
    - vi) Rib Lacing Cord
    - vii) Sewing Thread
    - viii) Special Fabric Fasteners
    - ix) Grommets
    - x) Inspection Rings
    - xi) Primer
    - xii) Fabric Cement
    - xiii) Fabric Sealer
    - xiv) Fillers
    - xv) Topcoats
- 5) Available Covering Processes
- 6) Determining Fabric Condition—Repair or Recover?
- 7) Fabric Strength
  - a) How Fabric Breaking Strength is Determined
  - b) Fabric Testing Devices
- 8) General Fabric Covering Process
  - a) Blanket Method Vs Envelope Method
  - b) Preparation for Fabric Covering Work
  - c) Removal of Old Fabric Coverings
  - d) Preparation of the Airframe Before Covering
  - e) Attaching Polyester Fabric to the Airframe Seams
    - i) Fabric Cement
    - ii) Fabric Heat Shrinking
    - iii) Attaching Fabric to the Wing Ribs
    - iv) Rib Lacing
    - v) Rings, Grommets, and Gussets

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- vi) Finishing Tapes
- vii) Coating the Fabric
- 9) Polyester Fabric Repairs
  - a) Applicable Instructions
  - b) Repair Considerations
- 10) Cotton-Covered Aircraft
- 11) Fiberglass Coverings

**Review and Test** – Aircraft Fabric Covering 25 to 50 Random Questions

**Subject Projects**

N/A

**Equipment**

- 1) N/A

## ***Aircraft Finishes***

In Aircraft painting and finishing the class will review the various types and methods of applying aircraft finishes including common issues, painting trim, lettering and touchup.

### **Performance Goals**

<b>Aircraft Finishes</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>1</b>	Apply trim, letters, and touchup paint.	<b>5</b>	<b>3</b>	<b>2</b>
<b>2</b>	Identify and select aircraft finishing materials	<b>2</b>	<b>2</b>	<b>0</b>
<b>2</b>	Apply finishing materials.	<b>16</b>	<b>4</b>	<b>12</b>
<b>2</b>	Inspect finishes and identify defects.	<b>2</b>	<b>1</b>	<b>1</b>
<b>Total Hours: Airframe/Aircraft Finishing</b>		<b>25</b>	<b>10</b>	<b>15</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 1 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Painting and Finishing

### **Subject Outline**

- 1) Introduction
- 2) Finishing Materials
  - a) Acetone
  - b) Alcohol
  - c) Benzene
  - d) Methyl Ethyl Ketone (MEK)
  - e) Methylene Chloride
  - f) Toluene
  - g) Turpentine
  - h) Mineral Spirits
  - i) Naphtha
  - j) Linseed Oil
  - k) Thinners
  - l) Varnish
- 3) Primers
  - a) Wash Primers
  - b) Red Iron Oxide
  - c) Gray Enamel Undercoat
  - d) Urethane
  - e) Epoxy
  - f) Zinc Chromate
- 4) Identification of Paints
  - a) Dope
  - b) Synthetic Enamel
  - c) Lacquers
  - d) Polyurethane
  - e) Urethane Coating
  - f) Acrylic Urethanes
- 5) Methods of Applying Finish
  - a) Dipping
  - b) Brushing
  - c) Spraying
- 6) Finishing Equipment
  - a) Paint Booth
  - b) Air Supply

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- c) Spray Equipment
  - i) Air Compressors
  - ii) Large Coating Containers
  - iii) System Air Filters
- d) Miscellaneous Painting Tools and Equipment
  - i) Spray Guns
  - ii) Fresh Air Breathing Systems
  - iii) Viscosity Measuring Cup
  - iv) Mixing Equipment
- 7) Preparation
  - a) Surfaces
  - b) Primer and Paint
- 8) Spray Gun Operation
  - a) Adjusting the Spray Pattern
  - b) Applying the Finish
  - c) Common Spray Gun Problems
- 9) Sequence for Painting a Single-Engine or Light
- 10) Twin Airplane
- 11) Common Paint Troubles
  - a) Poor Adhesion
  - b) Blushing
  - c) Pinholes
  - d) Sags and Runs
  - e) Orange Peel
  - f) Fisheyes
  - g) Sanding Scratches
  - h) Wrinkling
  - i) Spray Dust
- 12) Painting Trim and Identification Marks
  - a) Masking and Applying the Trim
    - i) Masking Materials
    - ii) Masking for the Trim
  - b) Display of Nationality and Registration Marks
    - i) Display of Marks
    - ii) Location and Placement of Marks
    - iii) Size Requirements for Different Aircraft
- 13) Decals
  - a) Paper Decals
  - b) Metal Decals with Cellophane Backing
  - c) Metal Decals with Paper Backing
  - d) Metal Decals with No Adhesive
  - e) Vinyl Film Decals
  - f) Removal of Decals
- 14) Paint System Compatibility
  - a) Paint Touchup
    - i) Identification of Paint Finishes
    - ii) Surface Preparation for Touchup
  - b) Stripping the Finish
    - i) Chemical Stripping
    - ii) Plastic Media Blasting (PMB)
    - iii) New Stripping Methods
- 15) Safety in the Paint Shop
  - a) Storage of Finishing Materials
- 16) Protective Equipment for Personnel

**Review and Test** – Aircraft Painting and Finishing -25 to 50 Questions (Random)

**Subject Projects**

**Project 1:** Students will layout “N” numbers for later use on their wing bay project and apply corrosion prevention materials to aileron project. Using samples provided by the instructor, the students will identify paint defects, document the discrepancies, and if necessary how to correct them.

**Equipment:** Spray booth and painting supplies student aileron projects or aircraft parts.



## *Sheet Metal and Non-Metallic Structures*

### Performance Goals

<b>Materials and Processes</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
2	Select, install, and remove special fasteners for metallic, bonded, and composite structures.	29	14	15
2	Inspect bonded structures.	15	5	10
2	Inspect, test, and repair fiberglass, plastics, honeycomb, composite, and laminated primary and secondary structures, and focus on the detection and inspection of defects and the repair of damage, using manufacture's structural repair manual guidelines.	40	15	25
2	Inspect, check, service, and repair windows, doors, and interior furnishings	30	5	25
3	Inspect and repair sheet-metal structures.	26	6	20
3	Install conventional rivets.	27	7	20
3	Form, lay out, and bend sheet metal.	18	3	15
<b>Total Hours: Airframe/Sheetmetal &amp; Non-Metallic Structures</b>		<b>185</b>	<b>55</b>	<b>130</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe, Volume 1 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Metal Structural Repair

### Subject Outline

- 1) Aircraft Metal Structural Repair
  - a) Stresses in Structural Members
    - i) Tension
    - ii) Compression
    - iii) Shear
    - iv) Bearing
    - v) Torsion
    - vi) Bending
- 2) Tools for Sheet Metal Construction and Repair
  - a) Layout Tools
    - i) Scales
    - ii) Combination Square
    - iii) Dividers
    - iv) Rivet Spacers
  - b) Marking Tools
    - i) Pens
    - ii) Scribes
  - c) Punches
    - i) Prick Punch
    - ii) Center Punch
    - iii) Automatic Center Punch
    - iv) Transfer Punch
    - v) Drive Punch
    - vi) Pin Punch
    - vii) Chassis Punch
    - viii) Awl
- 3) Hole Duplicator
- 4) Cutting Tools

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- a) Circular-Cutting Saws
- b) Kett Saw
- c) Pneumatic Circular Cutting Saw
- d) Reciprocating Saw
- e) Cut-off Wheel
- f) Nibblers
- 5) Shop Tools
  - a) Squaring Shear
  - b) Throatless Shear
  - c) Scroll Shears
  - d) Rotary Punch Press
  - e) Band Saw
  - f) Disk Sander
  - g) Belt Sander
  - h) Notcher
  - i) Grinding Wheels
- 6) Hand Cutting Tools
  - a) Straight Snips
  - b) Aviation Snips
  - c) Files
  - d) Die Grinder
  - e) Burring Tool
- 7) Hole Drilling
  - a) Portable Power Drills
    - i) Pneumatic Drill Motors
    - ii) Right Angle and 45° Drill Motors
    - iii) Two Hole
  - b) Drill Press
  - c) Drill Extensions and Adapters
    - i) Extension Drill Bits
    - ii) Straight Extension
    - iii) Angle Adapters
    - iv) Snake Attachment
  - d) Types of Drill Bits
    - i) Step Drill Bits
    - ii) Cobalt Alloy Drill Bits
    - iii) Twist Drill Bits
  - e) Drill Bit Sizes
  - f) Drill Lubrication
  - g) Reamers
  - h) Drill Stops
  - i) Drill Bushings and Guides
  - j) Drill Bushing Holder Types
  - k) Hole Drilling Techniques
    - i) Drilling Large Holes
  - l) Chip Chasers
- 8) Forming Tools
  - a) Bar Folding Machine
  - b) Cornice Brake
  - c) Box and Pan Brake (Finger Brake)
  - d) Press Brake
  - e) Slip Roll Former
  - f) Rotary Machine
  - g) Stretch Forming
  - h) Drop Hammer
  - i) Hydropress Forming
  - j) Spin Forming

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- k) Forming with an English Wheel
- l) Piccolo Former
- m) Shrinking and Stretching Tools
  - i) Shrinking Tools
  - ii) Stretching Tools
  - iii) Manual Foot-Operated Sheet Metal Shrinker
  - iv) Hand-Operated Shrinker and Stretcher
  - v) Hardwood Form Blocks
  - vi) V-Blocks
  - vii) Shrinking Blocks
  - viii) Sandbags
  - ix) Sheet Metal Hammers and Mallets
- 9) Sheet Metal Holding Devices
  - a) Clamps and Vises
    - i) C-Clamps
    - ii) Vises
  - b) Reusable Sheet Metal Fasteners
    - i) Cleco Fasteners
    - ii) Hex Nut and Wing Nut Temporary Sheet
    - iii) Fasteners
- 10) Aluminum Alloys
- 11) Structural Fasteners
  - a) Solid Shank Rivet
    - i) Description
    - ii) Installation of Rivets
    - iii) Rivet Installation Tools
    - iv) Riveting Procedure
    - v) Countersunk Rivets
    - vi) Evaluating the Rivet
    - vii) Removal of Rivets
    - viii) Replacing Rivets
    - ix) National Advisory Committee for Aeronautics (NACA) Method of Double Flush Riveting
  - b) Special Purpose Fasteners
    - i) Blind Rivets
    - ii) Pin Fastening Systems (High-Shear Fasteners)
    - iii) Lockbolt Fastening Systems
    - iv) Blind Bolts
    - v) Rivet Nut
    - vi) Blind Fasteners (Nonstructural)
- 12) Forming Process
- 13) Forming Operations and Terms
  - a) Stretching
  - b) Shrinking
  - c) Bumping
  - d) Crimping
  - e) Folding Sheet Metal
- 14) Layout and Forming
  - a) Terminology
  - b) Layout or Flat Pattern Development
  - c) Making Straight Line Bends
    - i) Bending a U-Channel
    - ii) Using a J-Chart to Calculate Total Developed
    - iii) Width
    - iv) How to Find the Total Developed Width Using a J-Chart
  - d) Using a Sheet Metal Brake to Fold Metal
    - i) Step 1: Adjustment of Bend Radius
    - ii) Step 2: Adjusting Clamping Pressure

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- iii) Step 3: Adjusting the Nose Gap
- e) Folding a Box
  - i) Relief Hole Location
  - ii) Layout Method
- f) Open and Closed Bends
  - i) Open End Bend (Less Than 90°)
  - ii) Closed End Bend (More Than 90°)
- g) Hand Forming
  - i) Straight Line Bends
  - ii) Formed or Extruded Angles
  - iii) Flanged Angles
  - iv) Shrinking
  - v) Stretching
  - vi) Curved Flanged Parts
  - vii) Forming by Bumping
  - viii) Joggling
  - ix) Lightening Holes
- h) Working Stainless Steel
- i) Working Inconel<sup>®</sup> Alloys 625 and 718
- j) Working Magnesium
- k) Working Titanium
  - i) Description of Titanium
- 15) Basic Principles of Sheet Metal Repair
  - a) Maintaining Original Strength
  - b) Shear Strength and Bearing Strength
  - c) Maintaining Original Contour
  - d) Keeping Weight to a Minimum
  - e) Flutter and Vibration Precautions
  - f) Inspection of Damage
  - g) Types of Damage and Defects
  - h) Classification of Damage
    - i) Negligible Damage
    - ii) Damage Repairable by Patching
    - iii) Damage Repairable by Insertion
    - iv) Damage Necessitating Replacement of Parts
- 16) Repairability of Sheet Metal Structure
  - a) Structural Support During Repair
  - b) Assessment of Damage
  - c) Inspection of Riveted Joints
  - d) Inspection for Corrosion
  - e) Damage Removal
    - i) Repair Material Selection
    - ii) Repair Parts Layout
    - iii) Rivet Selection
    - iv) Rivet Spacing and Edge Distance
    - v) Corrosion Treatment
  - f) Approval of Repair
  - g) Repair of Stressed Skin Structure
    - i) Patches
  - h) Typical Repairs for Aircraft Structures
    - i) Floats
    - ii) Corrugated Skin Repair
    - iii) Replacement of a Panel
    - iv) Outside the Member
    - v) Inside the Member
    - vi) Edges of the Panel
    - vii) Repair of Lightening Holes

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- viii) Repairs to a Pressurized Area
- ix) Stringer Repair
- x) Former or Bulkhead Repair
- xi) Longeron Repair
- xii) Spar Repair
- xiii) Rib and Web Repair
- xiv) Leading Edge Repair
- xv) Trailing Edge Repair
- xvi) Specialized Repairs
- xvii) Inspection Openings

## Subject Outline

- 1) Description of Composite Structures
  - a) Introduction
  - b) Laminated Structures
    - i) Major Components of a Laminate
    - ii) Strength Characteristics
    - iii) Fiber Orientation
    - iv) Warp Clock
  - c) Fiber Forms
    - i) Roving
    - ii) Unidirectional (Tape)
    - iii) Bidirectional (Fabric)
    - iv) Nonwoven (Knitted or Stitched)
  - d) Types of Fiber
    - i) Fiberglass
    - ii) Kevlar<sup>®</sup>
    - iii) Carbon/Graphite
    - iv) Boron
    - v) Ceramic Fibers
    - vi) Lightning Protection Fibers
  - e) Matrix Materials
    - i) Thermosetting Resins
  - f) Curing Stages of Resins
  - g) Pre-impregnated Products (Prepregs)
  - h) Dry Fiber Material
  - i) Thixotropic Agents
  - j) Adhesives
    - i) Film Adhesives
    - ii) Paste Adhesives
    - iii) Foaming Adhesives
- 2) Description of Sandwich Structures
  - a) Properties
  - b) Facing Materials
  - c) Core Materials
    - i) Honeycomb
    - ii) Foam
    - iii) Balsa Wood
- 3) Manufacturing and In-Service Damage
  - a) Manufacturing Defects
    - i) Fiber Breakage
    - ii) Matrix Imperfections
    - iii) Delamination and Debonds
    - iv) Combinations of Damages

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- v) Flawed Fastener Holes
- b) In-Service Defects
- c) Corrosion
- 4) Nondestructive Inspection (NDI) of Composites
  - a) Visual Inspection
  - b) Audible Sonic Testing (Coin Tapping)
    - i) Automated Tap Test
  - c) Ultrasonic Inspection
    - i) Through Transmission Ultrasonic Inspection
    - ii) Pulse Echo Ultrasonic Inspection
    - iii) Ultrasonic Bondtester Inspection
    - iv) Phased Array Inspection
  - d) Radiography
  - e) Thermography
  - f) Neutron Radiography
  - g) Moisture Detector
- 5) Composite Repairs
  - a) Layup Materials
    - i) Hand Tools
    - ii) Air Tools
  - b) Caul Plate
  - c) Support Tooling and Molds
- 6) Vacuum Bag Materials
  - a) Release Agents
  - b) Bleeder Ply
  - c) Peel Ply
  - d) Layup Tapes
  - e) Perforated Release Film
  - f) Solid Release Film
  - g) Breather Material
  - h) Vacuum Bag
- 7) Vacuum Equipment
  - a) Vacuum Compaction Table
- 8) Heat Sources
  - a) Oven
  - b) Autoclave
  - c) Heat Bonder and Heat Lamps
  - d) Thermocouples
- 9) Types of Layups
  - a) Wet Layups
  - b) Prepreg
  - c) Co-curing
  - d) Secondary Bonding
  - e) Co-bonding
- 10) Layup Process (Typical Laminated Wet Layup)
  - a) Layup Techniques
  - b) Bleedout Technique
  - c) No Bleedout
  - d) Ply Orientation Warp Clock
- 11) Mixing Resins
- 12) Saturation Techniques
  - a) Fabric Impregnation with a Brush or Squeegee
  - b) Fabric Impregnation Using a Vacuum Bag
- 13) Vacuum Bagging Techniques
  - a) Single Side Vacuum Bagging
  - b) Envelope Bagging
- 14) Alternate Pressure Application

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- a) Shrink Tape
- b) C-Clamps
- c) Shotbags and Weights
- 15) Curing of Composite Materials
  - a) Room Temperature Curing
  - b) Elevated Temperature Curing
- 16) Composite Honeycomb Sandwich Repairs
  - a) Damage Classification
  - b) Sandwich Structures
    - i) Minor Core Damage (Filler and Potting Repairs)
  - c) Damage Requiring Core Replacement and Repair to One or Both Faceplates
- 17) Solid Laminates
  - a) Bonded Flush Patch Repairs
  - b) Trailing Edge and Transition Area Patch Repairs
  - c) Resin Injection Repairs
  - d) Composite Patch Bonded to Aluminum Structure
  - e) Fiberglass Molded Mat Repairs
  - f) Radome Repairs
  - g) External Bonded Patch Repairs
  - h) Bolted Repairs
- 18) Fasteners Used with Composite Laminates
  - a) Corrosion Precautions
  - b) Fastener Materials
  - c) Fastener System for Sandwich Honeycomb Structures (SPS Technologies Comp Tite)
  - d) Hi-Lok® and Huck-Spin® Lockbolt Fasteners
  - e) Eddie-Bolt® Fasteners
  - f) Cherry's E-Z Buck® (CSR90433) Hollow Rivet
  - g) Blind Fasteners
  - h) Blind Bolts
  - i) Fiberlite
  - j) Screws and Nutplates in Composite Structures
- 19) Machining Processes and Equipment
  - a) Drilling
  - b) Countersinking
  - c) Cutting Processes and Precautions
  - d) Cutting Equipment
- 20) Repair Safety
  - a) Eye Protection
  - b) Respiratory Protection
  - c) Skin Protection
  - d) Fire Protection
- 21) Transparent Plastics
  - a) Optical Considerations
  - b) Identification
    - i) Storage and Handling
  - c) Forming Procedures and Techniques
    - i) Heating
    - ii) Forms
    - iii) Forming Methods
  - d) Sawing and Drilling
    - i) Sawing
    - ii) Drilling
  - e) Cementing
    - i) Application of Cement
  - f) Repairs
  - g) Cleaning
    - Polishing

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

Windshield Installation  
Installation Procedures

**Review and Test** – Advanced Composite Materials – 25 to 50 Questions (Random)

**Review and Test** – Aircraft Metal Structural Repair - 25 to 50 questions (Random)

**Subject Projects**

**Project 2:** Students will design and construct ~~an wing bay section and~~ aileron out of sheet metal using the drawings they ~~made~~ **are given.** \*\*\*6/7/22 Rev. 2

**Project 3:** Students will make an ~~access panel for their wing bay out~~ **airfoil** of composites and repair damage to ~~sheet metal and the~~ fiberglass panel on their ~~wing bay or aileron project~~ **airfoil.** \*\*\*6/7/22 Rev. 2

**Equipment**

- 1) Shop Air Compressor
- 2) Reversible air drill
- 3) Pneumatic rivet Gun
- 4) 10-32 Speed Driver Rivenut Tool
- 5) Foot Squaring Shears
- 6) Bending Brake
- 7) PNEUMATIC "C"
- 8) Sheetmetal .032" 2024-T3,
- 9) Fiberglass, resin (Part A and B), Flox, Gloves, Mixing Sticks, Mask, Foam



Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappinger Falls, New York 12590

## ***Welding***

This class will teach the student the basics of oxy-acetylene and GTAW welding, equipment set-up, proper welding techniques, common problems with welds and the inspection of welds to determine if they are airworthy.

