Aviation Maintenance Technology
Mississippi Curriculum Framework

Program CIP: 47.0607 – Airframe Mechanics and Aircraft Maintenance Technology/Technician

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The Office of Curriculum and Instruction (OCI) was founded in 2013 under the Division of Workforce, Career, and Technical Education at the Mississippi Community College Board (MCCB). The office is funded through a partnership with The Mississippi Department of Education (MDE), who serves as Mississippi's fiscal agent for state and federal Career and Technical Education (CTE) Funds. The OCI is tasked with developing statewide CTE curriculum, programming, and professional development designed to meet the local and statewide economic demand.

For information, please contact curriculum@mccb.edu

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ADOPTION OF NATIONAL CERTIFICATION STANDARDS

The following national standards were adopted for the Aviation Maintenance Technology curriculum: The FAA 14 CFR, Part 147.

Background

The Federal Aviation Administration (FAA) aims to provide the safest and most efficient aerospace system in the world. They strive to reach higher levels of safety and efficiency to demonstrate global leadership into our aviation system.

The FAA is working with its federal and industry partners to develop a flexible aerospace system that fully responds to the changing needs of businesses and customers in the 21st century. The strength of the NextGen system depends on lower costs, improved service, greater capacity, and smarter security measures. As a result, the FAA has a vision that integrates achievements in safety, security, efficiency, and environmental compatibility.

Development of Standards

The CFR Part 147 Working Group was established in June 2007 to review the training curriculum and governance processes for aviation maintenance training schools approved by the Federal Aviation Administration. The working group developed a set of 11 recommendations for consideration by the Aviation Rule Executive Committee. FAA certificated Aviation Maintenance Technician Schools must offer a curriculum that addresses each of the subject areas described in 14 CFR, Part 147, Appendices B, C, and D. Each subject area must be taught to the level prescribed, and as defined in 14 CFR, Part 147, Appendix A. In addition, § 147.21(b) of Part 147 mandates the number of teaching hours devoted to each group of subject areas (General, Airframe, and Powerplant). These hours are: General—400, Airframe—750, Powerplant—750. A total of 1,900 hours is needed for a combined Airframe and Powerplant curriculum. In addition, the FAA has issued exemptions to AMTSs enabling schools to substitute experience required in § 65.77 for subject hours. Section 65.75(a) prescribes, in pertinent part, that applicants must pass a written test after meeting the experience requirements of § 65.77. Section 65.77 also requires applicants to complete training and present an appropriate graduation certificate or certificate of completion from a certificated AMTS before being eligible to take the written test for a certificate or rating.

For more information on the FAA certificated Aviation Maintenance Technician Schools, visit https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ECamtsT1-6122007.pdf

Federal Aviation Administration
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Washington, DC 20591
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INDUSTRY JOB PROJECTION DATA

The Aviation Maintenance Technology (CIP: 47.0607) require Postsecondary Career and Technical Award and Long-Term on-the-job training. There is expected to be 0.00% increase at the state level. Median annual income for this occupation is $41,107.04 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1: Education Level

Program Occupations	Education Level
Aircraft mechanics and service technicians	Postsecondary Career and Technical Award
Aircraft structure, surfaces, rigging, and systems assemblers	Long-Term on-the-job training

Table 2: Occupational Overview

	Region	State	United States
2018 Occupational Jobs	686	686	215,193
2028 Occupational Jobs	686	686	215,862
Total Change	0	0	669
Total % Change	0.00%	0.00%	0.31%
2018 Median Hourly Earnings	$19.76	$19.76	$29.44
2018 Median Annual Earnings	$41,107.04	$41,107.04	$61,227.86
Annual Openings	0	0	67

Table 3: Occupational Breakdown

Description	2018 Jobs	2028 Jobs	Annual Openings	2018 Hourly Earnings	2018 Annual Earnings 2,080 Work Hours
Aircraft mechanics and service technicians	607	607	0	$19.11	$39,748.80
Aircraft structure, surfaces, rigging, and systems assemblers	79	79	0	$25.64	$53,331.20

Table 4: Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
Aircraft mechanics and service technicians	0	0.00%	0.00%	5.33%
Aircraft structure, surfaces, rigging, and systems assemblers	0	0.00%	0.00%	-23.09%

ARTICULATION

There is no statewide articulation agreement. Local agreements and dual credit partnerships are encouraged.