### **Performance Goals**

<b>Welding</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
1	Weld magnesium and titanium	1	1	0
1	Solder Stainless Steel	1	1	0
1	Fabricate tubular structures	1	1	0
2	Solder, braze, gas-weld, and arc-weld steel	36	11	25
1	Weld aluminum and stainless steel	16	1	15
<b>Total Hours: Airframe/Welding</b>		<b>55</b>	<b>15</b>	<b>40</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 1 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Welding

### **Subject Outline**

- 1) Introduction
- 2) Types of Welding
  - a) Gas Welding
  - b) Electric Arc Welding
    - i) Shielded Metal Arc Welding (SMAW)
    - ii) Gas Metal Arc Welding (GMAW)
    - iii) Gas Tungsten Arc Welding (GTAW)
  - c) Electric Resistance Welding
    - i) Spot Welding
    - ii) Seam Welding
  - d) Plasma Arc Welding (PAW)
  - e) Plasma Arc Cutting
- 3) Gas Welding and Cutting Equipment
  - a) Welding Gases
    - i) Acetylene
    - ii) Argon
    - iii) Helium
    - iv) Hydrogen
    - v) Oxygen
  - b) Pressure Regulators
  - c) Welding Hose
  - d) Check Valves and Flashback Arrestors
  - e) Torches
    - i) Equal Pressure Torch
    - ii) Injector Torch
    - iii) Cutting Torch
  - f) Torch Tips
  - g) Welding Eyewear
    - i) Filler Rod
  - h) Equipment Setup
    - i) Gas Cylinders
    - ii) Regulators

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- iii) Hoses
- iv) Connecting Torch
- v) Select the Tip Size
- vi) Adjusting the Regulator Working Pressure
- i) Lighting and Adjusting the Torch
- j) Different Flames
  - i) Neutral Flame
  - ii) Carburizing Flame
  - iii) Oxidizing Flame
  - iv) Soft or Harsh Flames
  - v) Handling of the Torch
- 4) Oxy-acetylene Cutting
  - a) Shutting Down the Gas Welding Equipment
- 5) Gas Welding Procedures and Techniques
  - a) Correct Forming of a Weld
  - b) Characteristics of a Good Weld
- 6) Oxy-Acetylene Welding of Ferrous Metals
  - a) Steel (Including SAE 4130)
  - b) Chrome Molybdenum
  - c) Stainless Steel
- 7) Oxy-Acetylene Welding of Nonferrous Metals
  - a) Aluminum Welding
  - b) Magnesium Welding
- 8) Brazing and Soldering
  - a) Torch Brazing of Steel
  - b) Torch Brazing of Aluminum
  - c) Soldering
    - i) Aluminum Soldering
    - ii) Silver Soldering
- 9) Gas Metal Arc Welding (TIG Welding)
  - a) TIG Welding 4130 Steel Tubing
  - b) TIG Welding Stainless Steel
  - c) TIG Welding Aluminum
  - d) TIG Welding Magnesium
  - e) TIG Welding Titanium
- 10) Arc Welding Procedures, Techniques, and Welding Safety Equipment
  - a) Multiple Pass Welding
  - b) Techniques of Position Welding
  - c) Flat Position Welding
    - i) Bead Weld
    - ii) Groove Weld
    - iii) Fillet Weld
    - iv) Lap Joint Weld
  - d) Vertical Position Welding
  - e) Overhead Position Welding
- 11) Expansion and Contraction of Metals
- 12) Welded Joints Using Oxy-Acetylene Torch
  - a) Butt Joints
  - b) Tee Joints
  - c) Edge Joints
  - d) Corner Joints
  - e) Lap Joints
- 13) Repair of Steel Tubing Aircraft Structure by Welding
  - a) Dents at a Cluster Weld
  - b) Dents Between Clusters
  - c) Tube Splicing with Inside Sleeve Reinforcement
  - d) Tube Splicing with Outer Split Sleeve Reinforcement

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- e) Landing Gear Repairs
- f) Engine Mount Repairs
- g) Rosette Welding

**Review and Test** – Aircraft Welding- 25 to 50 Questions (Random)

**Subject Projects**

**Project 4:** Students will set up oxy-acetylene welding equipment, correctly light the torch, and weld a butt joint, lap joint and tee joint on mild steel.

**Project 5:** Students will inspect a welds provided by the instructor for quality and identify any issues, the cause of the problem and what must be done to correct the problems identified. Students will correctly set up a tig welder and weld pieces of aluminum tubing or aluminum sheet metal.

**Project 11: Students will inspect and check welds for defects and will use dye penetrant and non-destructive equipment to locate and identify flaws. \*\*\* 6/7/22 Revision 2**

**Equipment**

- 1) Tig welder
- 2) Oxy Acetylene Welding equipment
- 3) Welding helmets and welding leathers

## ***Assembly & Rigging***

The class covers aircraft configurations, aircraft flight controls and their functions, stability of aircraft, aircraft rigging and inspection of aircraft.

### **Performance Goals**

<b>Assembly and Rigging</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
1	Rig rotary-wing aircraft	2	2	0
2	Rig fixed-wing aircraft	10	8	2
2	Check alignment of structures	10	3	7
3	Assemble aircraft components, including flight control surfaces	7	1	6
3	Balance, rig, and inspect movable primary and secondary flight control surfaces	17	5	12
3	Jack aircraft	9	1	8
<b>Total Hours: Airframe/Assembly &amp; Rigging</b>		<b>55</b>	<b>20</b>	<b>35</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 1 FAA-H-8083-31 (as amended)

**Chapter:** Aerodynamics, Aircraft Assembly, and Rigging

### **Subject Outline**

- 1) Basic Aerodynamics
- 2) The Atmosphere
  - a) Pressure
  - b) Density
  - c) Humidity
- 3) Aerodynamics and the Laws of Physics
  - a) Velocity and Acceleration
  - b) Newton’s Laws of Motion
  - c) Bernoulli’s Principle and Subsonic Flow
- 4) Airfoil
  - a) Shape of the Airfoil
  - b) Angle of Incidence
  - c) Angle of Attack (AOA)
  - d) Boundary Layer
- 5) Thrust and Drag
- 6) Center of Gravity (CG)
- 7) The Axes of an Aircraft
- 8) Stability and Control
  - a) Static Stability
  - b) Dynamic Stability Longitudinal Stability
  - c) Directional Stability
  - d) Lateral Stability
  - e) Dutch Roll
- 9) Primary Flight Controls
- 10) Trim Controls
- 11) Auxiliary Lift Devices
  - a) Winglets
  - b) Canard Wings
  - c) Wing Fences

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 12) Control Systems for Large Aircraft
  - a) Mechanical Control
  - b) Hydro-mechanical Control
  - c) Fly-By-Wire Control
- 13) High-Speed Aerodynamics
- 14) Rotary-Wing Aircraft Assembly and Rigging
- 15) Configurations of Rotary-Wing Aircraft
  - a) Autogyro
  - b) Single Rotor Helicopter
  - c) Dual Rotor Helicopter
- 16) Types of Rotor Systems
  - a) Fully Articulated Rotor
  - b) Semi rigid Rotor
  - c) Rigid Rotor
- 17) Forces Acting on the Helicopter
  - a) Torque Compensation
  - b) Gyroscopic Forces
- 18) Helicopter Flight Conditions
  - a) Hovering Flight
    - i) Translating Tendency or Drift
    - ii) Ground Effect
    - iii) Coriolis Effect (Law of Conservation of Angular Momentum)
  - b) Vertical Flight
  - c) Forward Flight
    - i) Translational Lift
    - ii) Effective Translational Lift (ETL)
    - iii) Dissymmetry of Lift
  - d) Autorotation
- 19) Rotorcraft Controls
  - a) Swash Plate Assembly
  - b) Collective Pitch Control
  - c) Throttle Control
  - d) Governor/Correlator
  - e) Cyclic Pitch Control
  - f) Anti-torque Pedals
- 20) Stabilizer Systems
  - a) Bell Stabilizer Bar System
  - b) Offset Flapping Hinge
  - c) Stability Augmentation Systems (SAS)
  - d) Helicopter Vibration
    - i) Extreme Low Frequency Vibration
    - ii) Low Frequency Vibration
    - iii) Medium Frequency Vibration
    - iv) High Frequency Vibration
  - e) Rotor Blade Tracking
    - i) Flag and Pole
    - ii) Electronic Blade Tracker
  - f) Tail Rotor Tracking
    - i) Marking Method
    - ii) Electronic Method
  - g) Rotor Blade Preservation and Storage
- 21) Helicopter Power Systems
  - a) Powerplant
  - b) Reciprocating Engine
  - c) Turbine Engine
- 22) Transmission System
  - a) Main Rotor Transmission

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- b) Clutch
    - i) Centrifugal Clutch
    - ii) Belt Drive Clutch
  - c) Freewheeling Unit
  - d) Airplane Assembly and Rigging
  - e) Rebalancing of Control Surfaces
    - i) Static Balance
    - ii) Dynamic Balance
  - f) Rebalancing Procedures
  - g) Rebalancing Methods
- 23) Aircraft Rigging
- a) Rigging Specifications
    - i) Type Certificate Data Sheet
    - ii) Maintenance Manual
    - iii) Structural Repair Manual (SRM)
    - iv) Manufacturer's Service Information
  - b) Airplane Assembly
    - i) Aileron Installation
    - ii) Flap Installation
    - iii) Empennage Installation
  - c) Control Operating Systems
    - i) Cable Systems
    - ii) Cable Inspection
    - iii) Cable System Installation
    - iv) Push Rods (Control Rods)
    - v) Torque Tubes
    - vi) Cable Drums
  - d) Rigging Checks
    - i) Structural Alignment
    - ii) Cable Tension
    - iii) Control Surface Travel
    - iv) Checking and Safetying the System
  - e) Biplane Assembly and Rigging
- 24) Aircraft Inspection
- a) Purpose of Inspection Programs
  - b) Perform an Airframe Conformity and
  - c) Airworthiness Inspection
  - d) Required Inspections
    - i) Preflight
    - ii) Periodic Maintenance Inspections:
    - iii) Altimeter and Static System Inspections
    - iv) Air Traffic Control (ATC) Transponder
    - v) Inspections
    - vi) Emergency Locator Transmitter (ELT)
    - vii) Operational and Maintenance Practices in Accordance with Advisory Circular (AC) 91-44
  - e) Annual and 100-Hour Inspections
    - i) Preparation
- 25) Other Aircraft Inspection and Maintenance Programs
- a) Continuous Airworthiness Maintenance Program (CAMP)
  - b) Title 14 CFR part 125, section 125247, Inspection Programs and Maintenance Helicopter Inspections, Piston-Engine and Turbine-Powered
  - c) Light-Sport Aircraft, Powered Parachute, and Weight-Shift Control Aircraft

**Review and Test** – Aerodynamics, Aircraft Assembly, and Rigging - 25 to 50 Random Questions

### **Subject Project**

**Project 6:** Students will fabricate cable section, adjust tension and safety turnbuckle and assemble their wing bay they fabricated to their fabricated aileron sections using proper hardware and will check travel of a flight control surfaces using a propeller protractor and compare readings to M/M specs.

**Project 7:** Students will jack an aircraft assigned by the instructor observing all necessary safety precautions.

**Project 8:** Students will balance a Cessna flight control surface using a balance beam.

### **Equipment**

- 1) Aircraft
- 2) Jacks
- 3) Cessna 150 Control Surface Balancing Beam S47
- 4) Cessna 150 Control Surface
- 5) Aircraft Cable Tensiometer

**Appendix C to Part 147 – Airframe Curriculum Subjects**

## Appendix C

### Airframe Systems & Components

#### *Aircraft Landing Gear Systems*

This class will review landing gear arrangements, systems for retraction and extension, brakes, wheel and tires along with inspection checks servicing and repair procedures.

**Performance Goals**

<b>Aircraft Landing Gear Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>3</b>	Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheel, tires and steering systems	<b>55</b>	<b>20</b>	<b>35</b>
<b>Total Hours: Airframe/Landing Gear Systems</b>		<b>55</b>	<b>20</b>	<b>35</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Landing

**Subject Outline**

- 1) Landing Gear Types
  - a) Landing Gear Arrangement
    - i) Tail Wheel-Type Landing Gear
    - ii) Tandem Landing Gear
    - iii) Tricycle-Type Landing Gear
  - b) Fixed and Retractable Landing Gear
  - c) Shock Absorbing and Non-Shock Absorbing
  - d) Landing Gear
    - i) Leaf-Type Spring Gear
    - ii) Rigid
    - iii) Bungee Cord
    - iv) Shock Struts
  - e) Shock Strut Operation
  - f) Servicing Shock Struts
  - g) Bleeding Shock Struts
- 2) Landing Gear Alignment, Support, and Retraction
  - a) Alignment
  - b) Support
  - c) Small Aircraft Retraction Systems
  - d) Large Aircraft Retraction Systems
  - e) Emergency Extension Systems
  - f) Landing Gear Safety Devices
    - i) Safety Switch
    - ii) Ground Locks
    - iii) Landing Gear Position Indicators
    - iv) Nose Wheel Centering



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 3) Landing Gear System Maintenance
  - a) Landing Gear Rigging and Adjustment
    - i) Gear Door Clearances
    - ii) Drag and Side Brace Adjustment
    - iii) Landing Gear Retraction Tests
- 4) Nose Wheel Steering Systems
  - a) Small Aircraft
  - b) Large Aircraft
  - c) Shimmy Dampers
    - i) Steering Damper
    - ii) Piston-Type
    - iii) Vane-Type
    - iv) Non-Hydraulic Shimmy Damper
- 5) Aircraft Wheels
  - a) Wheel Construction
    - i) Inboard Wheel Half
    - ii) Outboard Wheel Half
  - b) Wheel Inspection
    - i) On Aircraft Inspection
    - ii) Proper Installation
    - iii) Off Aircraft Wheel Inspection
- 6) Aircraft Brakes
  - a) Types and Construction of Aircraft Brakes
    - i) Single Disc Brakes
    - ii) Dual-Disc Brakes
    - iii) Multiple-Disc Brakes
    - iv) Segmented Rotor-Disc Brakes
    - v) Carbon Brakes
    - vi) Expander Tube Brakes
  - b) Brake Actuating Systems
    - i) Independent Master Cylinders
    - ii) Boosted Brakes
    - iii) Power Brakes
  - c) Emergency Brake Systems
    - i) Parking Brake
    - ii) Brake Deboosters
  - d) Anti-Skid
    - i) System Operation
    - ii) Wheel Speed Sensors
    - iii) Control Units
    - iv) Anti-Skid Control Valves
    - v) Touchdown and Lock Wheel Protection
    - vi) Auto Brakes
    - vii) Anti-Skid System Tests
    - viii) Anti-Skid System Maintenance
  - e) Brake Inspection and Service
    - i) On Aircraft Servicing
    - ii) Lining Wear
    - iii) Air in the Brake System
    - iv) Bleeding Master Cylinder Brake Systems
    - v) Bleeding Power Brake Systems
    - vi) Off Aircraft Brake Servicing and Maintenance
    - vii) Replacement of Brake Linings
  - f) Brake Malfunctions and Damage
    - i) Overheating
    - ii) Dragging
    - iii) Chattering or Squealing

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 7) Aircraft Tires and Tubes
  - a) Tire Classification
    - i) Types
    - ii) Ply Rating
    - iii) Tube-Type or Tubeless
    - iv) Bias Ply or Radial
  - b) Tire Construction
    - i) Bead
    - ii) Carcass Plies
    - iii) Tread
    - iv) Sidewall
  - c) Tire Inspection on the Aircraft
    - i) Inflation
    - ii) Tread Condition
    - iii) Sidewall Condition
  - d) Tire Removal
  - e) Tire Inspection Off of the Aircraft
  - f) Tire Repair and Retreading
  - g) Tire Storage
  - h) Aircraft Tubes
    - i) Tube Construction and Selection
    - ii) Tube Storage and Inspection
    - iii) Tire Inspection
  - i) Tire Mounting
    - i) Tubeless Tires
    - ii) Tube-Type Tires
  - j) Tire Balancing
- 8) Operation and Handling Tips
  - a) Taxiing
  - b) Braking and Pivoting
  - c) Landing Field and Hangar Floor Condition
  - d) Takeoffs and LandingsHydroplaning

**Review and Test** – Aircraft Landing Gear Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 9:** Students will ~~overhaul brake components~~ **overhaul brake master cylinder or shimmy damper.** \*\*\*6/7/22 Rev. 2

**Project 10:** Students will inspect, service and perform landing gear system checks of struts, tires, brakes, and steering systems and document the discrepancies and repair if necessary an aircraft and/or mock-up.

**Project 11:** Student will perform a landing gear retraction check on a trainer or aircraft assigned to them.

**Equipment**

Aircraft with retractable gear or landing gear retraction trainer

Brake components (for overhaul)

Aircraft jacks

## ***Hydraulic & Pneumatic Power Systems***

Introduction of to the inspection, servicing and repairing the hydraulic and pneumatic systems used in aircraft.

### **Performance Goals**

<b>Hydraulic and Pneumatic Power Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>2</b>	Repair hydraulic and pneumatic power systems components	<b>20</b>	<b>5</b>	<b>15</b>
<b>3</b>	Identify and select hydraulic fluids	<b>4</b>	<b>4</b>	<b>0</b>
<b>3</b>	Inspect, check, service, troubleshoot and repair hydraulic and pneumatic power systems	<b>26</b>	<b>11</b>	<b>15</b>
<b>Total Hours: Airframe/Hydraulic &amp; Pneumatic Systems</b>		<b>50</b>	<b>20</b>	<b>30</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-30A (as amended)

**Chapter:** Hydraulic and Pneumatic

### **Subject Outline**

- 1) Aircraft Hydraulic Systems
- 2) Hydraulic Fluid
  - a) Viscosity
  - b) Chemical Stability
  - c) Flash Point
  - d) Fire Point
- 3) Types of Hydraulic Fluids
  - a) Mineral-Based Fluids
  - b) Polyalphaolefin - Based Fluids
  - c) Phosphate Ester-Based Fluid (Skydrol<sup>®</sup>)
  - d) Intermixing of Fluids
  - e) Compatibility with Aircraft Materials
  - f) Hydraulic Fluid Contamination
    - i) Contamination Check
    - ii) Contamination Control
  - g) Hydraulic System Flushing
  - h) Health and Handling
- 4) Basic Hydraulic Systems
  - a) Open Center Hydraulic Systems
  - b) Closed-Center Hydraulic Systems
- 5) Hydraulic Power Systems
  - a) Evolution of Hydraulic Systems
  - b) Hydraulic Power Pack System
  - c) Hydraulic System Components
    - i) Reservoirs
  - d) Filters
    - i) Micron-Type Filters
  - e) Maintenance of Filters
  - f) Filter Bypass Valve
  - g) Filter Differential Pressure Indicators
- 6) Pumps
- 7) Hand Pumps
- 8) Power-Driven Pumps
  - a) Classification of Pumps
  - b) Constant-Displacement Pumps
  - c) Gear-Type Power Pump
  - d) Gerotor Pump
  - e) Piston Pump
  - f) Vane Pump

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- g) Variable-Displacement Pump
- 9) Valves
  - a) Flow Control Valves
  - b) Pressure Control Valves
  - c) Shuttle Valves
- 10) Accumulators
  - a) Types of Accumulators
- 11) Heat Exchangers
- 12) Actuators
  - a) Linear Actuators
  - b) Rotary Actuators
  - c) Hydraulic Motor
- 13) Ram Air Turbine (RAT)
- 14) Power Transfer Unit (PTU)
- 15) Hydraulic Motor-Driven Generator (HMDG)
- 16) Seals
  - a) V-Ring Packings
  - b) U-Ring
  - c) O-Rings
  - d) Backup Rings
  - e) Gaskets
  - f) Seal Materials
  - g) O-Ring Installation
  - h) Wipers
- 17) Large Aircraft Hydraulic Systems
  - a) Boeing 737 Next Generation Hydraulic System
  - b) Reservoirs
  - c) Pumps
  - d) Filter Units
  - e) Power Transfer Unit (PTU)
  - f) Landing Gear Transfer Unit
  - g) Standby Hydraulic System
  - h) Indications
- 18) Boeing 777 Hydraulic System
  - a) Left and Right System Description
  - b) Center Hydraulic System
- 19) Aircraft Pneumatic Systems
  - a) High-Pressure Systems
    - i) Pneumatic System Components
    - ii) Emergency Backup Systems
  - b) Medium-Pressure Systems
  - c) Low-Pressure Systems
  - d) Pneumatic Power System Maintenance

**Review and Test** – Hydraulic and Pneumatic Power Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 12:** Students Identify different samples of hydraulic fluid and service and inspect on an aircraft hydraulic system with proper fluid per maintenance manual procedures on aircraft or trainer and overhaul low pressure pneumatic components or hydraulic system components on aircraft or trainer.