TECHNICAL SKILLS ASSESSMENT

Students will be assessed using the Federal Aviation Regulations, Part 147, Aviation Maintenance Technician Tests (Airframe and Powerplant). Colleges should report the following for students who complete the program with a career certificate, technical certificate, or an Associate of Applied Science Degrees for technical skills attainment. To use the approved Alternate Assessment for the following programs of study, colleges should provide a Letter of Notification to the Director of Career Technical Education at the MS Community College Board. Please see the following link for further instructions: http://www.mccb.edu/wkfEdu/CTDefault.aspx.

CIP Code	**Program of Study**	
47.0607	Aviation Maintenance Technology	
Level	**Standard Assessment**	**Alternate Assessment**
Accelerated /15 Hour	N/A	N/A
Level	**Standard Assessment**	**Alternate Assessment**
Career	N/A	N/A
Level	**Standard Assessment**	**Alternate Assessment**
Technical/AAS	Aviation Maintenance Technician Test (Airframe and Powerplant)	N/A

ONLINE AND BLENDED LEARNING OPPORTUNITIES

Course content includes lecture and laboratory semester credit hours. Faculty members are encouraged to present lecture related content to students in an online or blended learning environment. Training related to online and blended learning will be available to faculty members through the MS Community College Board.

Online and blended training must be pre-approved by the Federal Aviation Administration (FAA).

Research Abstract

The curriculum framework in this document reflect changes in the workplace and a number of other factors that impact local vocational–technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

In the fall of 2020, the Office of Curriculum, Instruction, & Assessment met with different industry members who made up the advisory committees for the Aviation Maintenance Technology program. An industry questionnaire was used to gather feedback concerning the trends and needs, both current and future, of their field. Program faculty, administrators, and industry members were consulted regarding industry workforce needs and trends.

Revision History:

2010, Revised, Research and Curriculum Unit, Mississippi State University
2016, Revised, Office of Curriculum and Instruction, Mississippi Community College Board
2020, Revised, Office of Curriculum, Instruction & Assessment, Mississippi Community College Board

PROGRAM DESCRIPTION

Aviation Maintenance Technology (AMT) is a four-semester instructional program that prepares individuals to inspect, repair, service, and overhaul aircraft engine components and systems. This program is designed to introduce students to the rewarding profession of aviation maintenance while exposing them to the theories of operation for the various aircraft systems. This program also fully prepares students for the Federal Aviation Administration (FAA) exams necessary to obtain their Airframe and Powerplant (A&P) rating as an Aircraft Maintenance Technician. AMT students study a wide array of subjects, ranging from physics and aerodynamics to engine systems and aircraft structures. Students are introduced to, and become familiar with the mechanical, hydraulic, pneumatic, electrical, and structural elements of fixed-wing and rotary-wing aircraft. Instruction is provided in the classroom as well as in the hangar/shop. Students are given opportunities to learn while working on FAA certificated aircraft.

Successful completion of this program will result in the student receiving a Technical Certificate in Aviation Maintenance Technology. Students also have the option of obtaining an Associate of Applied Science (A.A.S.) degree by successfully completing a minimum of 15 academic hours in addition to, or in conjunction with, this program.

This program is designed to prepare the student for the Federal Aviation Administration exams for certification as an Aircraft Maintenance Technician.

Industry standards referenced are from the Federal Aviation Regulations, Part 147, Aviation Maintenance Technician Schools (Airframe and Powerplant).