**Equipment:** Aircraft or hydraulic mock up trainer hydraulic system components i.e. pumps, valves, actuators.

## ***Cabin Atmospheric Control Systems***

Introduction to the systems used for heating, cooling, pressurization and supplemental oxygen systems as well as the inspection, servicing and repairing of cabin environmental systems.

### **Performance Goals**

<b>Cabin Atmosphere Control Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>1</b>	Inspect, check, troubleshoot, service, and repair heating, cooling, air conditioning, pressurization systems, and air cycle machines.	<b>10</b>	<b>10</b>	<b>0</b>
<b>1</b>	Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, and pressurization systems.	<b>8</b>	<b>8</b>	<b>0</b>
<b>2</b>	Inspect, check, troubleshoot, service and repair oxygen systems.	<b>17</b>	<b>14</b>	<b>3</b>
<b>1</b>	<b>Potable water system and lavatory waste system operations</b> ***6/7/22 Rev 2	<b>2</b>	<b>2</b>	<b>0</b>
<b>Total Hours: Airframe/Cabin Atmospheric Control Systems</b> ***6/7/22 Rev 2		<b>35</b>	<b>32</b>	<b>3</b>
		<b>37</b>	<b>34</b>	

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Cabin Environmental

### **Subject Outline**

- 1) Physiology of Flight
  - a) Composition of the Atmosphere
  - b) Human Respiration and Circulation
    - i) Oxygen and Hypoxia
    - ii) Carbon Monoxide Poisoning
- 2) Aircraft Oxygen Systems
  - a) Forms of Oxygen and Characteristics
    - i) Gaseous Oxygen
    - ii) Liquid Oxygen
    - iii) Chemical or Solid Oxygen
    - iv) Onboard Oxygen Generating Systems (OBOGS)
  - b) Oxygen Systems and Components
    - i) Gaseous Oxygen Systems
    - ii) Chemical Oxygen Systems
    - iii) LOX Systems
  - c) Oxygen System Servicing
    - i) Servicing Gaseous Oxygen
    - ii) Filling LOX Systems
    - iii) Inspection of Masks and Hoses
    - iv) Replacing Tubing, Valves, and Fittings
  - d) Prevention of Oxygen Fires or Explosions
    - i) Oxygen System Inspection and Maintenance
- 3) Aircraft Pressurization Systems
  - a) Pressure of the Atmosphere
  - b) Temperature and Altitude
  - c) Pressurization Terms
  - d) Pressurization Issues
  - e) Sources of Pressurized Air

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- i) Reciprocating Engine Aircraft
- ii) Turbine Engine Aircraft
- f) Control of Cabin Pressure
  - i) Pressurization Modes
  - ii) Cabin Pressure Controller
  - iii) Cabin Air Pressure Regulator and Outflow Valve
  - iv) Cabin Air Pressure Safety Valve Operation
  - v) Pressurization Gauges
  - vi) Pressurization Operation
  - vii) Air Distribution
  - viii) Cabin Pressurization Troubleshooting
- 4) Air Conditioning Systems
  - a) Air Cycle Air Conditioning
    - i) System Operation
    - ii) Pneumatic System Supply
    - iii) Component Operation
    - iv) Water Separator
    - v) Cabin Temperature Control System
  - b) Vapor Cycle Air Conditioning
    - i) Theory of Refrigeration
    - ii) Vapor Cycle Air Conditioning System Components
    - iii) Vapor Cycle Air Conditioning Servicing Equipment
    - iv) System Servicing
    - v) Technician Certification
- 5) Aircraft Heaters
  - a) Bleed Air Systems
  - b) Electric Heating Systems
  - c) Exhaust Shroud Heaters
  - d) Combustion Heaters
    - i) Combustion Air System
    - ii) Ventilating Air System
    - iii) Fuel System
    - iv) Ignition System
    - v) Controls
    - vi) Safety Features
    - vii) Maintenance and Inspection

**Review and Test** – Cabin Environmental Control Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 13:** Students will check and service oxygen system to proper specifications on aircraft or trainers and document the discrepancies and repair if necessary.

**Equipment**

Aircraft or Oxygen Mock-up trainer aircraft with oxygen systems

## ***Aircraft Instruments***

This class will review the instruments used in aircraft from simple vacuum systems to today's modern avionics. The focus in the class will be on how the various instruments operate, how to maintain the system as a whole and the limitations affecting maintenance of the instruments.

### **Performance Goals**

<b>Aircraft Instrument Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>1</b>	Inspect, check, service, troubleshoot, and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, temperature, pressure, and position indicating systems to include the use of built-in test equipment.	<b>10</b>	<b>10</b>	<b>0</b>
<b>2</b>	Install instruments and perform a static pressure system leak test.	<b>15</b>	<b>10</b>	<b>5</b>
<b>Total Hours Airframe:/Aircraft Instruments</b>		<b>25</b>	<b>20</b>	<b>5</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Instrument

### **Subject Outline**

- 1) Introduction
- 2) Classifying Instruments
  - a) Flight Instruments
  - b) Engine Instruments
  - c) Navigation Instruments
- 3) Pressure Measuring Instruments
  - a) Types of Pressure
  - b) Pressure Instruments
    - i) Engine Oil Pressure
    - ii) Manifold Pressure
    - iii) Engine Pressure Ratio (EPR)
    - iv) Fuel Pressure
    - v) Hydraulic Pressure
    - vi) Vacuum Pressure
    - vii) Pressure Switches
  - c) Pitot-Static Systems
    - i) Pitot Tubes and Static Vents
    - ii) Air Data Computers (ADC) and Digital Air
    - iii) Data Computers (DADC)
  - d) Pitot-Static Pressure-Sensing Flight Instruments
    - i) Altimeters and Altitude
    - ii) Vertical Speed Indicator
    - iii) Airspeed Indicators
- 4) Remote Sensing and Indication
  - a) Synchro-Type Remote-Indicating Instruments
  - b) DC Selsyn Systems
  - c) AC Synchro Systems
  - d) Remote Indicating Fuel and Oil Pressure Gauges
- 5) Mechanical Movement Indicators
  - a) Tachometers
    - i) Mechanical Tachometers

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- ii) Electric Tachometers
- b) Synchroscope
- c) Accelerometers
- d) Stall Warning and Angle of Attack (AOA)
- e) Indicators
- 6) Temperature Measuring Instruments
  - a) Non-Electric Temperature Indicators
  - b) Electrical Temperature Measuring Indication
    - i) Electrical Resistance Thermometer
    - ii) Ratiometer Electrical Resistance Thermometers
  - c) Thermocouple Temperature Indicators
    - i) Turbine Gas Temperature Indicating Systems
  - d) Total Air Temperature Measurement
- 7) Direction Indicating Instruments
  - a) Magnetic Compass
  - b) Vertical Magnetic Compass
  - c) Remote Indicating Compass
  - d) Remote Indicating Slaved Gyro Compass (Flux Gate Compass)
  - e) Solid State Magnetometers
  - f) Sources of Power for Gyroscopic Instruments
    - i) Vacuum Systems
      - (1) Venturi Tube Systems
      - (2) Engine-Driven Vacuum Pump
      - (3) Typical Pump-Driven System
      - (4) Twin-Engine Aircraft Vacuum System Operation
    - ii) Pressure-Driven Gyroscopic Instrument Systems
    - iii) Electrically-Driven Gyroscopic Instrument Systems
- 8) Principles of Gyroscopic Instruments
  - a) Mechanical Gyros
  - b) Solid State Gyros and Related Systems
    - i) Ring Laser Gyros (RLG)
    - ii) Microelectromechanical Based Attitude and Directional Systems
    - iii) Other Attitude and Directional Systems
- 9) Common Gyroscopic Instruments
  - a) Vacuum-Driven Attitude Gyros
  - b) Electric Attitude Indicators
  - c) Gyroscopic Direction Indicator or Directional
  - d) Gyro (DG)
  - e) Turn Coordinators
  - f) Turn-and-Slip Indicator
- 10) Autopilot Systems
  - a) Basis for Autopilot Operation
- 11) Autopilot Components
  - a) Sensing Elements
  - b) Computer and Amplifier
  - c) Output Elements
  - d) Command Elements
  - e) Feedback or Follow-up Element
  - f) Autopilot Functions
  - g) Yaw Dampening
- 12) Automatic Flight Control System (AFCS)
- 13) Flight Director Systems
- 14) Electronic Instruments
  - a) Electronic Attitude Director Indicator (EADI)
  - b) Electronic Horizontal Situation Indicators (EHSI)
- 15) Electronic Flight Information Systems
  - a) Electronic Flight Instrument System (EFIS)



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- b) Electronic Centralized Aircraft Monitor (ECAM)
- c) Engine Indicating and Crew Alerting System (EICAS)
- 16) Flight Management System (FMS)
- 17) Warnings and Cautions
  - a) Annunciator Systems
  - b) Aural Warning Systems
- 18) Clocks
- 19) Instrument Housings and Handling
- 20) Instrument Installations and Markings
  - a) Instrument Panels
  - b) Instrument Mounting
  - c) Instrument Power Requirements
  - d) Instrument Range Markings
- 21) Maintenance of Instruments and Instrument Systems
  - a) Altimeter Tests
  - b) Pitot-Static System Maintenance and Tests
  - c) Tachometer Maintenance
  - d) Magnetic Compass Maintenance and Compensation
  - e) Vacuum System Maintenance
- 22) Autopilot System Maintenance
- 23) LCD Display Screens

**Review and Test** – Aircraft Instrument Systems – 25 to 50 Questions (Random)

#### Subject Projects

**Project 14:** Students will swap out instruments and perform a proper pitot static leak check on aircraft specified by instructor and document the discrepancies and repair if necessary.

#### Equipment

- 1) GA Aircraft
- 2) Pitot static test equipment
- 3) Avionics instrument trainers

## ***Communication & Navigation Systems***

In this class the principles, practices and operation of basic aircraft communications and navigation systems will be presented. Types of Radio Transmitters and receivers, Navigation receivers, as well as the installation of radio antennas will be covered.

### **Performance Goals**

<b>Communications and Navigation Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>1</b>	Inspect, check, and troubleshoot autopilot, servos and approach coupling systems.	<b>12</b>	<b>12</b>	<b>0</b>
<b>1</b>	Inspect, check, and service aircraft electronic communication and navigation systems, including VHF passenger address interphones and static discharge devices, aircraft VOR, ILS, LORAN, Radar beacon transponders, flight management computers, and GPWS, GPS and Auto flight systems	<b>12</b>	<b>12</b>	<b>0</b>
<b>2</b>	Inspect and if necessary repair antenna and electronic equipment installations.	<b>6</b>	<b>5</b>	<b>1</b>
<b>Total Hours: Airframe/Communications &amp; Nav. Systems</b>		<b>30</b>	<b>29</b>	<b>1</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Communication and Navigation

### **Subject Outline**

- 1) Introduction
  - a) Avionics in Aviation Maintenance
  - b) History of Avionics
  - c) Fundamentals of Electronics
    - i) Analog Versus Digital Electronics
    - ii) Analog Electronics
    - iii) Digital Electronics
- 2) Radio Communication
  - a) Radio Waves
    - i) Types of Radio Waves
  - b) Loading Information onto a Radio Wave
    - i) Amplitude Modulation (AM)
    - ii) Frequency Modulation (FM)
    - iii) Single Side Band (SSB)
  - c) Radio Transmitters and Receivers
    - i) Transmitters
    - ii) Receivers
    - iii) Transceivers
  - d) Antennas
    - i) Length
    - ii) Polarization, Directivity, and Field Pattern
    - iii) Types
    - iv) Transmission Lines
- 3) Radio Navigation
  - a) VOR Navigation System
  - b) Automatic Direction Finder (ADF)
  - c) Radio Magnetic Indicator (RMI)

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- d) Instrument Landing Systems (ILS)
  - i) Localizer
  - ii) Glideslope
  - iii) Compass Locators
  - iv) Marker Beacons
- e) Distance Measuring Equipment (DME)
- f) Area Navigation (RNAV)
- g) Radar Beacon Transponder
  - i) Transponder Tests and Inspections
  - ii) Altitude Encoders
- h) Collision Avoidance Systems
  - i) Traffic Collision Avoidance Systems (TCAS)
  - ii) ADS-B
- i) Radio Altimeter
- j) Weather Radar
- k) Emergency Locator Transmitter (ELT)
- l) Long Range Aid to Navigation System (LORAN)
- m) Global Positioning System (GPS)
  - i) Wide Area Augmentation System (WAAS)
- 4) Inertial Navigation System (INS)/Inertial Reference System (IRS)
- 5) Installation of Communication and Navigation Equipment
  - a) Approval of New Avionics Equipment Installations
  - b) Considerations
  - c) Cooling and Moisture
  - d) Vibration Isolation
- 6) Reducing Radio Interference
  - a) Shielding
  - b) Isolation
  - c) Bonding
  - d) Static Discharge Wicks
- 7) Installation of Aircraft Antenna Systems
  - a) Transmission Lines
  - b) Maintenance Procedure

**Review and Test** – Communication and Navigation – 25 to 50 Questions (Random)

**Subject Projects**

**Project 15:** Students will locate and inspect the aircraft ELT batteries and create a logbook entry of the inspection and locate and identify the antennas for; VOR, DME, ATC transponder, ADF, Glideslope, VHF on an assigned aircraft.

~~**Project 16:** Students will fabricate a cable and correctly install BNC connectors to coax cable.~~ \*\*\*6/7/22 Rev. 2

**Equipment**

- 1) Aircraft
- 2) ~~Coax crimper~~

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

## *Aircraft Fuel Systems*

This class will instruct the student in the Fuel System Requirements of aircraft, the types and characteristics of fuels used in aircraft, components used in aircraft fuel systems, proper operation of fuel systems and repair of aircraft fuel systems as well as and safety.

### Performance Goals

<b>Aircraft Fuel System</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
1	Check and service fuel dump systems.	3	3	0
1	Perform fuel management transfer, and defueling.	4	4	0
1	Inspect, check, and repair pressure fueling systems.	4	4	0
2	Repair aircraft fuel system components.	6	6	0
2	Inspect and repair fluid quantity indicating systems.	8	6	2
2	Troubleshoot, service, and repair fluid pressure and temperature warning systems.	8	6	2
3	Inspect, check, service, troubleshoot, and repair aircraft fuel systems.	7	2	5
<b>Total Hours: Airframe/Fuel Systems</b>		<b>40</b>	<b>31</b>	<b>9</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Fuel System

### Subject Outline

- 1) Basic Fuel System Requirements
  - a) Fuel System Independence
  - b) Fuel System Lightning Protection
  - c) Fuel Flow
  - d) Flow Between Interconnected Tanks
  - e) Unusable Fuel Supply
  - f) Fuel System Hot Weather Operation
- 2) Fuel Tanks
  - a) Fuel Tank Tests
  - b) Fuel Tank Installation
  - c) Fuel Tank Expansion Space
  - d) Fuel Tank Sump
  - e) Fuel Tank Filler Connection
  - f) Fuel Tank Vents and Carburetor Vapor Vents
  - g) Fuel Tank Outlet
  - h) Pressure Fueling Systems
  - i) Fuel Pumps
  - j) Fuel System Lines and Fittings
  - k) Fuel System Components
  - l) Fuel Valves and Controls
  - m) Fuel Strainer or Filter
  - n) Fuel System Drains
  - o) Fuel Jettisoning System
- 3) Types of Aviation Fuel
  - a) Reciprocating Engine Fuel—AVGAS
    - i) Volatility
    - ii) Vapor Lock
    - iii) Carburetor Icing
    - iv) Aromatic Fuels

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- v) Detonation
- vi) Surface Ignition and Pre-ignition
- vii) Octane and Performance Number Rating
- viii) Fuel Identification
- ix) Purity
- b) Turbine Engine Fuels
  - i) Turbine Fuel Volatility
  - ii) Turbine Engine Fuel Types
  - iii) Turbine Engine Fuel Issues
- 4) Aircraft Fuel Systems
  - a) Small Single-Engine Aircraft Fuel Systems
    - i) Gravity Feed Systems
    - ii) Pump Feed Systems
    - iii) High-Wing Aircraft with Fuel Injection System
  - b) Small Multiengine (Reciprocating) Aircraft Fuel Systems
    - i) Low-Wing Twin
    - ii) High-Wing Twin
  - c) Large Reciprocating-Engine Aircraft Fuel Systems
  - d) Jet Transport Aircraft Fuel Systems
  - e) Helicopter Fuel Systems
- 5) Fuel System Components
  - a) Fuel Tanks
    - i) Rigid Removable Fuel Tanks
    - ii) Bladder Fuel Tanks
    - iii) Integral Fuel Tanks
  - b) Fuel Lines and Fittings
  - c) Fuel Valves
    - i) Hand-Operated Valves
    - ii) Cone Valves
    - iii) Poppet Valves
    - iv) Manually-Operated Gate Valves
    - v) Motor-Operated Valves
    - vi) Solenoid-Operated Valves
  - d) Fuel Pumps
    - i) Hand-Operated Fuel Pumps
    - ii) Ejector Pumps
    - iii) Pulsating Electric Pumps
    - iv) Vane-Type Fuel Pumps
  - e) Fuel Filters
  - f) Fuel Heaters and Ice Prevention
  - g) Fuel System Indicators
    - i) Fuel Quantity Indicating Systems
    - ii) Fuel Flowmeters
    - iii) Fuel Temperature Gauges
    - iv) Fuel Pressure Gauges
    - v) Pressure Warning Signal
    - vi) Valve-In-Transit Indicator Lights
- 6) Fuel System Repair
  - a) Troubleshooting the Fuel System
    - i) Location of Leaks and Defects
    - ii) Fuel Leak Classification
    - iii) Replacement of Gaskets, Seals, and Packings
  - b) Fuel Tank Repair
    - i) Welded Tanks
    - ii) Riveted Tanks
    - iii) Soldered Tanks
    - iv) Bladder Tanks

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- v) Integral Tanks
- vi) Fire Safety
- 7) Fuel System Servicing
  - a) Checking for Fuel System Contaminants
    - i) Water
    - ii) Solid Particle Contaminants
    - iii) Surfactants
    - iv) Microorganisms
    - v) Foreign Fuel Contamination
    - vi) Detection of Contaminants
    - vii) Fuel Contamination Control
- 8) Fueling and Defueling Procedures
  - a) Fueling
  - b) Defueling
  - c) Fire Hazards When Fueling or Defueling

**Review and Test** – Aircraft Fuel Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 17:** Students will inspect, check, troubleshoot and document the discrepancies and repair if necessary a typical fuel system with pressure and temperature warning on fuel mock-up trainers or assigned aircraft.

**Equipment**

- 1) Aircraft
- 2) Fuel system trainer

## ***Aircraft Electrical Systems***

In this class the Aviation Maintenance Technician (AMT) student will learn about the aircraft electrical system

### **Performance Goals**

<b>Aircraft Electrical Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>2</b>	Repair and inspect aircraft electrical system components; crimp and splice wiring to manufacturers' specifications; and repair pins and sockets of aircraft connectors.	<b>17</b>	<b>3</b>	<b>14</b>
<b>3</b>	Install, check, and service airframe electrical wiring, controls, switches, indicators, and protective devices.	<b>29</b>	<b>7</b>	<b>22</b>
<b>3</b>	Inspect, check, troubleshoot, service, and repair alternating and direct current electrical systems.	<b>32</b>	<b>20</b>	<b>12</b>
<b>1</b>	Inspect, check, and troubleshoot constant speed and integrated speed drive generators.	<b>12</b>	<b>10</b>	<b>2</b>
<b>Total Hours: Airframe/Electrical Systems</b>		<b>90</b>	<b>40</b>	<b>50</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Electrical System

### **Subject Outline**

- 1) Introduction
  - a) Ohm's Law
  - b) Current
    - i) Conventional Current Theory and Electron
    - ii) Theory
  - c) Electromotive Force (Voltage)
  - d) Resistance
    - i) Factors Affecting Resistance
  - e) Electromagnetic Generation of Power
  - f) Alternating Current (AC) Introduction
    - i) Definitions
  - g) Opposition to Current Flow of AC
    - i) Resistance
    - ii) Inductive Reactance
    - iii) Capacitive Reactance
    - iv) Impedance
    - v) Parallel AC Circuits
    - vi) Power in AC Circuits
    - vii) True Power
    - viii) Apparent Power
    - ix) Power Factor
- 2) Aircraft Batteries
  - a) Type of Batteries
    - i) Lead-Acid Batteries
    - ii) NiCad Batteries
    - iii) Capacity
    - iv) Aircraft Battery Ratings by Specification
    - v) Storing and Servicing Facilities
    - vi) Battery Freezing
    - vii) Temperature Correction
    - viii) Battery Charging
    - ix) Battery Maintenance

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- x) Battery and Charger Characteristics
  - xi) Aircraft Battery Inspection
  - xii) Ventilation Systems
  - xiii) Installation Practices
  - xiv) Troubleshooting
- 3) DC Generators and Controls
- a) Generators
  - b) Construction Features of DC Generators
  - c) Types of DC Generators
  - d) Generator Ratings
  - e) DC Generator Maintenance
- 4) Generator Controls
- a) Theory of Generator Control
  - b) Functions of Generator Control Systems
    - i) Generator Controls for High Output Generators
    - ii) Generator Controls for Low-Output Generators
  - c) DC Alternators and Controls
    - i) DC Alternators
    - ii) Alternator Voltage Regulators
    - iii) Solid-State Regulators
  - d) Power Systems
  - e) AC Alternators
  - f) Alternator Drive
  - g) AC Alternators Control Systems
- 5) Aircraft Electrical Systems
- a) Small Single-Engine Aircraft
    - i) Battery Circuit
    - ii) Generator Circuit
    - iii) Alternator Circuit
    - iv) External Power Circuit
    - v) Starter Circuit
    - vi) Avionics Power Circuit
    - vii) Landing Gear Circuit
    - viii) AC Supply
  - b) Light Multiengine Aircraft
    - i) Paralleling Alternators or Generators
    - ii) Power Distribution on Multiengine Aircraft
  - c) Large Multiengine Aircraft
    - i) AC Power Systems
- 6) Wiring Installation
- a) Wiring Diagrams
    - i) Block Diagrams
    - ii) Pictorial Diagrams
    - iii) Schematic Diagrams
  - b) Wire Types
    - i) Conductor
    - ii) Plating
    - iii) Insulation
    - iv) Wire Shielding
    - v) Wire Substitutions
    - vi) Areas Designated as Severe Wind and
    - vii) Moisture Problem (SWAMP)
  - c) Wire Size Selection
    - i) Current Carrying Capacity
    - ii) Allowable Voltage Drop
  - d) Wire Identification
    - i) Placement of Identification Markings



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- ii) Types of Wire Markings
- e) Wire Installation and Routing
  - i) Open Wiring
  - ii) Wire Groups and Bundles and Routing
  - iii) Conduit
  - iv) Wire Shielding
- f) Lacing and Tying Wire Bundles
  - i) Tying
- g) Wire Termination
  - i) Stripping Wire
  - ii) Terminal Strips
  - iii) Terminal Lugs
  - iv) Emergency Splicing Repairs
  - v) Junction Boxes
  - vi) AN/MS Connectors
  - vii) Coaxial Cable
- h) Wire Inspection
- 7) Electrical System Components
  - a) Switches
    - i) Type of Switches
    - ii) Toggle and Rocker Switches
    - iii) Rotary Switches
    - iv) Precision (Micro) Switches
  - b) Relays and Solenoids (Electromagnetic Switches)
    - i) Solenoids
    - ii) Relays
  - c) Current Limiting Devices
    - i) Fuses
    - ii) Circuit Breakers
- 8) Aircraft Lighting Systems
  - a) Exterior Lights
    - i) Position Lights
    - ii) Anti-collision Lights
    - iii) Landing and Taxi Lights
    - iv) Wing Inspection Lights
  - b) Interior Lights
  - c) Maintenance and Inspection of Lighting Systems

**Review and Test** – Aircraft Electrical System – 25 to 50 Questions (Random)

**Subject Projects**

**Project 18:** Students will inspect, check, troubleshoot typical electrical wiring system on an aircraft assigned to them or system trainer and document the discrepancies and repair if necessary.

**Project 19:** Students will overhaul electrical generators or alternators and will fabricate a sub “D” cannon plug or their landing gear mock up board.

**Equipment**

Multi-Engine 28-volt DC Electrical System mock up, pin removal tools, starters, generators, alternators, landing gear wiring board.

## ***Position & Warning Systems***

**Performance Goals:** In this class the Aviation Maintenance Technician (AMT) student will learn about the aircraft landing gear and position warning systems and speed (anti-skid) system operations and troubleshooting.

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Aircraft Landing Gear Systems

### Position and Warning Systems

<b>Position and Warning Systems</b>				
		<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>2</b>	Inspect check and service speed and configuration warning systems, electrical brake controls and anti-skid systems	<b>8</b>	<b>4</b>	<b>4</b>
<b>3</b>	Inspect, check, troubleshoot, service, landing gear position indicating and warning systems	<b>12</b>	<b>6</b>	<b>6</b>
<b>Total Hours: Airframe/Position &amp; Warning</b>		<b>20</b>	<b>10</b>	<b>10</b>

### Subject Outline

- 1) Antiskid System
  - a. Antiskid System Components
    - i. Wheel-Speed Sensors
    - ii. Antiskid Control Valves
    - iii. Antiskid Control Box
- 2) System Tests
  - i. Preflight Test
  - ii. Pre-landing Check
  - iii. Disabling the System
  - iv. Maintenance Checks
- 3) Components
  - i. Wheel-Speed Sensors
  - ii. Control Box
  - iii. Antiskid Control Valve
  - iv. Antiskid Brake System
- 4) Mechanical Movement Measuring Instruments
  - i. Position Indicating Lights
  - ii. Synchro Systems
  - iii. DC Selsyn System
  - iv. AC Magnesyn System
  - v. AC Autosyn System
  - vi. Aural Warning Systems
- 5) Landing Gear Actuation and Indicating Circuit

**Review and Test** – Aircraft Instrument Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 20:** Students will perform, troubleshoot, inspect, a typical landing gear retraction and gear position warning indicating system on aircraft or landing gear trainer or mock-up.

Students will correctly wire their landing gear mock up so that it functions properly.

Students will perform, check, inspect, and if necessary service a typical landing gear Anti-skid system on aircraft or trainer and document the discrepancies and repair if necessary

~~**Project 21:**~~ (combined with Project 20)

**\*\*\*6/7/22 Rev. 2**

**Equipment**

GA Aircraft Retractable Landing Gear

GA aircraft with Anti-skid system

Landing gear retraction trainer

## ***Ice & Rain Protection Systems***

This class will review the impact ice and rain have on aircraft and the various techniques and equipment that is used to protect the aircraft from its effects. The class will also review how to inspect, service, and repair the equipment.

### **Performance Goals**

<b>Ice and Rain Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>Total hours</b>	<b>Theory hours</b>	<b>Lab hours</b>
<b>2</b>	Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems.	<b>20</b>	<b>15</b>	<b>5</b>
<b>Total Hours: Airframe/Ice &amp; Rain Protection</b>		<b>20</b>	<b>15</b>	<b>5</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Ice and Rain Protection

### **Subject Outline**

- 1) Ice Control Systems
  - a) Icing Effects
- 2) Ice Detector System
  - a) Ice Prevention
- 3) Wing and Horizontal and Vertical Stabilizer
- 4) Anti-Icing Systems
  - a) Thermal Pneumatic Anti-icing
    - i) Wing Anti-Ice (WAI) System
    - ii) Leading Edge Slat Anti-Ice System
  - b) Thermal Electric Anti-Icing
  - c) Chemical Anti-Icing
- 5) Wing and Stabilizer Deicing Systems
  - a) Sources of Operating Air
    - i) Turbine Engine Bleed Air
  - b) Pneumatic Deice Boot System for GA Aircraft
    - i) GA System Operation
  - c) Deice System for Turboprop Aircraft
  - d) Deicing System Components
    - i) Wet-Type Engine-Driven Air Pump
    - ii) Dry-Type Engine-Driven Air Pump
    - iii) Oil Separator
    - iv) Control Valve
    - v) Deflate Valve
    - vi) Distributor Valve
    - vii) Timer/Control Unit
    - viii) Regulators and Relief Valves
    - ix) Manifold Assembly
    - x) Inlet Filter
  - e) Construction and Installation of Deice Boots
  - f) Inspection, Maintenance, and Troubleshooting of Rubber Deicer Boot Systems
    - i) Operational Checks
    - ii) Adjustments
    - iii) Troubleshooting
    - iv) Inspection

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- g) Deice Boot Maintenance
- h) Electric Deice Boots
- 6) Propeller Deice System
  - a) Electrothermal Propeller Device System
  - b) Chemical Propeller Deice
- 7) Ground Deicing of Aircraft
  - a) Frost Removal
    - i) Deicing and Anti-icing of Transport Type Aircraft
  - b) Ice and Snow Removal
- 8) Rain Control Systems
  - a) Windshield Wiper Systems
  - b) Chemical Rain Repellant
    - i) Windshield Surface Seal Coating
  - c) Pneumatic Rain Removal Systems
- 9) Windshield Frost, Fog, and Ice Control Systems
  - a) Electric
  - b) Pneumatic
  - c) Chemical
- 10) Portable Water Tank Ice Prevention

**Review and Test** – Ice and Rain Protection – 25 to 50 Questions (Random)

**Subject Projects**

**Project 22:** Students will perform and check rain and anti-icing and deicing systems on aircraft or trainers and document the discrepancies and repair if necessary.

**Equipment**

- 1) Aircraft with heated pitot tube
- 2) Aircraft with anti-icing systems
- 3) Ice and rain trainer

## ***Fire Protection Systems***

Introduction for fire protection systems on aircraft and the systems used to detect and extinguish fires. The student will learn how to inspect for proper operation, troubleshoot, service, and repair the extinguishing and detection systems

### **Performance Goals**

<b>Fire Protection Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>1</b>	Inspect, check, and service smoke and carbon monoxide detection systems.	<b>5</b>	<b>5</b>	<b>0</b>
<b>3</b>	Inspect, check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems.	<b>25</b>	<b>10</b>	<b>15</b>
<b>Total Hours: Airframe/Fire Protection</b>		<b>30</b>	<b>15</b>	<b>15</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Airframe Volume 2 FAA-H-8083-31 (as amended)

**Chapter:** Fire protection Systems

### **Subject Outline**

- 1) Introduction
  - a) Classes of Fires
  - b) Requirements for Overheat and Fire Protection Systems
- 2) Fire Detection/Overheat Systems
  - a) Thermal Switch System
  - b) Thermocouple System
  - c) Continuous-Loop Systems
    - i) Fenwal System
    - ii) Kidde System
  - d) Pressure Type Sensor Responder Systems
    - i) Pneumatic Continuous-Loop Systems
  - e) Fire Zones
- 3) Smoke, Flame, and Carbon Monoxide Detection Systems
  - a) Smoke Detectors
    - i) Light Refraction Type
    - ii) Ionization Type
  - b) Flame Detectors
  - c) Carbon Monoxide Detectors
- 4) Extinguishing Agents and Portable Fire Extinguishers
  - a) Halogenated Hydrocarbons
  - b) Inert Cold Gases
  - c) Dry Powders
  - d) Water
  - e) Cockpit and Cabin Interiors
    - i) Extinguisher Types
  - f) Installed Fire Extinguishing Systems
    - i) CO<sup>2</sup>Fire Extinguishing Systems
  - g) Halogenated Hydrocarbons Fire Extinguishing Systems
  - h) Containers
    - i) Discharge Valves
    - j) Pressure Indication
    - k) Two-Way Check Valve
    - l) Discharge Indicators
      - i) Thermal Discharge Indicator (Red Disk)

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- ii) Yellow Disk Discharge Indicator
- m) Fire Switch
- 5) Cargo Fire Detection
  - a) Cargo Compartment Classification
    - i) Class A
    - ii) Class B
    - iii) Class C
    - iv) Class E
  - b) Cargo and Baggage Compartment Fire
  - c) Detection and Extinguisher System
    - i) Smoke Detector System
    - ii) Cargo Compartment Extinguishing System
- 6) Lavatory Smoke Detectors
  - a) Lavatory Smoke Detector System
- 7) Lavatory Fire Extinguisher System
- 8) Fire Detection System Maintenance
- 9) Fire Detection System Troubleshooting
- 10) Fire Extinguisher System Maintenance
  - a) Container Pressure Check
  - b) Discharge Cartridges
  - c) Agent Containers
- 11) Fire Prevention

**Review and Test** – Fire Protection Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 23:** Students will locate and check fire thermal sensors on assigned aircraft or trainers and perform operational checks of fire warning and extinguishing systems on assigned aircraft or trainer and document the discrepancies and repair if necessary.

**Equipment**

- 1) Aircraft with HRD fire extinguishing system or trainer
- 2) HRD bottle
- 3) Aircraft with functional fire detection system.

## *Airframe Inspection*

Performance goals

<b>Powerplant Inspection</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>3</b>	Perform a capstone airframe inspection module. This module will include research into the regulations, maintenance manuals and other relevant documentation encountered during normal airframe inspection. AC43-204	<b>20</b>	<b>0</b>	<b>20</b>
<b>Total Hours: Airframe Inspection/Capstone</b>		<b>20</b>	<b>0</b>	<b>20</b>

*When this module is used as part of a 100-hour inspection as part of a final project.*

**Subject project:** Performance Goals

<b>Airframe Inspection</b>	
<b>Task</b>	<b>Teaching Level</b>
Perform airframe conformity and airworthiness inspections.	3

### **Subject Projects**

**Project #24:** Students will perform part two of a 100 Hour inspection on an aircraft airframe specified by the instructor. After researching the proper TCDS and AD's, TC, and all documents and any discrepancies perform a 100 hour inspection on the airframe. The student will create a logbook record of the inspection.

### **Equipment**

- 1) Type Certificated aircraft



## Appendix D

### Powerplant I

#### Theory and Maintenance

### *Engines*

In this class the Aviation Maintenance Technician (AMT) student will learn the fundamentals of piston and turbine engines.

#### Performance Goals

<b>Reciprocating Engines</b>				
Teaching Level	Material	EIT	TI	Lab
1	Inspect and Repair a Radial Engine	<b>Engine Maintenance and Operation</b>		
2	Overhaul a Reciprocating Engine			
3	Inspect, check, service and repair reciprocating engines and engine installations	<b>Engine Maintenance and Operation</b>		
3	Install, troubleshoot and remove reciprocating engines	<b>Engine Maintenance and Operation</b>		
<b>Turbine Engines</b>				
2	Overhaul Turbine Engine	<b>Engine Maintenance and Operation</b>		
3	Inspect, check, service and repair turbine engines and turbine engine installations.	<b>Engine Maintenance and Operation</b>		
2	Install, troubleshoot and remove turbine engines	<b>Engine Maintenance and Operation</b>		
<b>Un-ducted Fans</b>				
1	Inspect and troubleshoot un-ducted fan systems and components	3	3	0
<b>Auxiliary Power Units</b>				
1	Inspect , check, service, troubleshoot turbine driven Auxiliary Power Units	4	4	0
<b>Total Hours: Powerplant/APU &amp; Unducted Fan</b>		<b>7</b>	<b>7</b>	<b>0</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 1 FAA-H-8083-32 (as amended)

**Chapter:** Aircraft Engines

#### Subject Outline

##### General Requirements

- a) Power and Weight
  - b) Fuel Economy
  - c) Durability and Reliability
  - d) Operating Flexibility
  - e) Compactness
  - f) Powerplant Selection
- 2) Types of Engines
- a) Inline Engines
  - b) Opposed or O-Type Engines

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- c) V-Type Engines
- d) Radial Engines
- 3) Reciprocating Engines
  - a) Design and Construction
  - b) Crankcase Sections
  - c) Accessory Section
  - d) Accessory Gear Trains
- 4) Crankshafts
  - a) Crankshaft Balance
  - b) Dynamic Dampers
- 5) Connecting Rods
  - a) Master-and-Articulated Rod Assembly
  - b) Knuckle Pins
  - c) Plain-Type Connecting Rods
  - d) Fork-and-Blade Rod Assembly
- 6) Pistons
  - a) Piston Construction
  - b) Piston Pin
- 7) Piston Rings
  - a) Piston Ring Construction
  - b) Compression Ring
  - c) Oil Control Rings
  - d) Oil Scraper Ring
- 8) Cylinders
  - a) Cylinder Heads
  - b) Cylinder Barrels
  - c) Cylinder Numbering
- 9) Firing Order
  - a) Single-Row Radial Engines
  - b) Double-Row Radial Engines
- 10) Valves
  - a) Valve Construction
- 11) Valve Operating Mechanism
  - a) Cam Rings
  - b) Camshaft
  - c) Tappet Assembly
  - d) Solid Lifters/Tappets
  - e) Hydraulic Valve Tappets/Lifters
  - f) Push Rod
  - g) Rocker Arms
  - h) Valve Springs
- 12) Bearings
  - a) Plain Bearings
  - b) Ball Bearings
  - c) Roller Bearings
- 13) Propeller Reduction Gearing
- 14) Propeller Shafts
- 15) Reciprocating Engine Operating Principles
- 16) Operating Cycles
  - a) Four-Stroke Cycle
    - i) Intake Stroke
    - ii) Compression Stroke
    - iii) Power Stroke
    - iv) Exhaust Stroke
  - b) Two-Stroke Cycle
  - c) Rotary Cycle
  - d) Diesel Cycle

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 17) Reciprocating Engine Power and Efficiencies
  - a) Work
  - b) Horsepower
  - c) Piston Displacement
  - d) Area of a Circle
  - e) Compression Ratio
  - f) Indicated Horsepower
  - g) Brake Horsepower
  - h) Friction Horsepower
  - i) Friction and Brake Mean Effective Pressures
  - j) Thrust Horsepower
- 18) Efficiencies
  - a) Thermal Efficiency
  - b) Mechanical Efficiency
  - c) Volumetric Efficiency
  - d) Propulsive Efficiency
- 19) Gas Turbine Engines
  - a) Types and Construction
- 20) Air Entrance
- 21) Accessory Section
- 22) Compressor Section
  - a) Compressor Types
    - i) Centrifugal-Flow Compressors
    - ii) Axial-Flow Compressor
- 23) Diffuser
- 24) Combustion Section
  - a) Turbine Section
  - b) Exhaust Section
- 25) Gas Turbine Engine Bearings and Seals
- 26) Turboprop Engines
- 27) Turboshift Engines
- 28) Turbofan Engines
- 29) Turbine Engine Operating Principles Thrust
- 30) Gas Turbine Engine Performance
  - a) Ram Recovery
- 31) Unducted Fans
- 32) Auxiliary Power Units

**Review and Test** – Aircraft Engines 25 to 50 Questions (Random)

**Subject Projects**

**Project 1:** Students will inspect and write starting procedures of an operational check on the G3 APU system.

**Equipment**

- 1) G3 aircraft

## ***Engine Maintenance and Operation***

In this class the Aviation Maintenance Technician (AMT) student will learn inspection, cleaning and operating reciprocating and turbine engines

### **Performance Goals**

<b>Reciprocating Engines</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>1</b>	Inspect and Repair a Radial Engine	<b>4</b>	<b>4</b>	<b>0</b>
<b>2</b>	Overhaul a Reciprocating Engine	<b>95</b>	<b>30</b>	<b>65</b>
<b>3</b>	Inspect, check, service and repair reciprocating engines and engine installations	<b>25</b>	<b>12</b>	<b>13</b>
<b>3</b>	Install, troubleshoot and remove reciprocating engines	<b>55</b>	<b>30</b>	<b>25</b>
<b>Turbine Engines</b>				
<b>2</b>	Overhaul Turbine Engine	<b>47</b>	<b>15</b>	<b>32</b>
<b>3</b>	Inspect, check, service and repair turbine engines and turbine engine installations.	<b>36</b>	<b>24</b>	<b>12</b>
<b>2</b>	Install, troubleshoot and remove turbine engines	<b>30</b>	<b>15</b>	<b>15</b>
<b>Total Hours: Powerplant/Reciprocating Engines</b>		<b>292</b>	<b>130</b>	<b>162</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 2 FAA-H-8083-32 (as amended)