PROGRAM OPTIONS
AVIATION MAINTENANCE TECHNOLOGY 2-year Certificate OPTION

After completion of the 2-year course of study, a student will receive a 2-year certificate in Aviation Maintenance.

ASSOCIATE OF APPLIED SCIENCE DEGREE OPTION

A student may receive the Associate of Applied Science Degree in Aviation Maintenance Technology by completion of the 2-year certificate program **and** 15 semester hours of academic electives including the following:

3 sch Math/Science
3 sch Written Communications
3 sch Oral Communications
3 sch Humanities/Fine Arts
3 sch Social/Behavioral Science

___
15 sch total

SUGGESTED COURSE SEQUENCE

Required Courses (Aviation Maintenance)

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Clock Hours	Lecture	Lab	Certification Name
APT 1113	Aviation Applied Science	3	42	57	99			
APT 1123	Aviation Electricity I	3	33	40	73			
APT 1134	Aviation Materials and Processes	4	45	65	110			
APT 1142	Aircraft Servicing and Weight and Balance	2	28	46	74			
APT 1153	Maintenance Forms and Regulations	3	27	41	68			
APT 1162	Reciprocating Engine Theory	2	37	0	37			
APT 1213	Reciprocating Engine Overhaul and Inspection	3	28	92	120			
APT 1222	Turbine Engine Theory	2	37	0	37			
APT 1233	Turbine Engine Overhaul and Inspection	3	28	92	120			
APT 1241	Powerplant Conformity and Airworthiness Inspection	1	14	18	32			
APT 1254	Lubrication and Fuel Metering Systems	4	55	68	123			
APT 1262	Induction, Cooling, and Exhaust Systems	2	27	52	79			
APT 2114	Aviation Electricity II	4	55	67	122			
APT 2123	Propellers and Powerplant Review	3	36	45	81			
APT 2135	Structures I	5	43	131	174			
APT 2143	Structures II	3	42	59	101			
APT 2212	Aircraft Controls	2	17	42	59			
APT 2222	Aviation Electricity III	2	28	41	69			
APT 2232	Hydraulic and Pneumatic Power Systems	2	18	42	60			
APT 2243	Landing Gear and Protection Systems	3	32	42	74			
APT 2251	Environment Control	1	14	24	38			
APT 2263	Aircraft Instrumentation Systems	3	42	42	84			
APT 2271	Aircraft Fuel Systems	1	18	18	36			
APT 2282	Airframe Inspection and Review	2	14	42	56			
	TOTAL	**63**	**760**	**1166**	**1926**			

General Education Core Courses

To receive the Associate of Applied Science degree, a student must complete all of the required coursework found in the Career Certificate option, Technical certificate option, and a minimum of 15 semester hours of General Education core. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester or provided primarily within the last semester. Each community college will specify the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science degree at their college. The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) Section 9 Standard 3 of the *Principles of Accreditation: Foundations for Quality Enhancement*[3] describes the general education core.

Section 9 Standard 3:

3. The institution requires the successful completion of a general education component at the undergraduate level that

   a) is based on a coherent rationale.

   b) is a substantial component of each undergraduate degree program. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours of the equivalent; for baccalaureate programs, a minimum of 30 semester hours or the equivalent.

   c) ensures breadth of knowledge. These credit hours include at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. These courses do not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession.

General Education Courses

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
	Humanities/Fine Arts	3						
	Social/Behavioral Sciences	3						
	Math/Science	3						
	Academic electives	6						
	TOTAL	**15**						

[3] Southern Association of Colleges and Schools Commission on Colleges. (2017). *The Principles of Accreditation: Foundations for Quality Enhancement*. Retrieved from http://www.sacscoc.org/2017ProposedPrinc/Proposed%20Principles%20Adopted%20by%20BOT.pdf

Approved Electives

			SCH Breakdown				Contact Hour Breakdown		
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Externship	Total Contact Hours	Lecture	Lab	Externship
SSP 100(2-3)	Smart Start 101	2-3							
APT 1171	Human Factors/General Troubleshooting and Inspection Principles	1	14	7		21			
APT 233(1-5)	Special Project for Aviation Maintenance Technology	1-5		2-10		30-150			
APT 234(1-6)	Supervised Work Experience for Aviation Maintenance Technology	1-6			3-18	45-270			
WBL 191(1-3) WBL 192(1-3) WBL 193(1-3) WBL 291(1-3) WBL 292(1-3) WBL 293(1-3)	Work-Based Learning	1-3			3-9	45-135			
IMM 1935	Manufacturing Skills Basic	3	3			45			
	All other electives approved by instructor per local community college policy								

Course Listing Aviation Maintenance Technology

			SCH Breakdown			Program Certifications
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	
APT 1113	Aviation Applied Science	3	42	57	99	
APT 1123	Aviation Electricity I	3	33	40	73	
APT 1134	Aviation Materials and Processes	4	45	65	110	
APT 1142	Aircraft Servicing and Weight and Balance	2	28	46	74	
APT 1153	Maintenance Forms and Regulations	3	27	41	68	
APT 1162	Reciprocating Engine Theory	2	37	0	37	
APT 1171	Human Factors/General Troubleshooting and Inspection Principles	1	14	7	21	
APT 1213	Reciprocating Engine Overhaul and Inspection	3	28	92	120	
APT 1222	Turbine Engine Theory	2	37	0	37	
APT 1233	Turbine Engine Overhaul and Inspection	3	28	92	120	
APT 1241	Powerplant Conformity Airworthiness Inspection	1	14	18	32	
APT 1254	Lubrication and Fuel Metering Systems	4	55	68	123	
APT 1262	Induction, Cooling, and Exhaust Systems	2	27	52	79	
APT 2114	Aviation Electricity II	4	55	67	122	
APT 2123	Propellers and Powerplant Review	3	36	45	81	
APT 2135	Structures I	5	43	131	174	
APT 2143	Structures II	3	42	59	101	
APT 2212	Aircraft Controls	2	17	42	59	
APT 2222	Aviation Electricity III	2	28	41	69	
APT 2232	Hydraulic and Pneumatic Power Systems	2	18	42	60	
APT 2243	Landing Gear and Protection Systems	3	32	42	74	
APT 2251	Environment Control	1	14	24	38	
APT 2263	Aircraft Instrumentation Systems	3	42	42	84	
APT 2271	Aircraft Fuel Systems	1	18	18	36	
APT 2282	Airframe Inspection and Review	2	14	42	56	
APT 233(1-5)	Special Project for Aviation Maintenance Technology	1-5		2-10	30-150	
APT 234(1-6)	Supervised Work Experience for Aviation Maintenance Technology	1-6			45-270	

COURSE DESCRIPTIONS

Course Number and Name: **APT 1113 Aviation Applied Science**

Description: General aviation maintenance practices including orientation to aviation, aircraft maintenance safety procedures, aviation mathematics, aviation physics, and aircraft drawings.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	42	57	99

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Identify and apply aviation maintenance safety procedures
   a. Identify school policies and regulations
   b. Apply aviation maintenance safety procedures
   c. Demonstrate procedures for safe handling, storage, and disposal of hazardous materials found in aviation maintenance

2. Perform aviation mathematics
   a. Extract roots, and raise numbers to a given power
   b. Determine areas and volumes of various geometrical shapes
   c. Perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers
   d. Solve ratio, proportion, and percentage problems

3. Apply aviation physics
   a. Use the principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight

4. Prepare and interpret aircraft drawings
   a. Use drawings, symbols, and schematic diagrams
   b. Draw sketches of repairs and alterations
   c. Use blueprint information
   d. Use graphs and charts

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1123 Aviation Electricity I**