**Chapter:** Engine Maintenance and Operation

### **Subject Outline**

- 1) Reciprocating Engine Overhaul
  - a) Top Overhaul
  - b) Major Overhaul and Major Repairs
- 2) General Overhaul Procedures
- 3) Receiving Inspection
- 4) Disassembly
- 5) Inspection Process
  - a) Visual Inspection
  - b) Cylinder Head
  - c) Piston, Valve Train, and Piston Pin
  - d) Crankshaft and Connecting Rods
- 6) Cleaning
  - a) Degreasing
  - b) Removing Hard Carbon
- 7) Structural Inspection
  - a) Dye Penetrant Inspection
  - b) Eddy Current Inspection
  - c) Ultrasonic Inspection
    - i) Pulse-Echo
    - ii) Through Transmission
    - iii) Resonance
  - d) Magnetic Particle Inspection
  - e) X-ray

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 8) Dimensional Inspection
  - a) Cylinder Barrel
  - b) Valves and Valve Springs
  - c) Crankshaft
  - d) Checking Alignment
  - e) Repair and Replacement
  - f) Cylinder Assembly Reconditioning
  - g) Piston and Piston Pins
  - h) Valves and Valve Springs
  - i) Re-facing Valve Seats
  - j) Valve Reconditioning
  - k) Valve Lapping and Leak Testing
  - l) Piston Repairs
  - m) Cylinder Grinding and Honing
- 9) Reassembly
- 10) Installation and Testing
  - a) Engine Testing of Reciprocating Engines
  - b) Test Cell Requirements
  - c) Engine Instruments
  - d) Carburetor Air Temperature (CAT) Indicator
  - e) Fuel Pressure Indicator
  - f) Oil Pressure Indicator
  - g) Oil Temperature Indicator
  - h) Fuel Flow Meter
  - i) Manifold Pressure Indicator
  - j) Tachometer Indicator
  - k) Cylinder Head Temperature Indicator
  - l) Torquemeter
  - m) Warning Systems
- 11) Reciprocating Engine Operation
  - a) Engine Instruments
  - b) Engine Starting
  - c) Pre-Oiling
  - d) 10-26 Hydraulic Lock
  - e) Engine Warm-Up
  - f) Ground Check
  - g) Fuel Pressure and Oil Pressure Check
  - h) Propeller Pitch Check
  - i) Power Check
  - j) Idle Speed and Idle Mixture Checks
  - k) Engine Stopping
- 12) Basic Engine Operating Principles
  - a) Combustion Process
  - b) Detonation
  - c) Pre-Ignition
  - d) Backfiring
  - e) Afterfiring
- 13) Factors Affecting Engine Operation
  - a) Compression
  - b) Fuel Metering
  - c) Idle Mixture
  - d) Induction Manifold
  - e) Operational Effect of Valve Clearance
- 14) Engine Troubleshooting
  - a) Valve Blow-By
- 15) Cylinder Compression Tests
  - a) Differential Pressure Tester

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- b) Cylinder Replacement
- 16) Cylinder Removal
- 17) Cylinder Installation
- 18) Cold Cylinder Check
- 19) Turbine Engine Maintenance
  - a) Compressor Section
  - b) Inspection and Cleaning
  - c) Causes of Blade Damage
  - d) Blending and Replacement
- 20) Combustion Section Inspection
  - a) Marking Materials for Combustion Section Parts
  - b) Inspection and Repair of Combustion
  - c) Chambers
  - d) Fuel Nozzle and Support Assemblies
  - e) Turbine Disk Inspection
  - f) Turbine Blade Inspection
  - g) Turbine Blade Replacement Procedure
  - h) Turbine Nozzle Inlet Guide Vane Inspection
  - i) Clearances
  - j) Exhaust Section
- 21) Engine Ratings

#### **Subject Projects**

**Project 2:** Students will perform a borescope inspection on an engine specified by the instructor, check ignition, perform a differential pressure check and then disassemble a piston engine, inspect, take measurement and then reassemble.

**Project 3:** Students will perform a NDT inspection on the engine part or section.

**Project 4:** Students will disassemble, inspect and reassemble a turbine engine and remove and hang a turbine engine on pylon.

**Project 5:** Students will remove and hang a piston engine on an aircraft.

#### **Equipment**

- 1) Piston Engines for Disassembly/Assembly
- 2) Turbine Engines for Disassembly/Assembly
- 3) Aircraft Timing Indicator
- 4) Differential Pressure Tester
- 5) Borescope
- 6) Piston Aircraft
- 7) Engine Hoists
- 8) Engine Stands
- 9) Magnaflux machine

## ***II. Powerplant Systems & Components***

### ***Engine Instruments***

In this class the Aviation Maintenance Technician (AMT) student will learn the operation, inspection and repair of Engine instruments.

#### **Performance Goals**

<b>Engine Instrument Systems</b>		<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Troubleshoot, service, and repair electrical and mechanical fluid rate-of-flow indicating systems	<b>5</b>	<b>4</b>	<b>1</b>
<b>3</b>	Inspect, check, service, troubleshoot and repair electrical and mechanical engine temperature, pressure, and RPM indicating systems.	<b>20</b>	<b>6</b>	<b>14</b>
<b>Total Hours: Powerplant/Engines Instruments</b>		<b>25</b>	<b>10</b>	<b>15</b>

1. Turbine Engine Instruments
  - a. Engine Pressure Ratio Indicator
  - b. Torquemeter (Turboprop Engines)
  - c. Tachometer
  - d. Exhaust Gas Temperature Indicator (EGT)
  - e. Fuel-Flow Indicator
  - f. Engine Oil Pressure Indicator
  - g. Engine Oil Temperature Indicator
2. Turbine Engine Operation
  - a. Ground Operation Engine Fire
  - b. Engine Checks
  - c. Checking Takeoff Thrust
  - d. Ambient Conditions
3. Engine Shutdown
4. Troubleshooting Turbine Engines
5. Turboprop Operation
  - a. Troubleshooting Procedures for Turboprop Engines
6. Turbine Engine Calibration and Testing
  - a. Turbine Engine Analyzer Uses
  - b. Analyzer Safety Precautions
  - c. Continuity Check of Aircraft EGT Circuit
  - d. Functional Check of Aircraft EGT Circuit
  - e. EGT Indicator Check
  - f. Resistance and Insulation Check
  - g. Tachometer Check
7. Troubleshooting EGT System
  - a. One or More Inoperative Thermocouples in Engine Parallel Harness
  - b. Engine Thermocouples Out of Calibration
  - c. EGT Circuit Error
  - d. Resistance of Circuit Out of Tolerance
  - e. Shorts to Ground/Shorts Between Leads
8. Troubleshooting Aircraft Tachometer System

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

**Review and Test**

- Engine instrument Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 6:** The teacher will start, operate and shutdown a turbine engine and students will check all engine instruments RPM, Fuel Flow, EGT EPR, for proper operation and document the discrepancies and repair if necessary.

**Equipment**

Turbine engine or trainer.



## ***Engine Fire Protection Systems***

In this class the Aviation Maintenance Technician (AMT) student will learn to inspect, troubleshoot and repair the various technologies that are used to detect engine fires and extinguish fire onboard an aircraft.

### **Performance Goals**

<b>Engine Fire Protection Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>3</b>	Inspect, check, service, troubleshoot, and repair engine fire detection and extinguishing systems	<b>15</b>	<b>5</b>	<b>10</b>
<b>Total Hours: Powerplant/Engine Fire Protection</b>		<b>15</b>	<b>5</b>	<b>10</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 2 FAA-H-8083-32 (as amended)

**Chapter:** Engine Fire Protection Systems

### **Subject Outline**

- 1) Introduction
  - a) Components
  - b) Engine Fire Detection Systems
    - i) Thermal Switch System
    - ii) Thermocouple Systems
    - iii) Optical Fire Detection Systems
    - iv) Pneumatic Thermal Fire Detection
    - v) Continuous-Loop Detector Systems
  - c) Fire Zones
- 2) Engine Fire Extinguishing System
  - a) Fire Extinguishing Agents
  - b) Turbine Engine Ground Fire Protection
  - c) Containers
  - d) Discharge Valves
  - e) Pressure Indication
  - f) Two-Way Check Valve
  - g) Discharge Indicators
    - i) Thermal Discharge Indicator (Red Disk)
    - ii) Yellow Disk Discharge Indicator
  - h) Fire Switch
  - i) Warning Systems
- 3) Fire Detection System Maintenance
- 4) Fire Detection System Troubleshooting
- 5) Fire Extinguisher System Maintenance Practices
- 6) Boeing 777 Aircraft Fire Detection and
- 7) Extinguishing System
  - a) Overheat Detection
  - b) Fire Detection
  - c) Nacelle Temperature Recording
  - d) Continuous Fault Monitoring
  - e) Single/Dual Loop Operation
  - f) System Test

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- g) Boeing 777 Fire Extinguisher System
    - i) Fire Extinguisher Containers
  - h) Squib
  - i) Engine Fire Switches
  - j) Engine Fire Operation
- 8) APU Fire Detection and Extinguishing System
- a) APU Fire Warning
  - b) Fire Bottle Discharge

**Review and Test** – Engine Fire Protection Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 7:** Inspect, check, service, troubleshoot and if necessary repair fire detection and extinguishing systems on aircraft and/or fire protection trainer and document the discrepancies and repair if necessary.

**Equipment**

1. One (1) High Rate Discharge (HRD) fire extinguisher bottle.
2. Fire detection and extinguishing trainer.
3. Aircraft

## ***Engine Electrical Systems***

This class the student will learn to inspect, troubleshoot and repair the reciprocating and turbine engine ignition and electrical systems

### **Performance Goals**

<b>Engine Electrical Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Repair engine electrical system components	<b>20</b>	<b>10</b>	<b>10</b>
<b>3</b>	Install, check, and service engine electrical wiring, controls, switches, indicators, and protective devices	<b>30</b>	<b>10</b>	<b>20</b>
<b>Total Hours: Powerplant/ Engine Electrical</b>		<b>50</b>	<b>20</b>	<b>30</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 1 FAA-H-8083-32 (as amended)

**Chapter:** Engine Ignition and Electrical Systems

- 1) Powerplant Electrical Systems
  - a) Wire Size
  - b) Factors Affecting the Selection of Wire Size
  - c) Affecting Selection of Conductor Material
  - d) Identifying Wire and Cable
  - e) Electrical Wiring Installation
  - f) Wire Groups and Bundles
  - g) Twisting Wires
  - h) Spliced Connections in Wire Bundles
  - i) Slack in Wiring Bundles
  - j) Bend Radii
  - k) Routing and Installation
  - l) Protection Against Chaffing
  - m) Against High Temperature
  - n) Protection Against Solvents and Fluids
  - o) Protection of Wires in Wheel Well Area
  - p) Routing Precautions
  - q) Installation of Cable Clamps and Tying Wire Bundles
- 2) Lacing and Tying Wire Bundles
  - a) Single-Cord Lacing
  - b) Double-Cord Lacing
  - c) Lacing Branch-Offs
  - d) Tying
- 3) Cutting Wire and Cable
- 4) Stripping Wire and Cable
  - a) Solderless Terminals and Splices
  - b) Copper Wire Terminals
  - c) Crimping Tools
  - d) Aluminum Wire Terminals
  - e) Copper Wires Using Pre-Insulated Wires
  - f) Emergency Splicing Repairs

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- g) Splicing with Solder and Potting Compound
- 5) Connecting Terminal Lugs to Terminal Blocks
- 6) Bonding and Grounding
  - a) General Bonding and Grounding Procedures
- 7) Connectors
  - a) Connector Identification
  - b) Installation of Connectors
- 8) Conduit
- 9) Electrical Equipment Installation
  - a) Electrical Load Limits
  - b) Controlling or Monitoring the Electrical Load
  - c) Circuit Protection Devices
  - d) Switches
  - e) Relays

**Review and Test** – Engine Electrical Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 8:** Students will inspect engine wire bundles, switches, system circuit protection devices and indicators and controls for proper operation and security and faults on system trainer and document the discrepancies and repair if necessary.

**Equipment**

1. Engine
2. Multi meters
3. Soldering iron
4. 28-volt system trainer

## ***Engine Lubricating Systems***

This class the student will learn to inspect, troubleshoot and repair the reciprocating and turbine engine lubricating systems.

### **Performance Goals**

<b>Lubrication Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Identify and Select Lubricants	<b>5</b>	<b>2</b>	<b>3</b>
<b>2</b>	Repair Engine Lubrication System Components	<b>15</b>	<b>8</b>	<b>7</b>
<b>3</b>	Inspect, Check, Service, Troubleshoot and Repair Engine Lubrication Systems	<b>45</b>	<b>20</b>	<b>25</b>
<b>Total Hours: Powerplant/Engine Lubricating</b>		<b>65</b>	<b>30</b>	<b>35</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 2 FAA-H-8083-32 (as amended)

**Chapter:** Lubrication and Cooling Systems

### **Subject Outline**

- 1) Principles of Engine Lubrication
  - a) Types of Friction
  - b) Functions of Engine Oil
- 2) Requirements and Characteristics of Reciprocating Engine Lubricants
  - a) Viscosity
  - b) Viscosity Index
  - c) Flash Point and Fire Point
  - d) Cloud Point and Pour Point
  - e) Specific Gravity
- 3) Reciprocating Engine Lubrication Systems
  - a) Combination Splash and Pressure Lubrication
  - b) Lubrication System Requirements
  - c) Dry Sump Oil Systems
  - d) Oil Tanks
  - e) Oil Pump
  - f) Oil Filters
  - g) Oil Pressure Regulating Valve
  - h) Oil Pressure Gauge
  - i) Oil Temperature Indicator
  - j) Oil Cooler
  - k) Oil Cooler Flow Control Valve
  - l) Surge Protection Valves
  - m) Airflow Controls
  - n) Dry Sump Lubrication System Operation
  - o) Wet-Sump Lubrication System Operation
- 4) Lubrication System Maintenance Practices
  - a) Oil Tank
  - b) Oil Cooler
  - c) Oil Temperature Bulbs
  - d) Pressure and Scavenge Oil Screens
  - e) Oil Pressure Relief Valve
- 5) Recommendations for Changing Oil
  - a) Draining Oil
  - b) Oil and Filter Change and Screen Cleaning

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- c) Oil Filter Removal Canister Type Housing
- d) Oil Filter/Screen Content Inspection
- e) Assembly of and Installation of Oil Filters
- f) Troubleshooting Oil Systems
- 6) Requirements for Turbine Engine Lubricants
  - a) Turbine Oil Health and Safety Precautions
  - b) Spectrometric Oil Analysis Program
  - c) Typical Wear Metals and Additives
- 7) Turbine Engine Lubrication Systems
- 8) Turbine Lubrication System Components
  - a) Oil Tank
  - b) Oil Pump
  - c) Turbine Oil Filters
  - d) Oil Pressure Regulating Valve
  - e) Oil Pressure Relief Valve
  - f) Oil Jets
  - g) Lubrication System Instrumentation
  - h) Lubrication System Breather Systems (Vents)
  - i) Lubrication System Check Valve
  - j) Lubrication System Thermostatic Bypass Valves
  - k) Air Oil Coolers
  - l) Fuel Oil Coolers
  - m) Deoiler
  - n) Magnetic Chip Detectors
- 9) Typical Dry-Sump Pressure Regulated Turbine Lubrication System
  - a) Pressure System
    - i) Scavenge System
    - ii) Breather Pressurizing System
  - b) Typical Dry-Sump Variable Pressure Lubrication System
    - i) Pressure Subsystem
    - ii) Scavenger Subsystem
    - iii) Breather Subsystems
  - c) Turbine Engine Wet-Sump Lubrication System
  - d) Turbine Engine Oil System Maintenance

**Review and Test** - Lubrication Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 9:** Students will draw a schematic of a particular turbine engine oil system and check for leaks and identify components of a turbine-engine or piston lubrication system and inspect for malfunctions and or leaks using the manufacturer's specifications and document the discrepancies and repair if necessary.

**Equipment**

Aircraft engine and associated Maintenance Manuals.

## ***Ignition and Starting Systems***

This class the student will learn to inspect, troubleshoot and repair the reciprocating and turbine engine starting and ignition systems.

### **Performance Goals**

<b>Starting Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>3</b>	Inspect, service, troubleshoot, and repair turbine engine electrical starting systems	<b>10</b>	<b>6</b>	<b>4</b>
<b>1</b>	Inspect, Service and troubleshoot turbine engine pneumatic starting systems	<b>3</b>	<b>3</b>	<b>0</b>
<b>Total Hours Starting: Powerplant/Starting</b>				
<b>Ignition Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Overhaul magneto and ignition harness	<b>33</b>	<b>13</b>	<b>20</b>
<b>2</b>	Inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components	<b>14</b>	<b>3</b>	<b>11</b>
<b>Total Hours: Powerplant/Ignition</b>				
<b>Total Hours:</b>		<b>60</b>	<b>25</b>	<b>35</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 1 FAA-H-8083-32 (as amended)

**Chapters:** Engine Starting Systems & Engine Ignition

### **Subject Outline**

- 10) Reciprocating Engine Ignition Systems
- 11) Magneto-Ignition System Operating Principles
  - a) High-Tension Magneto System Theory of Operation
  - b) The Magnetic Circuit
  - c) The Primary Electrical Circuit
  - d) The Secondary Electrical Circuit
  - e) Magneto and Distributor Venting
  - f) Ignition Harness
- 12) Ignition Switches
- 13) Single and Dual High-Tension System
- 14) Magnetos
- 15) Magneto Mounting Systems
- 16) Low-Tension Magneto System
- 17) FADEC System Description
  - a) Low-Voltage Harness.
  - b) Electronic Control Unit (ECU)
  - c) PowerLink Ignition System
  - d) Booster Coil
  - e) Impulse Coupling

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- f) High-Tension Retard Breaker Vibrator
  - g) Low-Tension Retard Breaker Vibrator Plugs
  - 18) Reciprocating Engine Ignition System
  - 19) Maintenance and Inspection
  - 20) Magneto-Ignition Timing Devices
    - a) Engine Timing Reference Marks
    - b) Timing Disks
    - c) Piston Position Indicators
    - d) Timing Lights
  - 21) Checking the Internal Timing of a Magneto
    - a) High Tension Magneto E-Gap Setting (Bench Timing)
    - b) Timing the High-tension Magneto to the Engine
    - c) Performing Ignition System checks
    - d) Ignition Switch Checks
    - e) Maintenance and Inspection of Ignition Leads
    - f) Replacement of Ignition Harness
    - g) Checking Ignition Induction Vibrator Systems
  - 22) Spark Plug Inspection and Maintenance
    - a) Carbon Fouling of Spark Plugs
    - b) Oil Fouling of Spark Plugs
    - c) Lead Fouling of Spark Plugs
    - d) Graphite Fouling of Spark Plugs
    - e) Gap Erosion of Spark Plugs
    - f) Spark Plug Removal
    - g) Spark Plug Reconditioning Service
    - h) Inspection Prior to Installation
    - i) Spark Plug Installation
    - j) Spark Plug Lead Installation
    - k) Breaker Point Inspection
    - l) Dielectric Inspection
    - m) Ignition Harness Maintenance
    - n) High-Tension Ignition Harness Faults
    - o) Harness Testing
  - 23) Turbine Engine Ignition Systems
    - a) Capacitor Discharge Exciter Unit
    - b) Igniter Plugs
  - 24) Ignition System Inspection and Maintenance
    - a) Inspection
    - b) Check System Operation
    - c) Repair
  - 25) Removal, Maintenance and Installation of Ignition System components
    - a) Ignition System Leads
- Igniter Plugs

### Subject Outline

- 1) Introduction
- 2) Reciprocating Engine Starting Systems
  - a) Inertia Starters
  - b) Direct Cranking Electric Starter
    - i) Direct Cranking Electric Starting System for
    - ii) Large Reciprocating Engines
    - iii) Direct Cranking Electric Starting System for
    - iv) Small Aircraft
  - c) Reciprocating Engine Starting System
  - d) Maintenance Practices
  - e) Troubleshooting Small Aircraft Starting Systems



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 3) Gas Turbine Engine Starters
- 4) Electric Starting Systems and Starter Generator Starting System
  - a) Troubleshooting a Starter Generator Starting System
- 5) Air Turbine Starters
  - a) Air Turbine Starter Troubleshooting Guide

**Review and Test** – Ignition Systems 25 to 50 Question  
Starting Systems – 25 to 50 Questions (Random)

### Subject Projects

**Project 10:** Students will inspect, overhaul and test a magneto using test equipment.

**Project 11:** Students will inspect, service and if necessary repair turbine electrical starting systems for operation and document the discrepancies and repair if necessary.

### Equipment

1. Magnetos for magneto disassembly/assembly
2. Spark plug testers
3. Mag synchronic w/ tweeter
4. G/A Aircraft
5. Magneto Tester
6. Starters and starter test bench
7. Turbine electrical engine starters generators.