Description: This course contain the theory and application of direct and alternating current distribution and utilization of voltage and practical application of Ohm's law.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	33	40	73

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Demonstrate procedures to measure electrical values, calculate Ohm's law, and apply these principles to alternating and direct current distribution
   a. Measure capacitance and inductance
   b. Calculate and measure electrical power
   c. Measure voltage, current, resistance, continuity, and leakage
   d. Determine the relationship of voltage, current, and resistance in electrical circuits
   e. Read and interpret electrical circuit diagrams
   f. Inspect and service batteries

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1134 Aviation Materials and Processes**

Description: This course contain the materials and processes used in the construction and repair of aircraft and components, fluid lines and fittings, and corrosion protection.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
4	45	65	110

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Identify materials and processes used in construction and repair of aircraft and components
   a. Identify and select appropriate nondestructive testing methods
   b. Perform dye penetrant, eddy current, ultrasonic, and magnetic particle inspections
   c. Perform basic heat-treating processes
   d. Identify and select aircraft hardware and materials
   e. Inspect and check welds
   f. Perform precision measurements

2. Maintain aircraft fluid lines and fittings
   a. Inspect and repair rigid and flexible fluid lines and fittings
   b. Fabricate and install rigid and flexible fluid lines and fittings

3. Perform procedures for aircraft cleaning and corrosion control
   a. Identify and select cleaning materials
   b. Inspect, identify, remove, and treat aircraft corrosion, and perform aircraft cleaning

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1142 Aircraft Servicing and Weight and Balance**

Description: This course includes the study and practice of aircraft ground operation and servicing and weight-and-balance checks and records.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	28	46	74

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Perform aircraft ground operation and servicing
   a. Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards
   b. Identify and select fuels

2. Perform aircraft weight and balance checks and record data
   a. Weigh aircraft
   b. Perform complete weight-and-balance check and record data

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1153 Maintenance Forms and Regulations**

Description: This course includes the maintenance publications, maintenance forms and records, and mechanic privileges and limitations.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	27	41	68

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Read and interpret aircraft maintenance publications
   a. Read, comprehend, and apply information contained in Federal Aviation Administration (FAA) and manufacturers' aircraft maintenance specifications, data sheets, manuals, publications, and related Federal Aviation Regulations (FAR) air worthiness directives and advisory material
   b. Read technical data

2. Read and interpret aircraft maintenance forms and records
   a. Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records
   b. Complete required maintenance forms, records, and inspection reports

3. Apply aircraft mechanic privileges and limitations
   a. Exercise mechanic privileges within the limitations prescribed by the FAR

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1162 Reciprocating Engine Theory**

Description: This course covers theory and principles of operation of reciprocating engines.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	37	0	37

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Explain the theory of reciprocating engine operation
   a. Identify the types of reciprocating engines
   b. Identify parts of air-cooled aircraft engines
   c. Describe different types of crankshafts and connecting rods
   d. Classify engine types by cylinder arrangements and methods of cooling
   e. Describe the different types of propeller reduction gearing
   f. Explain volumetric efficiency
   g. Interpret a valve timing chart
   h. Determine the firing order of a reciprocating engine
   i. Describe the four strokes and five events in the Otto cycle

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1171 Human Factors/General Troubleshooting and Inspection Principles**

Description: A study of the human factor element involved in aircraft maintenance and basic development of troubleshooting/inspection skills.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
1	14	7	21

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Identify the types human factors
2. Identify human factor effects
3. Participate in computer based training related to maintenance resources options and management
4. Determine proper troubleshooting procedures for mock exercise
5. Determine acceptable techniques and tools required for inspection of provided system
6. Prepare an aircraft/component for inspection
7. Interpret mock discrepancy items

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1213 Reciprocating Engine Overhaul and Inspection**

Description: This course includes the study of actual overhaul of reciprocating engines. Included is a study of the procedures and acceptable techniques used in engine disassembly, inspection, repair, and reassembly.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	28	92	120

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Overhaul and inspect reciprocating engines
   a. Describe the principles of inspection and repair of radial engines
   b. Overhaul reciprocating engine
   c. Inspect, check, service, and repair opposed and radial engines and reciprocating engine installations
   d. Install, troubleshoot, and remove reciprocating engines

Curriculum Standards

Title 14 CFR Part 147

Course Number and Name: **APT 1222 Turbine Engine Theory**

Description: This course includes theory of basic gas turbine engines and related accessories including unducted fan systems and turbine-driven auxiliary power units.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	37	0	37

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Explain theory of turbine engines, and maintain turbine engine fan systems and components
   a. Describe the design, construction, and performance of turbojet, turbofan, turboprop, and turbo shaft engines
   b. Inspect and troubleshoot unducted fan systems and components
   c. Inspect, check, service, and troubleshoot turbine-driven auxiliary power units

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1233 Turbine Engine Overhaul and Inspection**

Description: This course includes training in the overhaul of basic gas turbine engines and related accessories and components, including disassembly, inspection, assembly, and operation of jet engines.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	28	92	120

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Maintain aircraft turbine engine
   a. Overhaul turbine engine
   b. Inspect, check, service, and repair turbine engines and turbine engine installations
   c. Install, troubleshoot, and remove turbine engines

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1241 Powerplant Conformity and Airworthiness Inspection**

Description: This course includes the inspection of aircraft powerplant for conformity with airworthiness directives and manufacturer's specifications. Inspections will conform with all Federal Aviation regulations.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
1	14	18	32

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Perform powerplant conformity and airworthiness inspections
   a. Perform powerplant conformity and airworthiness inspections

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 1254 Lubrication and Fuel Metering Systems**

Description: This course includes aircraft lubrication, fuel metering, and fuel system components for reciprocating and turbine engines. Identification and selection of engine fuels and lubricants.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
4	55	68	123

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft lubrication systems
   a. Identify and select lubricants
   b. Repair engine lubrication system components
   c. Inspect, check, service, troubleshoot, and repair engine lubrication systems

2. Maintain aircraft fuel metering systems
   a. Troubleshoot and adjust turbine engine fuel metering systems and electronic fuel controls
   b. Overhaul carburetor
   c. Repair engine fuel metering system components
   d. Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems

3. Maintain aircraft engine fuel systems
   a. Repair engine fuel system components
   b. Inspect, check, service, troubleshoot, and repair engine fuel systems

Curriculum Standards

Title 14 CFR Part 147

Course Number and Name: **APT 1262 Induction, Cooling, and Exhaust Systems**

Description: This course includes reciprocating and turbine induction and engine airflow systems, engine cooling systems, and engine exhaust and reverser systems.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	27	52	79

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Perform maintenance on aircraft induction and engine airflow systems
   a. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems
   b. Inspect, check, service, troubleshoot, and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems
   c. Inspect, check, service, and repair carburetor air intake and induction manifolds

2. Perform maintenance on aircraft engine cooling systems
   a. Repair engine cooling system components
   b. Inspect, check, troubleshoot, service, and repair engine cooling systems

3. Perform maintenance on engine exhaust and reverser systems
   a. Repair engine exhaust system components
   b. Inspect, check, troubleshoot, service, and repair engine exhaust systems and related components
   c. Troubleshoot and repair engine thrust reverser systems and related components

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2114 Aviation Electricity II**

Description: This course includes aircraft engine systems including instrument, engine fire protection, engine electrical, ignition, and starting.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
4	55	67	122

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft engine instrument systems
   a. Troubleshoot, service, and repair electrical and mechanical fluid rate-of-flow indicating systems
   b. Inspect, check, service, troubleshoot, and repair electrical and mechanical engine temperature, pressure, and rpm indicating systems

2. Maintain aircraft engine fire protection systems
   a. Inspect, check, service, troubleshoot, and repair engine detection and extinguishing systems