## ***Fuel Metering Systems***

In this class the Aviation Maintenance Technician (AMT) student will learn to inspect, troubleshoot and repair the various turbine metering systems and electronic fuel controls used in aircraft.

### **Performance Goals**

<b>Fuel Metering Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>1</b>	Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls	<b>3</b>	<b>3</b>	<b>0</b>
<b>2</b>	Overhaul carburetor. The AMT will focus on overhaul and setup of float type aircraft carburetors of proven and new designs as well as operational characteristics, testing, and adjustment upon installation.	<b>12</b>	<b>4</b>	<b>11</b>
<b>2</b>	Repair engine fuel metering system components	<b>8</b>	<b>5</b>	<b>3</b>
<b>3</b>	Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems.	<b>30</b>	<b>20</b>	<b>10</b>
<b>Total Hours: Powerplant/Fuel Metering</b>		<b>53</b>	<b>32</b>	<b>21</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 1 FAA-H-8083-32 (as amended)

**Chapter:** Engine Fuel and Fuel Metering Systems

### **Subject Outline**

- 1) Fuel System Requirements
  - a) Vapor Lock
- 2) Basic Fuel System
- 3) Fuel Metering Devices for Reciprocating Engines
  - a) Fuel/Air Mixtures
- 4) Carburetion Principles
  - a) Venturi Principles
  - b) Application of Venturi Principle to Carburetor
  - c) Metering and Discharge of Fuel
- 5) Carburetor Systems
- 6) Carburetor Types
- 7) Carburetor Icing
- 8) Float-Type Carburetors
  - a) Float Chamber Mechanism System
  - b) Main Metering System
  - c) Idling System
  - d) Mixture Control System
  - e) Accelerating System
  - f) Economizer System
- 9) Pressure Injection Carburetors
  - a) Typical Injection Carburetor
  - b) Throttle Body
  - c) Regulator Unit
  - d) Fuel Control Unit

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- 10) Automatic Mixture Control (AMC)
- 11) Stromberg PS Carburetor
  - a) Accelerating Pump
  - b) Manual Mixture Control
- 12) Fuel-Injection Systems
  - a) Bendix/Precision Fuel-Injection System
  - b) Fuel Injector
  - c) Airflow Section
  - d) Regulator Section
  - e) Fuel Metering Section
  - f) Flow Divider
  - g) Fuel Discharge Nozzles
  - h) Continental/TCM Fuel-Injection System
  - i) Fuel-Injection Pump
  - j) Fuel/Air Control Unit
  - k) Fuel Control Assembly
  - l) Fuel Manifold Valve
  - m) Fuel Discharge Nozzle
- 13) Carburetor Maintenance
  - a) Carburetor Removal
  - b) Installation of Carburetor
  - c) Rigging Carburetor Controls
  - d) Adjusting Idle Mixtures
  - e) Idle Speed Adjustment
  - f)

**Review and Test** –Fuel Metering Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 12:** Students will overhaul a float type or pressure carburetor and perform a detailed inspection according to the manufactures instructions and document the discrepancies and repair if necessary.

**Project 13:** Students will check a fuel metering system for proper operation on an aircraft or trainer assigned by the instructor and document the discrepancies and repair if necessary.

**Equipment**

- 1) Float or pressure type Carburetors for disassembly/assembly
- 2) Aircraft with fuel metering system
- 3) Fuel system trainer

## *Engine Fuel Systems*

In this class the Aviation Maintenance Technician (AMT) student will learn to repair, service, troubleshoot and repair engine fuel systems.

### Performance Goals

<b>Engine Fuel Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Repair engine fuel system components	<b>7</b>	<b>3</b>	<b>4</b>
<b>3</b>	Inspect, check, service, troubleshoot, and repair engine fuel systems	<b>11</b>	<b>5</b>	<b>6</b>
<b>Total Hours: Powerplant/Engine Fuel Systems</b>		<b>18</b>	<b>8</b>	<b>10</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 1 FAA-H-8083-32 (as amended)

**Chapter:** Engine Fuel and Fuel Metering Systems

### Subject Outline

1. Fuel System Inspection and Maintenance
  - a. Complete System
  - b. Fuel Tanks
  - c. Lines and Fittings
  - d. Selector Valves
  - e. Pumps
  - f. Main Line Strainers
  - g. Fuel Quantity Gauges
  - h. Fuel Pressure Gauge
  - i. Pressure Warning Signal
  - j. Water Injection Systems for Reciprocating Engines
2. Turbine Engine Fuel System—General Requirements
  - a. Turbine Fuel Controls
  - b. Hydro-mechanical Fuel Control
  - c. Hydro-mechanical/Electronic Fuel Control
  - d. FADEC Fuel Control Systems
  - e. FADEC for an Auxiliary Power Unit
  - f. FADEC Fuel Control Propulsion Engine
  - g. Fuel System Operation
3. Water Injection System
4. Fuel Control Maintenance
5. Engine Fuel System Components
  - a. Main Fuel Pumps (Engine Driven)
  - b. Fuel Heater
  - c. Fuel Filters
  - d. Fuel Spray Nozzles and Fuel Manifolds
  - e. Simplex Fuel Nozzle
  - f. Duplex Fuel Nozzle
  - g. Airblast Nozzles
  - h. Flow Divider

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- i. Fuel Pressurizing and Dump Valves
  - j. Combustion Drain Valves
6. Fuel Quantity Indicating Units

**Review and Test** – Engine Fuel Systems – 25 to 50 Questions (Random)

**Subject Projects**

**Project 14:** Students will inspect, check, service, troubleshoot, and if necessary repair engine fuel systems on assigned aircraft or fuel trainer components and document the discrepancies and repair if necessary.

**Equipment**

- 4) Aircraft
- 5) Fuel system trainer
- 6) Fuel system components

## *Induction & Engine Airflow Systems*

In this class the Aviation Maintenance Technician (AMT) student will learn to inspect, troubleshoot and repair the various induction systems and ice and rain control systems used in aircraft.

### **Performance Goals**

<b>Induction and Engine Airflow Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Inspect, check, service, troubleshoot, service, and repair engine ice and rain control systems	<b>6</b>	<b>2</b>	<b>4</b>
<b>1</b>	Inspect, check, service, troubleshoot and repair heat exchangers, superchargers and turbine engine airflow and temperature control systems	<b>1</b>	<b>1</b>	<b>0</b>
<b>3</b>	Inspect, check, service, and repair carburetor air intake and induction manifolds	<b>13</b>	<b>5</b>	<b>8</b>
<b>Total Hours: Powerplant/Induction &amp; Airflow</b>		<b>20</b>	<b>8</b>	<b>12</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 2 FAA-H-8083-32 (as amended)

**Chapters: Induction & exhaust and Propellers**

### **Subject Outline**

- 1) Reciprocating Engine Induction Systems
  - a) Basic Carburetor Induction System
    - i) Induction System Icing
    - ii) Induction System Filtering
    - iii) Induction System Inspection and Maintenance
    - iv) Induction System Troubleshooting
  - b) Supercharged Induction Systems
    - i) Turbosuperchargers
    - ii) Normalizer Turbocharger
    - iii) Ground-Boosted Turbosupercharger System
    - iv) A Typical Turbosupercharger System
    - v) Turbocharger Controllers and System Descriptions
    - vi) Variable Absolute Pressure Controller (VAPC)
    - vii) Sloped Controller
    - viii) Absolute Pressure Controller
    - ix) Turbocharger System Troubleshooting
- 2) Turbine Engine Inlet Systems
  - a) Divided-Entrance Duct
  - b) Variable-Geometry Duct
  - c) Compressor Inlet Screens
  - d) Bellmouth Compressor Inlets
  - e) Turboprop and Turboshaft Compressor Inlets
  - f) Turbofan Engine Inlet Sections

**Review and Test** – Induction and Engine Airflow Systems

25 to 50 random Questions

**Subject Projects**

**Project 15:** Students will check, service, troubleshoot and document the discrepancies and repair if necessary engine ice and rain systems, carburetor heat, bleed air systems on assigned aircraft or trainers.

**Equipment**

- 1) General Aviation Aircraft with Carburetor Heat System
- 2) Ice & Rain trainer

## ***Engine Cooling Systems***

In this class the Aviation Maintenance Technician (AMT) student will learn to inspect, troubleshoot and repair the various engine cooling systems used in aircraft.

<b>Engine Cooling Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Repair engine cooling system components	<b>5</b>	<b>2</b>	<b>3</b>
<b>3</b>	Inspect, check, troubleshoot, service, and repair engine cooling system	<b>10</b>	<b>3</b>	<b>7</b>
<b>Total Hours: Powerplant/Engine Cooling</b>		<b>15</b>	<b>5</b>	<b>10</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 2 FAA-H-8083-32 (as amended)

**Chapter:** Lubrication and Cooling Systems

### **Subject Outline**

1. Engine Cooling Systems
  - a. Reciprocating Engine Cooling Systems
  - b. Reciprocating Engine Cooling System Maintenance
  - c. Maintenance of Engine Cowling
  - d. Engine Cylinder Cooling Fin Inspection
  - e. Cylinder Baffle and Deflector System Inspection
  - f. Cylinder Temperature Indicating Systems
  - g. Exhaust Gas Temperature Indicating Systems
2. Turbine Engine Cooling
  - a. Accessory Zone Cooling
  - b. Turbine Engine Insulation Blankets

**Review and Test** – Engine Cooling Systems – 25- 50 Questions (Random)

### **Subject Projects**

**Project 16:** Students will inspect, check, troubleshoot, service, and document the discrepancies and repair if necessary engine cooling system and engine baffling of an aircraft assigned by the instructor.

### **Equipment**

- 1) General Aviation Aircraft and associated Maintenance Manuals.



## ***Engine Exhaust and Reverser Systems***

In this class the Aviation Maintenance Technician (AMT) student will learn to inspect, troubleshoot and repair the various engine Reverser systems used in aircraft.

### **Performance Goals**

<b>Engine Exhaust and Reverser Systems</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>2</b>	Repair engine exhaust system components	<b>6</b>	<b>4</b>	<b>2</b>
<b>3</b>	Inspect, check, troubleshoot, service, and repair engine exhaust systems	<b>13</b>	<b>3</b>	<b>10</b>
<b>1</b>	Troubleshoot and repair engine thrust reverser systems and related components	<b>1</b>	<b>1</b>	<b>0</b>
<b>Total Hours: Powerplant/Engine Exhaust &amp; Reverser</b>		<b>20</b>	<b>8</b>	<b>12</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 2 FAA-H-8083-32 (as amended)

**Chapter:** Induction and Exhaust Systems

### **Subject Outline**

- 3) Reciprocating Engine Exhaust Systems
  - a) Radial Engine Exhaust Collector Ring System
  - b) Manifold and Augmentor Exhaust Assembly
  - c) Reciprocating Engine Exhaust System
  - d) Maintenance Practices
  - e) Exhaust System Inspection
  - f) Muffler and Heat Exchanger Failures
  - g) Exhaust Manifold and Stack Failures
  - h) Internal Muffler Failures
- 4) Exhaust Systems with Turbocharger
  - a) Augmentor Exhaust System
  - b) Exhaust System Repairs
  - c) Turbine Engine Exhaust Nozzles
  - d) Convergent Exhaust Nozzle
  - e) Convergent-Divergent Exhaust Nozzle
- 5) Thrust Reversers
- 6) Afterburning/Thrust Augmentation
- 7) Thrust Vectoring
- 8) Engine Noise Suppression
- 9) Turbine Engine Emissions

**Review and Test** – - Engine Exhaust and Thrust Reverser Systems 25 to 50 Random Questions

### **Subject Projects**

**Project 17:** Students will inspect a reciprocating or a turbine exhaust system for airworthiness and document the discrepancies and repair if necessary.

### **Equipment**

General Aviation Aircraft with piston engine  
 Turbine Aircraft /engine reverser system

## ***Propellers***

In this class the Aviation Maintenance Technician (AMT) student will learn to inspect, troubleshoot and repair the various propellers used on aircraft.

### **Performance Goals**

<b>Propellers</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>1</b>	Inspect, check, service, and repair propeller synchronizing and ice control systems	<b>3</b>	<b>3</b>	<b>0</b>
<b>2</b>	Identify and select propeller lubricants	<b>2</b>	<b>1</b>	<b>1</b>
<b>1</b>	Balance Propellers	<b>3</b>	<b>2</b>	<b>1</b>
<b>2</b>	Repair propeller control systems components	<b>6</b>	<b>3</b>	<b>3</b>
<b>3</b>	Inspect, check, service, and repair fixed pitch constant speed, and feathering propellers, and propeller governing systems	<b>48</b>	<b>13</b>	<b>35</b>
<b>3</b>	Install, troubleshoot and remove propellers	<b>23</b>	<b>6</b>	<b>17</b>
<b>3</b>	Repair aluminum alloy propeller blades	<b>5</b>	<b>2</b>	<b>3</b>
<b>Total Hours: Powerplant/Propellers</b>		<b>90</b>	<b>30</b>	<b>60</b>

**Textbook:** Aviation Maintenance Technician Series Textbook – Powerplant Volume 2 FAA-H-8083-32 (as amended)

**Chapter:** Propellers

### **Subject Outline**

- 1) General
- 2) Basic Propeller Principles
- 3) Propeller Aerodynamic Process
  - a) Aerodynamic Factors
  - b) Propeller Controls and Instruments
- 4) Propeller Location
  - a) Tractor Propeller
  - b) Pusher Propellers
- 5) Types of Propellers
  - a) Fixed-Pitch Propeller
  - b) Test Club Propeller
  - c) Ground-Adjustable Propeller
  - d) Controllable-Pitch Propeller
  - e) Constant-Speed Propellers
  - f) Feathering Propellers
  - g) Reverse-Pitch Propellers
- 6) Propeller Governor
  - a) Governor Mechanism
  - b) Underspeed Condition
  - c) Overspeed Condition
  - d) On-Speed Condition
  - e) Governor System Operation
- 7) Propellers Used on General Aviation Aircraft
  - a) Fixed-Pitch Wooden Propellers
  - b) Metal Fixed-Pitch Propellers
- 8) Constant-Speed Propellers
  - a) Hartzell Constant-Speed, Non-feathering

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappinger Falls, New York 12590

- b) Constant-Speed Feathering Propeller
- c) Unfeathering
- 9) Propeller Auxiliary Systems
  - a) Ice Control Systems
    - i) Anti-Icing Systems
    - ii) Deicing Systems
  - b) Propeller Synchronization and Synchrophasing
  - c) Auto-feathering System
- 10) Propeller Inspection and Maintenance
  - a) Wood Propeller Inspection
  - b) Metal Propeller Inspection
  - c) Aluminum Propeller Inspection
  - d) Composite Propeller Inspection
- 11) Propeller Vibration
  - a) Blade Tracking
  - b) Checking and Adjusting Propeller Blade Angles
  - c) Universal Propeller Protractor
- 12) Propeller Balancing
  - a) Static Balancing
  - b) Dynamic Balancing
  - c) Balancing Procedure
- 13) Propeller Removal and Installation
  - a) Removal
  - b) Installation
- 14) Servicing Propellers
  - a) Cleaning Propeller Blades
  - b) Charging the Propeller Air Dome
  - c) Propeller Lubrication
- 15) Propeller Overhaul
  - a) The Hub
  - b) Prop Reassembly
- 16) Troubleshooting Propellers
  - a) Hunting and Surging
  - b) Engine Speed Varies with Flight Attitude (Airspeed)
  - c) Failure to Feather or Feathers Slowly
- 17) Turboprop Engines and Propeller Control Systems
  - a) Reduction Gear Assembly
  - b) Turbo-Propeller Assembly
- 18) Pratt and Whitney PT6 Hartzell Propeller System
- 19) Hamilton Standard Hydromatic Propellers
  - a) Principles of Operation
  - b) Feathering Operation
  - c) Unfeathering Operation
  - d) Setting the Propeller Governor

**Review and Test** – Propellers 25 to 50 Questions (Random)

**Subject Projects**

**Project 18:** Students will overhaul and disassemble and perform a detailed inspection and re-assemble propeller governor and create a discrepancy list and complete an 8130 form documenting the overhaul of the propeller governor.

**Project 19:** Students will inspect, check, fixed pitch or constant speed, or feathering propellers systems and document the discrepancies and repair if necessary and will check the tip tracking of a metal fixed pitch propeller and create a logbook entry for the inspection.

**Equipment**

- 1) Propeller governors for detailed inspection.
- 2) Aircraft with constant speed propeller
- 3) Aircraft with fixed pitch propeller.
- 4) Propeller blades with damage in leading edge

## *Powerplant Inspection*

Performance goals

<b>Powerplant Inspection</b>				
<b>Teaching Level</b>	<b>Material</b>	<b>EIT</b>	<b>TI</b>	<b>Lab</b>
<b>3</b>	Perform a capstone inspection module. This module will include research into the regulations, maintenance manuals and other relevant documentation encountered during normal powerplant performance in a test cell	<b>20</b>	<b>0</b>	<b>20</b>
<b>Total Hours: Powerplant Inspection/Capstone</b>		<b>20</b>	<b>0</b>	<b>20</b>

*When this module is used as part of a 100-hour inspection as part of a final project.*

**Subject project:** Performance Goals

<b>Airframe Inspection</b>	
<b>Task</b>	<b>Teaching Level</b>
Perform airframe conformity and airworthiness inspections.	3

### **Subject Projects**

**Project #20:** Students will perform part three of a 100 Hour inspection on an aircraft engine specified by the instructor. After researching the proper TCDS and AD's, TC, and all documents and any discrepancies perform a 100-hour inspection on the airframe. The student will create a logbook record of the inspection.

### **Equipment**

- 2) Type Certificated aircraft

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

# Appendix E

## Forms and Documents

Form: 001

Graduation Certificate

FAA Certificate Number #####
------------------------------

DUTCHESS COMMUNITY COLLEGE  
POUGHKEEPSIE, NEW YORK

THIS IS TO CERTIFY THAT  
SUSIE STUDENT  
HAS SUCCESSFULLY COMPLETED THE REQUIREMENTS PRESCRIBED FOR THE COURSE  
AVIATION MAINTENANCE  
AND IS HEREBY AWARDED THIS  
CERTIFICATE

GIVEN AT POUGHKEEPSIE, NEW YORK, THIS 17TH DAY OF MAY, 2018.

 CHAIRMAN, BOARD OF TRUSTEES		 PRESIDENT
		 VICE PRESIDENT OF ACADEMIC AFFAIRS

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

Form: 002      Student Permanent Record

Student Permanent Record

Student Name		Student ID		Date	
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 101					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 102					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 103					

Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 104					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 105					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 106					

Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 107					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 108					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 109					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 110					

Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 111					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 112					
Year Semester	Course grade	Final grade	Teacher	Credits earned	GPA
AMT 113					

Form: 003

**Attendance Sheet**

Attendance Period Beginning:

Period Ending:

**Subject:**

Names														
Enter date	M	T	W	R	F	M	T	W	R	F	M	T	W	
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

**Mark:**

**X = Student is present**

**A = Absent**

**L=Late / include time arrived**

**H= Holiday**

**C =Cancelled**



**Form: 004 Lab Project Grading Form**

Lab Projects      Period Beginning:                      Period Ending:

Subject:

Names												
Student Name	Projects											
	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

Form: 005

Final Grade Tally Sheet

Subject: \_\_\_\_\_ Period Beginning: \_\_\_\_\_ Period Ending: \_\_\_\_\_

Student name								Final grade
	Quiz 1	Quiz 2	Quiz 3	Final test grade	Project 1 grade	Project 2 grade	Project 3 grade	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Form: 006 Exam Answer Sheet Example

TEST ANSWER SHEET B

Form No. 15611

1. 1-1-1-1-1-1 2. 1-1-1-1-1-1  
 3. 1-1-1-1-1-1 4. 1-1-1-1-1-1  
 5. 1-1-1-1-1-1 6. 1-1-1-1-1-1  
 7. 1-1-1-1-1-1 8. 1-1-1-1-1-1  
 9. 1-1-1-1-1-1 10. 1-1-1-1-1-1  
 11. 1-1-1-1-1-1 12. 1-1-1-1-1-1  
 13. 1-1-1-1-1-1 14. 1-1-1-1-1-1  
 15. 1-1-1-1-1-1 16. 1-1-1-1-1-1  
 17. 1-1-1-1-1-1 18. 1-1-1-1-1-1  
 19. 1-1-1-1-1-1 20. 1-1-1-1-1-1  
 21. 1-1-1-1-1-1 22. 1-1-1-1-1-1  
 23. 1-1-1-1-1-1 24. 1-1-1-1-1-1  
 25. 1-1-1-1-1-1 26. 1-1-1-1-1-1

STUDENT ID (SHOW PROCTOR)

120347571

TESTING INSTRUCTIONS

Use a No. 2 Pencil

Fill circle completely

Blase cleanly

SCORE	% CORRECT	NAME	DOE, John
REScore	% CORRECT	SUBJECT	TAP-3
ROSTER NUMBER	SCORE	PERIOD	1
	REScore	DATE	9/30/2014

TESTOR

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

Form: 007

Graduation List Example

The image shows a very faint and low-resolution scan of a graduation list table. The table is oriented vertically and contains multiple columns and rows of data. The text is illegible due to the quality of the scan, but the structure appears to be a standard data table with headers and data entries. The table is located in the lower half of the page.

Form: 008

**Make-up Session Receipt Document**

*Directions: Please complete this document every time a student makes up a final exam, project work and for time outside of scheduled school make up hours. This document MUST be utilized every time a student's grade is changed from failing to passing. The teachers and coordinator's permission (signature) is required before outside makeups can be started.*

**Teacher's Signature:** \_\_\_\_\_ **Coordinator's Signature** \_\_\_\_\_

\*One copy to student

\*\* Original form to student files

\*\*\* One copy to be placed in Make-up binders for the class.

Student Last Name	First name	Student Number	ID	FAA course Code	Course Term	Originating Teacher

What type of assignment was made up?	Time	Project work	Quiz	Final test
<b>Support document grade:</b> <i>Attach all supporting documentation</i>				

*Note: A copy must be provided to the student as proof of completion.*

**Final grade Change? [ YES] [NO] Prior Grade** \_\_\_\_\_ **New Grade** \_\_\_\_\_

**Teacher's Signature of Completion:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**NOTE: For FAA record keeping inspections, this document will be kept on file with all supporting Documentation on file for (2) calendar years beyond the student's graduation date.**

Form 009      Sample Job Sheet

NAME: \_\_\_\_\_ CLASS CODE \_\_\_\_\_ DATE: \_\_\_\_\_

**Weight and Balance Job Sheet    Written (25 points) Answer all questions in essay format:**

1. Where can a mechanic find the information and documentation needed to perform a weight and balance test?
2. Explain the difference between gross weight and empty weight.
3. If you are performing a major alteration to an aircraft explain what paperwork must be filled out and where it is kept and what procedure should you follow.
4. Define the following terms: Datum, CG, Tare weight and useful load.

**Grade** \_\_\_\_\_

**Oral Exam (25 points)**

The teacher will ask a series of questions derived from your questions above and may ask you to expand on your answers or ask other questions in that area that you were instructed on.

**Grade:** \_\_\_\_\_

**Practical job: (50 points)**

You are making a major modification to a \_\_\_\_\_.

You are moving the battery from its present location to \_\_\_\_\_.

Follow the procedure for this modification and fill out the forms and logbook entries.

List and the tools and equipment needed to perform the job.

Weight the aircraft in accordance with M/M procedures. In your own words rewrite and paraphrase the M/M procedure. On the back of this form.

Do a pre modification weight and determine CG.

Calculate old CG. \_\_\_\_\_

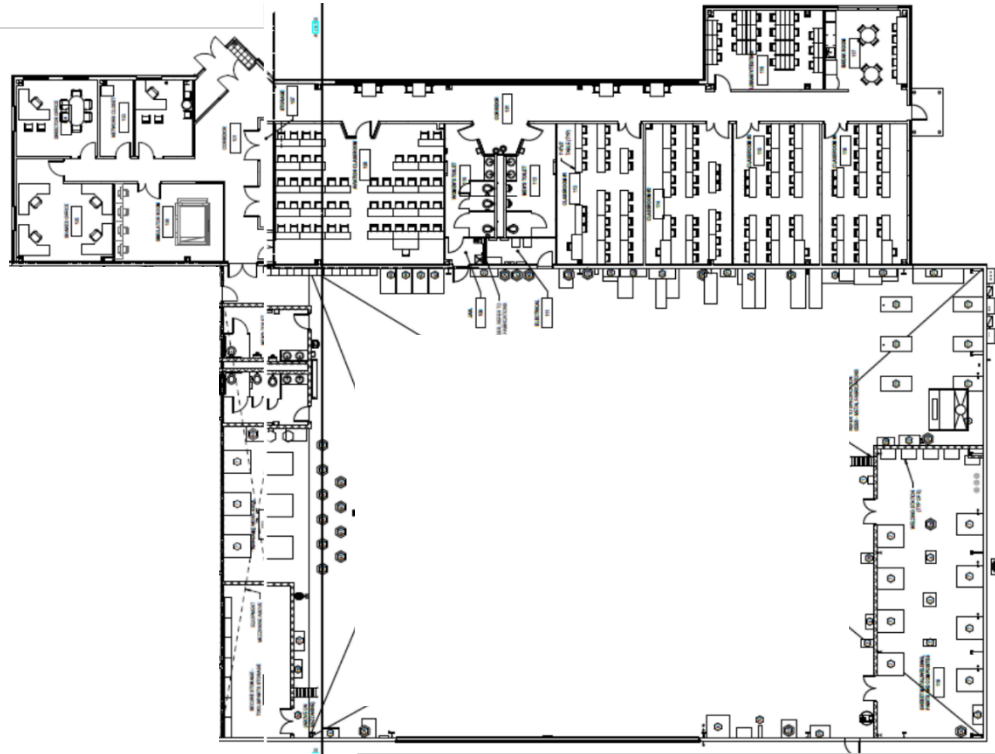
Calculate New CG after modification. \_\_\_\_\_

Get the teacher to grade and inspect your work using project grading Rubric.

	<b>Beginning</b> <b>1</b>	<b>Developing</b> <b>2</b>	<b>Accomplished</b> <b>3</b>	<b>Outstanding</b> <b>4</b>	<b>Score</b>
Safety Guidelines	Demonstrates understanding of and observes <b>little or no</b> Project-related safety procedures.	Demonstrates understanding of and observes <b>some</b> Project-related safety procedures.	Demonstrates understanding of and observes <b>most</b> Project-related safety procedures.	Demonstrates understanding of and observes <b>all</b> Project-related safety procedures.	
Problem Solving/ Independence	Plans and solves problems with <b>constant</b> assistance.	Plans and solves problems with <b>limited</b> assistance.	Plans and solves problems in a <b>self-directed</b> manner.	Plans and solves problems <b>effectively and creatively</b> in a self-directed manner.	
Procedures to Complete Task	Proper procedures are <b>not</b> followed in a clear, logical, sequential manner.	Proper procedures are <b>inconsistently</b> followed in a clear, logical, sequential manner.	Proper procedures are <b>generally</b> followed in a clear, logical, sequential manner.	Proper procedures are <b>consistently</b> followed in a clear, logical, sequential manner.	
Use of Proper Tools, Materials, Equipment	The tools, equipment, & materials selected are <b>not correct</b> and or used appropriately.	Tools, materials, & or equipment selected are correct but used in a <b>limited capacity correctly</b> .	Tools, materials, and/or equipment are selected and used <b>effectively</b> .	Proper tools, materials, and/or equipment are selected and used <b>efficiently, effectively, and with confidence</b> .	
Standards of Quality/ Productivity (appropriate time on task)	Quality of the completed product is <b>inconsistent and fails</b> to meet airworthy standards or project specifications.	Quality and productivity are <b>reasonably consistent but fail</b> to meet airworthy standards or project specifications.	Quality and productivity are <b>consistent and approaching</b> airworthy standards or project specifications.	Quality, particularly details and finishes, and productivity are <b>consistent and meet or exceed airworthy</b> standards or project specifications.	

**Total Points** \_\_\_\_\_  
**x 5**

**= Grade** \_\_\_\_\_



## Floor Plans

Room #	Rm Name	Sq Ft	Room #	Rm Name	Sq Ft
100	Vestibule	85	114	Classroom #2	484
101	Corridor	1388	115	Classroom #3	486
102	Directors Office	170	116	Classroom #4	481
103	Network Closet	100	117	Breakroom	323
104	Directors Office	249	118	Library/Testing	362
105	Shared Office	344	119	Paints & Composites	1220
106	Simulator Room	337	120	Aviation Lab	11685
107	Storage	56	121	Tools/Parts Storage	409
108	Assembly	929	122	Airframe Work Area	434
109	Janitor Closet	40	123	Women's Toilet	172
110	Women's Toilet	200	124	Men's Toilet	172
111	Electrical Closet	72			
112	Men's Toilet	200			
113	Classroom #1	486			



Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

## Appendix F

### List of Personnel

#### College Administrators

President of Dutchess Community College	<del>Dr. Ellen Gambino (Acting President)</del> <b>Dr. Peter Jordan, Ed. D ***6/7/22 Rev 2</b>
<del>Provost</del> Chief of Staff of Dutchess Community College	<del>Dr. Ellen Gambino</del> <b>Dr. Susan Rogers ***6/7/22 Rev 2</b>
<del>Dean of Academic Affairs</del> ***6/21/23 Rev 3	<del>Maria Boada</del>
Vice President for Instruction and Learning	<b>Raymond M. Houston, Ed.D.C.T***6/21/23 Rev 3</b>
Department Chair	Joan McFadden
Program Chair	John Trosie
FAA Coordinator/Liaison/Teacher	Genna Suraci

#### List of Instructors

Name of instructors	Certificate Number	Curriculum Content Area
Genna Suraci	2197071	General, Airframe, Powerplant
Rocco Carbonaro	3639262	General, Airframe, Powerplant
(Adjunct) Robert Osterhoudt	3458348	General, Airframe, Powerplant
(Adjunct) Raylond Monkhouse	3581133	General, Airframe, Powerplant
(Adjunct) Mike Travis	3221727	General, Airframe, Powerplant
<del>(Adjunct)</del> (8/15/22) *** <b>6/21/23 Rev 3</b> Gurpinder S Kanwal	3379786	General, Airframe, Powerplant
***1 (8/1/21) Kenneth John Andreu	3089719	General, Airframe, Powerplant
***1 (8/1/21) <del>Michelle Hope Conklin</del>	3675595	<del>General, Airframe, Powerplant</del> <b>*** 6/21/23 Rev 3</b>
(Adjunct) David Snider	3439765	General, Airframe, Powerplant <b>*** 6/21/23 Rev 3</b>
(5/nn/23) Alexander M. Moore	3778016	General, Airframe, Powerplant <b>*** 6/21/23 Rev 3</b>

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

### List of DME's

<b>DME's Name</b>	<b>Certificate Number</b>	<b>Address</b>
Dominick Leo	269898889	4 Lincoln Road Putnam Valley NY 10579
Craig L. Reding	900606337	289 Erie Avenue Midland Park, N.J. 07432
Theodore N Stone	91007582	<del>374 Route 94</del> *** 6/21/23 Rev 3 <del>Newton N.J. 07860</del>

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

## Appendix G

### Lists of Equipment & Instructional Aids

#### Aircraft Inventory

Aircraft	Registration Number	Serial Number	Model Number
Cessna 404	N96BP	404-0124	404
Gulfstream G3 C20	N30501	383	G-1159A
Beech T34B	N58743	Bg-239	D-45
Cessna T41	N7889N	R172-0280	R172E
Mooney M20C	N6465U	2212	M20C
Cessna 182	N91529	18259808	182M
Piper PA-32-260	N260BB	32-7400045	PA-32-260
Robinson	N2302A	1903	R22 Beta
Mooney M20C ***6/7/22 Rev 2	N99WK	2396	M20C
Lear 240 ***6/21/23 Rev 3			240

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

## List of Instructional Training Aids

5	Avotek A120 Brake Master Cyl, Cessna
1	Avotek A140 Shimmy Damper Cutaway
10	Avotek Ea16 Pressure Carburetors
20	Magnetos For Overhaul
5	Avotek H10 Actuators
5	Avotek H11 Actuators
5	Avotek Ea 50 Starter Generators Small Turbines
2	Generator Light Aircraft
20	Marvel-Schebler Float Type Carburetor
1	Avotek Ea15 Carburetor Pressure P5 Cutaway
5	Avotek H25 Valves, Sequence
1	Avotek H85 Hydraulic Filter
5	Avotek H81 Hydraulic Relief Valve
1	Avotek H75 Selector Valve
1	Avotek H76 Selector Valve
1	Avotek P15 Hartzell 2-Bladed, Constant Speed Propeller
1	Avotek P26 Hartzell Reversing Prop With Stand
1	Avotek Pc32 Hartzell Propeller Governors Cutaway
1	Avotek H87 Accumulator Cutaway
1	Avotek H88 Double Action Actuator Cutaway
20	Safety Wire and Cable Tension Trainers <b>***Rev 2 6/21/2023</b>
20	Basic Electricity Panel
5	Multi Disk Brakes
1	Cessna 150 Control Surface
1	High Rate Discharge (Hrd) Fire Extinguisher Bottle
5	Lead Acid Batteries For Testing
3	Nicad Batteries For Testing
25	Piston Cylinders With Various Damage On Stands (Burned Valves, Pitting Etc.)
4	Avotek E18 O-320 T/D Engine
1	Lycoming 0420 Engines <b>***Rev 2 6/21/2023</b>
5	Alternators Light Aircraft
1	Avotek Ae 42 28-Volt Dual Electrical Training System
1	Avotek A114 Retractable Landing Gear Sys Trainer-Hyd
1	Avotek A137 Anti-Skid Brake System Trainer
1	Avotek Shimmy Dampener Cut-Away
1	Avotek As16 Vacuum Pump Cutaway
1	Attitude Indicator Gyro Cutaway
1	Avotek As 47 Directional Gyro Cutaway
1	Avotek As 60 Fire Detection And Extinguishing System Multiple Configuration As-60-Ir-Co-Sm
1	Avotek As 61 Ice And Rain Protection Training System
1	Avotek As 64 Cabin Atmosphere Control/ Pressurization Training System
1	Avotek As 66 Vapor Cycle Air Conditioning And Heating System
1	Avotek E82 R&R Turbine Engine Removal Trainer
1	Avotek As 81 Oxygen System Trainer

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

2	Avotek Av12 Auto Pilot System Trainer ***Rev 2 6/21/2023
1	Avotek E48 Allison 250 Runnable Turboshaft
5	Allison 250 Engine-Teardown
1	Avotek E61 Runnable 320
1	Avotek Ps 5 Carb, Cut-Away
1	Avotek E32 Magneto, Slick Cut-Away
1	Avotek Ea54 Turbo-Charger Assy, Cutaway
1	Avotek Ea 56 Carburetor, Cutaway Ma4-5
1	Avotek Ea 65 Generator, Cut-Away
1	Avotek F51 Fuel System, Turbine
1	Avotek F52 Continental Fuel Injection Training System
1	Avotek H86 Hydraulic System Trainer
1	Avotek Actuator H11 Cut Away
1	Avotek H 90 Fluid Lines And Fittings Trainer 1
1	Avotek S45 Hydraulic Mule
1	Avotek H94 Hydraulic Piston Pump Cutaway
9	Landing Gears For Tear Down
1	Avotek P35 Hartzell 2-Blade Cutaway Prop
5	Avotek Pc14 Hartzell Prop Governor
1	Avotek S22-1 Magneto Tester W/Cabinet
1	Avotek S35 Hydraulic Test Bench
1	Avotek S47 Cessna 150 Control Surface Balancing Beam
2	Garrett 731 Turbine Engines
1	Avotek Digital Engine Instrument E60 ***Rev 2 6/21/2023
20	Electrical Trainers ***Rev 2 6/21/2023
20	Landing Gear Wiring Trainers ***Rev 2 6/21/2023

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

## School Special Tool List Inventory

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4 Cable Tensiometers	DCC1	DCC2	DCC3	DCC4												
10 Micrometer 1-2 In	DCC5	DCC6	DCC7	DCC8	DCC9	DCC10	DCC11	DCC12	DCC13	DCC13A	DCC187					
3 Micrometer 3-4 In	DCC14	DCC15	DCC16													
16 Micrometer 0-1 In	DCC17	DCC18	DCC19	DCC20	DCC21	DCC22	DCC23	DCC24	DCC25	DCC26	DCC27	DCC28	DCC29	DCC30	DCC31	DCC31A
8 Micrometer 2-3 In	DCC32	DCC33	DCC34	DCC35	DCC36	DCC37	DCC38	DCC39								
5 Micrometer 4-5 In	DCC40	DCC41	DCC42	DCC43	DCC44											
6 Micrometer 5-6 In	DCC45	DCC46	DCC47	DCC48	DCC49	DCC50										
3 Micrometer 6-7 In	DCC51	DCC52	DCC53													
2 Micrometer 7-8 In	DCC54	DCC55														
3 Micrometer 8-9 In ***6/22/23 Rev 3	DCC56	DCC57	DCC57A													
3 Micrometer 9-10 In	DCC58	DCC59	DCC60													
1 Micrometer 10-11 In	DCC61															
3 Micrometer 11-12In	DCC62	DCC63	DCC64													
4 ½ drive Torque Wrench	DCC65	DCC66	DCC67	DCC68												
6 ¾ drive Torque Wrench	DCC69	DCC70	DCC71	DCC72	DCC73	DCC74										
7 ½ drive Torque Wrench ***6/22/23 Rev 3	DCC75	DCC76	DCC77	DCC78	DCC79	DCC178	DCC179									
1 Brake Bleeder Tank	DCC80															
1 Buzz Master Prop Balancer	DCC81															
1 Coax Crimper for Rg-400 Cable	DCC82															
2 Cylinder Bore Gage ***6/22/23 Rev 3	DCC83	DCC84	DCC84A													
3 Dial Indicator & Bench Stand	DCC85	DCC86	DCC85A													
2 Differential Pressure Tester W Adapter 12mm & 14 Mm & 18mm	DCC87	DCC88														
3 Dual Mag Synchron W/ Tweeter ***6/22/23 Rev3	DCC89	DCC90	DCC91	DCC92												
1 Heat Gun	DCC93															
1 Kearney Swaging Kit	DCC94															
1 Locolok Cable Swagger Kit	DCC95															
2 Magnaflux Dye Penetrant Equip *6/22/23 Rev3	DCC96	DCC96A														
1 Manual Knock Out Punch Set	DCC97															
1 Model E5 High Voltage Cable Tester	DCC98															
1 Moisture Meter for Honeycomb Inspection	DCC99															
2 Paint Guns	DCC100	DCC101														
1 Pneumatic "C" Compression Riveter Kit	DCC102															
1 Pro Tube Beading Tool	DCC103															
2 Sets Amp & Molex Pin Extractors	DCC104	DCC105														
1 Strut Pump	DCC106															
6 Telescoping Gauge Set ***6/22/23 Rev 3	DCC107	DCC108	DCC107A	DCC108A	DCC107B	DCC107C										
2 Ultrasonic - Thickness Gauge	DCC109	DCC110														
2 Barcol Hardness tester	DCC111	DCC112														
2 Borescopes	DCC113	DCC114														
8 Handheld Multimeters	DCC115	DCC116	DCC117	DCC118	DCC119	DCC120	DCC121	DCC122								
2 Precision Propeller Protractor	DCC123	DCC124														
1 Starrett Master Vernier Callipers 25 In	DCC125															
7 Starrett Master Vernier Callipers 8 In	DCC127	DCC128	DCC170	DCC171	DCC172	DCC173	DCC174									
2 Set Starrett Small Hole Gages ***6/22/23 Rev3	DCC129	DCC185	DCC186	DCC187												
1 Simpson VOM	DCC130															
4 Tire Pressure Gages ***6/22/23 Rev 3	T 131 DCC131	T132 DCC132	T 131A DCC132	T132A DCC133												
2 Weigh-Systems Aircraft Model AWS-6K-REM	DCC133	DCC134														
1 Plastic Welder	DCC135															
4 8 Ton Bottle Jacks	DCC136	DCC137	DCC138	DCC139												
1 Castleberry Pitot Static Tester #377-4	DCC140															
1 Barfield Fuel Qty Tester	DCC141															
2 Flux Amp Meters	DCC142	DCC143														
1 TIF 5500 Leak Check Tester	DCC144															
1 Airborne Vac-Pressure Test Set	DCC145															
1 Ward-Aero Alternator Test	DCC146															
2 Large Spring Scales	DCC147	DCC148														
1 Starrett Small Hole Gages	DCC149															
1 Shimpo Digital Tach Meter	DCC150															
1 Safe Flight Dial Indicators	DCC151															
2 Irwin Ground Power Units	DCC152	DCC153														
1 Test Equipment ATC Transponder	DCC154															
2 Daniels Dmc204 ***6/22/23 Rev 3	DCC155	DCC155A														
1 TIF Digital Thermometer	DCC156															
1 Kell-Strom Digital Protractor	DCC157															
2 Trickle Battery Chargers	DCC158	DCC159														
2 Time Rite Indicators ***6/7/22 Rev 2	DCC160	DCC161														
2 Portable Drills - Batt ***6/7/22 Rev 2	DCC165	DCC166														
3 Pin Crimpers ***6/7/22 Rev 2	DCC178	DCC179	DCC180													
2 Spirit Levels ***6/7/22 Rev 2	DCC175	DCC176														
1 Tire Bead Buster ***6/7/22 Rev 2	DCC181															
2 Pitot Head Adapters ***6/7/22 Rev 2	DCC188	DCC189														
1 Air Nibbler ***6/7/22 Rev 2	DCC190															
1 Micro Set - 0-3 ***6/7/22 Rev 2	DCC191															
1 Brake Rivet Kit ***6/7/22 Rev 2	DCC192															
1 Magneto Timing Kit ***6/7/22 Rev 2	DCC193															
1 Hot Wire Cutter ***6/7/22 Rev 2	DCC194															
1 Height Gage ***6/22/2023 Rev 3	DCC195															
1 Waferer Ketch - Protractor ***6/22/2023 Rev 3	DCC157A															
1 Laser Level ***6/22/23 Rev 3	DCC182															
1 Allison Tool Kit ***6/22/23 Rev 3	DCC132															
1 J35 Engine Removal Kit ***6/22/23 Rev 3	T132															
1 Dremel Tool ***6/22/23 Rev 3	DCC183															
1 10 amp Battery Charger ***6/22/23 Rev 3	DCC185															
5 Proto Nut Drivers ***6/22/23 Rev 3	DCC190	DCC191	DCC192	DCC193	DCC194	R006	R007	R008	R009	R010	R011	R012	R013	R014	R015	R016
24 Riveting Kits ***6/22/23 Rev 3	R001	R002	R003	R004	R005	R006	R007	R008	R009	R010	R011	R012	R013	R014	R015	R016
	R017	R018	R019	R020	R021	R022	R023	R024								

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
25 Ft Air Hoses	T-01	T-02	T-03	T-04	T-05																					
Bolt Grip Gage	T-06	T-06A																								
Cable Cutters	T-07	T-08																								
Cable Go No Go Gage	T-09	T-10	T-11	T-12																						
Cherry Max Grip Gage	T-13	T-13A																								
Cleco Pliers ***6/22/23 Rev 3	T-14	T-15	T-16	T-17	T-18	T-19	T-20	T-21	T-22	T-23	T-24	T-25	T-26	T-27	T-28											
Drill Gage Guides- ***6/22/23 Rev 3	T-29	T-30	T-31																							
Gasket Punch Set ***6/22/23 Rev 3	T-32	T-32A																								
Hand Nibblers ***6/22/23 Rev 3	T-33	T-34	T-35	T-36	T-37	T-37A																				
Hand Rivnut Installer	T-38	T-38A																								
Rolo-Flair Flaring Tool 37"	T-39	T-40	T-41	T-42	T-43																					
Soldering Iron Dual Wattage	T-44	T-45	T-46	T-47	T-48	T-49																				
Spark Plug Tray	T-50	T-51	T-52	T-53	T-54	T-54A																				
Tubing Bender Model Triple Head Lever Type	T-56	T-57	T-58	T-59	T-60	T-61	T-62	T-63																		
Turnbuckle Rigging Kits	T-64	T-65																								
Terminal Wire Crimpers	T-66	T-67	T-68	T-69	T-70	T-71	T-72	T-73	T-74	T-75	T-76	T-77	T-78	T-79	T-80	T-81	T-82	T-83	T-84	T-85						
52 Ft LED Work Light	T-87	T-88	T-89	T-90																						
Wire-Twisters ***6/22/23 Rev 3	T-94	T-92	T-93	T-94	T-95	T-96	T-97	T-98	T-99	T-100	T-101	T-102	T-103	T-104	T-105											
Oil Filter Cutter Tool	T-106	T-107																								
Piston Pin Driver Tool- ***6/22/23 Rev 3	T-108	T-108A																								
Tubing Cutters	T-109	T-110	T-111	T-112	T-113	T-114	T-115	T-116																		
Combination-Squares- ***6/22/23 Rev 3	T-117	T-118	T-119	T-120	T-121	T-122	T-123	T-124	T-125	T-126	T-127	T-128	T-129	T-130	T-131	T-132	T-133	T-134	T-135	T-136	T-137					
"T" Squares	T-138	T-139	T-140	T-141	T-142	T-143	T-144	T-145	T-146	T-147	T-148	T-149	T-150	T-151	T-152	T-153	T-154	T-155	T-156	T-157	T-158	T-159	T-160	T-161		
Machinists Rulers	T-164	T-165	T-166	T-167	T-168	T-169	T-170	T-171	T-172	T-173	T-174	T-175	T-176	T-177	T-178	T-179	T-180	T-181	T-182	T-183	T-184	T-185	T-186	T-187		
Tubing Deburr	T-190	T-191	T-192	T-193	T-194	T-195																				
Sets Metal Files	T-196	T-197	T-198	T-199	T-200	T-201	T-202	T-203	T-204	T-205																
Hacksaws	T-206	T-207	T-208	T-209	T-210	T-211	T-212	T-213																		
Vice grips	T-215	T-216	T-217	T-218	T-219	T-220	T-221	T-222	T-223	T-224																
Engine Valve Spring Compressors Tools	T-225	T-226	T-225A	T-226A																						
Heavy Duty Air Drills- ***6/7/22 Rev 2	T-227	T-228	T-229	T-230	T-231	T-232	T-233	T-234	T-235	T-236	T-237	T-238	T-239	T-240	T-241											
Heavy Duty Rivet Cutters	T-237	T-238	T-239	T-240	T-241																					
Rivet Guns-2x Rivet-Gun - ***6/7/22 Rev 2	T-242	T-243	T-244	T-245	T-246	T-247	T-248	T-249	T-250	T-251																
Channel Lock Wire Crimpers ***6/7/22 Rev 2	T-260	T-261	T-262	T-263	T-264	T-265	T-266	T-267	T-268	T-269																
A-Frame Pop Rivet Squeezer ***6/7/22 Rev 2	T-281																									
Angle Gage T-7704 ***6/7/22 Rev 2	T-282																									
Pneumatic Pop Riveter ***6/7/22 Rev 2	T-280																									
Adjustable Wrenches ***6/22/23 Rev 3	T-283	T-284	T-285																							
Tap & Die ***6/22/23 Rev 3	T-286	T-287																								
Rocker Shaft Rem Tool ***6/22/23 Rev 3	T-225A	T-226A																								
Dial Indicator V Block ***6/22/23 Rev 3	T-29																									
Depth Gages ***6/22/23 Rev 3	T-30	T-30A																								
Spark Plug Gapping Tool **6/22/23 Rev3	T-31																									
Engine Timing Kit ***6/22/23 Rev 3	T-29																									

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

## List of Shop Equipment

- 1 Open Front Industrial Spray Booths
- 1 Deluxe Band Saw,
- 2 8ft Podium Step Ladders
- 1 Champion Spark Plug Tester
- 1 Engine Hoist (2 Ton)
- 2 Flammable Cabinet \*\*\*Rev 2 6/21/2023
- 3 Floor Drill Press, Belt Drive Type,
- 1 10" Bench Grinder
- 1 I Combo Belt & Disc Finishing Machine,
- 1 Meyer Wing Jack Set
- 1 Tronair Set of Jacks
- 2 Tronair Oil Servicing cart
- 5 Tig Welders
- 7 Mobile Cabinet Workbench, Steel, 18" Depth, 36" Height, 48" Width26
- 1 Power Products 4142 Model Alpha C-25 Battery Chargers
- 2 Rolling Ladders 2 Foot
- 2 Rolling Ladders 4 Step
- 2 Rolling Ladders 6 Steps
- 2 Tail Stands
- 1 Welding Station
- 1 Wire Reel Caddy
- 1 Tennsmith 52 In Shear
- 1 Tennsmith Finger Brake
- 1 Tennsmith Sheetmetal Roller
- 1 Tennsmith Knotcher
- 5 Aircraft Maintenance Platforms \*\*\*Rev 2 6/21/2023
- 1 Torque Tester
- 3 Batesfields Ground Power Units
- 20 Tubing Trainers
- ~~20 Electrical Trainers \*\*\*Rev 2 6/21/2023~~
- ~~20 Landing Gear Wiring Trainers \*\*\*Rev 2 6/21/2023~~
- 1 Snap-On Tire Balancing Machine
- 1 BC 5000 Battery Capacity Tester \*\*\*Rev 2 6/21/2023



Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

### **Faculty Hand Tool List Inventory 3ea**

1. Lockable tool box
2. ¼ SAE inch drive 12-point socket set w/ratchet and ext. And breaker bars SAE universal joint
3. ⅜ SAE inch drive 12-point socket set w/ratchet and ext. breaker bar, speed handle universal
4. ½ inch 12-point socket set w/ratchet and extensions and breaker bars
5. Flashlight LED "D" cell
6. Common screwdriver set 1,2,3 tip blades various lengths 3. 6. 8. 12 in lengths
7. Phillips screwdriver set 1,2,3 tips various lengths 3,6,8,12
8. Complete set of combination wrenches 15 piece set 5/16 to 1 & 1/4
9. Complete set of open end 9 piece offset 3/8 to 1 1/32"
10. 8-inch duckbill pliers
11. 8 in inch long nose pliers (needle)
12. 8-inch diagonal cutter
13. Set of universal joint 3/8 drive sockets
14. Soft faced mallet
15. 12-ounce ball peen hammer
16. Inspection mirror
17. Mechanical fingers
18. Feeler gauge set
19. Telescoping retrieving magnet
20. Safety glasses
21. Automatic wire strippers 22 to 10 AWG
22. 6 in steel rule
23. Cotter pin puller
24. Scribe pocket size
25. Channel lock pliers 10 in
26. Combination square 3 piece
27. File set rat tail, half round and flat 8 to 10 in
28. 7-piece drift pin punch set
29. 7Pc 3/8" Drive SAE Hex Bit Set
30. Respirator for paint spraying
31. Awl
32. File card
33. 3/8 shallow socket set metric
34. Set of crow's feet 3/8 drive

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

## Student Required Tool List

1. Tool bag
2. ¼ SAE inch drive 12-point socket set w/ratchet and ext. And breaker bars SAE universal joint
3. ⅜ SAE inch drive 12-point socket set w/ratchet and ext. breaker bar, speed handle universal
4. ½ inch 12-point socket set w/ratchet and extensions and breaker bars
5. Flashlight LED "D" cell
6. Common screwdriver set 1,2,3 tip blades various lengths 3. 6. 8. 12 in lengths
7. Phillips screwdriver set 1,2,3 tips various lengths 3,6,8,12
8. Complete set of combination wrenches 15 piece set 5/16 to 1 & 1/4
9. Complete set of open end 9 piece offset 3/8 to 1 1/32"
10. 8-inch duckbill pliers
11. 8 in inch long nose pliers (needle)
12. 8-inch diagonal cutter
13. Set of universal joint 3/8 drive sockets
14. Soft faced mallet
15. 12-ounce ball peen hammer
16. Inspection mirror
17. Mechanical fingers
18. Feeler gauge set
19. Telescoping retrieving magnet
20. Safety glasses
21. Automatic wire strippers 22 to 10 AWG
22. 6 in steel rule
23. Cotter pin puller
24. Scrib pocket size
25. Channel lock pliers 10 in
26. Combination square 3 piece
27. Fileset rat tail, half round and flat 8 to 10 in
28. 7-piece drift pin punch set
29. 7Pc 3/8" Drive SAE Hex Bit Set
30. Awl
31. file card
32. 3/8 shallow socket set metric
33. Set of crows feet 3/8 drive

Dutchess Community College AMT Program  
237 New Hackensack Road  
Hudson Valley Regional Airport  
Wappingers Falls, NY 12590

\*\*\*Rev 3 6/21/23

### **Cabinet #2 Tool List**

7 Small Tubing Cutters  
3 Large Tubing Cutters  
4 Small Blue Deburrs  
1 Large Red Deburr  
10 6" Clamps  
2 Strip Master Wire Snippers  
1 Amp Wire Crimper  
10 Pacific Arc Ruler Trio  
6 Stanley Ball Peen Hammers 12 oz  
1 Stanley Plastic Mallet  
20 Terminal Wire Crimpers Daniels  
8 Tubing Benders  
9 Channel Lock Wire Crimpers  
6 Soldering Irons  
5 Tubing Flair Tools  
23 Machinist Rulers  
24 T-Squares  
1 Tubing Flair Kit #7310  
1 Tray Misc. Tubing Flair Tools  
9 Misc. Files  
1 Wire Terminal Kit

### **Cabinet #3 Tool List**

7 Hacksaws  
11 Vice Grips  
6 Hand Nibblers  
9 Sheet Metal Shears  

- 3 Straight
- 3 Left
- 3 Right

5 Rivet Cutters  
6 Deburring Tools  
3 File Cards  
39 Files of various sizes  
4 Compass Scribes  
1 Edge Rolling Tool  
18 Stanley Plastic Hammers  
12 Stanley Ball Peen Hammers 12 oz  
3 Trays of Misc. Rivet sets  
4 Tray of Misc. Bucking bars

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

**APPENDIX H**

**Revisions and Changes**

**Record of Revisions**

Revision No.	Date of Revision	Revised by	FAA Approved and Date
1	8/1/2021	Genna Suraci	
2	6/7/22	Genna Suraci	
3	6/21/23	Genna Suraci	
	Original		
	Original		

Introduction	Page	Revision	Date
	1	Original	2/1/2021
	2	2	6/7/2022
	3	Original	2/1/2021
	4	2	6/7/2022
	5	Original	2/1/2021
	6	Original	2/1/2021

Certification Requirements	Page	Revision	Date
	7	Original	2/1/2021
	8	Original	2/1/2021
	9	Original	2/1/2021
	10	Original	2/1/2021
	11	Original	2/1/2021
	12	Original	2/1/2021
	13	Original	2/1/2021
	14	2	6/7/2022
	15	2	6/7/2022
	16	Original	2/1/2021
	17	Original	2/1/2021

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

<b>Operating Procedures</b>	<b>Page</b>	<b>Revision</b>	<b>Date</b>
	18	Original	2/1/2021
	19	Original	2/1/2021
	20	3	6/21/23
	21	Original	2/1/2021
	22	Original	2/1/2021
	23	Original	2/1/2021
	24	Original	2/1/2021
	25	Original	2/1/2021
	26	Original	2/1/2021
	27	Original	2/1/2021
	28	Original	2/1/2021
	29	Original	2/1/2021
	30	Original	2/1/2021
	31	Original	2/1/2021
	32	Original	2/1/2021
	33	Original	2/1/2021
	34	Original	2/1/2021
	35	Original	2/1/2021
	36	Original	2/1/2021
	37	Original	2/1/2021
	38	Original	2/1/2021
	39	Original	2/1/2021
	40	Original	2/1/2021
	41	Original	2/1/2021
	42	Original	2/1/2021

<b>Appendix A</b>	<b>Page</b>	<b>Revision</b>	<b>Date</b>
	43	Original	2/1/2021
	44	Original	2/1/2021
	45	Original	2/1/2021
	46	Original	2/1/2021
	47	Original	2/1/2021
	48	Original	2/1/2021

<b>Appendix B</b>	<b>Page</b>	<b>Revision</b>	<b>Date</b>
	49	Original	2/1/2021
	50	Original	2/1/2021
	51	Original	2/1/2021
	52	Original	2/1/2021
	53	2	6/7/2022

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

	54	Original	2/1/2021
	55	Original	2/1/2021
	56	Original	2/1/2021
	57	Original	2/1/2021
	58	Original	2/1/2021
	59	Original	2/1/2021
	60	Original	2/1/2021
	61	Original	2/1/2021
	62	Original	2/1/2021
	63	Original	2/1/2021
	64	2	6/7/2022
	65	Original	2/1/2021
	66	Original	2/1/2021
	67	Original	2/1/2021
	68	Original	2/1/2021
	69	Original	2/1/2021
	70	Original	2/1/2021
	71	Original	2/1/2021
	72	Original	2/1/2021
	73	Original	2/1/2021
	74	Original	2/1/2021
	75	Original	2/1/2021
	76	Original	2/1/2021
	77	Original	2/1/2021
	78	Original	2/1/2021
	79	2	6/7/2022
	80	Original	2/1/2021
	81	Original	2/1/2021
	82	Original	2/1/2021
	83	Original	2/1/2021
	84	2	6/7/2022

Appendix C	Page	Revision	Date
	85	2	6/7/2022
	86	Original	2/1/2021
	87	Original	2/1/2021
	88	Original	2/1/2021
	89	Original	2/1/2021
	90	Original	2/1/2021
	91	Original	2/1/2021
	92	Original	2/1/2021
	93	Original	2/1/2021
	94	Original	2/1/2021

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

	95	Original	2/1/2021
	96	Original	2/1/2021
	97	Original	2/1/2021
	98	2	6/7/2022
	99	Original	2/1/2021
	100	Original	2/1/2021
	101	2	6/7/2022
	102	Original	2/1/2021
	103	Original	2/1/2021
	104	Original	2/1/2021
	105	Original	2/1/2021
	106	Original	2/1/2021
	107	Original	2/1/2021
	108	2	6/7/2022
	109	Original	2/1/2021
	110	Original	2/1/2021
	111	2	6/7/2022
	112	Original	2/1/2021
	113	Original	2/1/2021
	114	Original	2/1/2021
	115	Original	2/1/2021
	116	Original	2/1/2021
	117	2	6/7/2022
	118	Original	2/1/2021
	119	Original	2/1/2021
	120	Original	2/1/2021
	121	Original	2/1/2021
	122	Original	2/1/2021
	123	Original	2/1/2021
	124	Original	2/1/2021
	125	2	6/7/2022
	126	Original	2/1/2021
	127	Original	2/1/2021
	128	Original	2/1/2021
	129	Original	2/1/2021
	130	Original	2/1/2021

<b>Appendix D</b>	<b>Page</b>	<b>Revision</b>	<b>Date</b>
	131	Original	2/1/2021
	132	Original	2/1/2021
	133	Original	2/1/2021
	134	Original	2/1/2021

Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

	135	Original	2/1/2021
	136	Original	2/1/2021
	137	Original	2/1/2021
	138	Original	2/1/2021
	139	Original	2/1/2021
	140	Original	2/1/2021
	141	Original	2/1/2021
	142	Original	2/1/2021
	143	Original	2/1/2021
	144	Original	2/1/2021
	145	Original	2/1/2021
	146	Original	2/1/2021
	147	Original	2/1/2021
	148	Original	2/1/2021
	149	Original	2/1/2021
	150	Original	2/1/2021
	151	Original	2/1/2021
	152	Original	2/1/2021
	153	Original	2/1/2021
	154	Original	2/1/2021
	155	Original	2/1/2021
	156	Original	2/1/2021
	157	Original	2/1/2021
	158	Original	2/1/2021
	159	Original	2/1/2021

<b>Appendix E</b>	<b>Page</b>	<b>Revision</b>	<b>Date</b>
	A1	Original	2/1/2021
	A2	Original	2/1/2021
	A3	Original	2/1/2021
	A4	Original	2/1/2021
	A5	Original	2/1/2021
	A6	Original	2/1/2021
	A7	Original	2/1/2021
	A8	Original	2/1/2021
	A9	Original	2/1/2021
	A10	Original	2/1/2021
	A11	Original	2/1/2021



Dutchess Community College AMT Program  
 237 New Hackensack Road  
 Hudson Valley Regional Airport  
 Wappingers Falls, NY 12590

<b>Appendix F</b>	Page	Revision	Date
	A12	2	6/7/2022
	A12	3	6/21/2023

<b>Appendix G</b>	Page	Revision	Date
	A13	2	6/7/2022
	A13	3	6/21/2023
	A14	Original	2/1/2021
	A14	2	6/21/2023
	A15	Original	2/1/2021
	A15	2	6/21/2023
	A16	2	6/7/2022
	A16	3	6/21/2023
	A17	2	6/7/2022
	A17	3	6/21/2023
	A18	Original	2/1/2021
	A18	2	6/21/2023
	A19	Original	2/1/2021
	A20	Original	2/1/2021
	A21	3	6/21/23