3. Maintain aircraft engine electrical systems
   a. Repair engine electrical system components
   b. Install, check, and service engine electrical wiring, controls, switches, indicators, and protective devices

4. Maintain aircraft ignition and starting systems
   a. Overhaul magneto and ignition harness
   b. Inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components
   c. Inspect service, troubleshoot, and repair turbine engine electrical starting systems
   d. Inspect, check, service, troubleshoot, and repair turbine engine pneumatic starting systems

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2123 Propellers and Powerplant Review**

Description: This course includes inspection, service, and repair of fixed-pitch, constant-speed, and feathering propellers. Included are propeller governing systems, propeller synchronizing, and ice removal systems. Review of powerplant courses.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	36	45	81

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft propellers and propeller systems
   a. Inspect, check, and repair propeller synchronizing and ice control systems
   b. Identify and select propeller lubricants
   c. Balance propellers
   d. Repair propeller control system components
   e. Inspect, check, service, and repair fixed-pitch, constant-speed, and feathering propellers, and propeller governing systems
   f. Install, troubleshoot, and remove propellers
   g. Repair aluminum alloy propeller blades

2. Conduct review of all powerplant courses
   a. Review all powerplant courses

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2135 Structures I**

Description: This course includes sheet metal structures and welding processes as applied to aviation mechanics.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
5	43	131	174

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft sheet metal structures
   a. Inspect, check, service, and repair windows, doors, and interior furnishings
   b. Inspect and repair sheet metal structures
   c. Install conventional rivets
   d. Form, lay out, and bend sheet metal
   e. Select, install, and remove special fasteners for metallic, bonded, and composite structures

2. Perform aircraft welding
   a. Weld magnesium and titanium
   b. Solder stainless steel
   c. Fabricate tubular structures
   d. Solder, braze, gas weld, and arc weld steel
   e. Weld aluminum and stainless steel

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2143 Structures II**

Description: This course includes aircraft wood and non-metallic structures, covering, and finishes.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	42	59	101

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft wood structures
   a. Service and repair wood structures
   b. Identify wood defects
   c. Inspect wood structures

2. Maintain aircraft covering.
   a. Select and apply fabric and fiberglass covering materials.
   b. Inspect, test, and repair fabric and fiberglass.

3. Maintain aircraft non-metallic structures.
   a. Inspect bonded structures
   b. Inspect, test, and repair fiberglass, plastics, honeycomb, composite, and laminated primary and secondary structures

4. Maintain aircraft finishes
   a. Apply trim, letters, and touch-up paint
   b. Identify and select aircraft finishing materials
   c. Apply finishing materials
   d. Inspect finishes, and identify defects

Curriculum Standards

Title 14 CFR Part 147

Course Number and Name: **APT 2212 Aircraft Controls**

Description: This course includes aircraft rigging and assembly.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	17	42	59

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Perform procedures to rig and assemble aircraft
   a. Rig rotary-wing aircraft
   b. Rig fixed-wing aircraft
   c. Assemble aircraft
   d. Assemble aircraft components, including flight control surfaces
   e. Balance, rig, and inspect movable primary and secondary flight control surfaces
   f. Jack aircraft

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2222 Aviation Electricity III**

Description: This course includes airframe electrical systems and components including wiring, switches, and controls.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	28	41	69

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft electrical system components
   a. Repair and inspect aircraft electrical system components, crimp and splice wiring to manufacturer's specifications, and repair pins and sockets of aircraft wiring connectors
   b. Install, check, and service airframe electrical wiring controls, switches, indicators, and protective devices
   c. Inspect, check, troubleshoot, service, and repair alternating and direct current electrical systems
   d. Inspect, check, troubleshoot, and service constant speed and integrated speed drive generators

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2232 Hydraulic and Pneumatic Power Systems**

Description: This course includes aircraft hydraulic and pneumatic systems and components.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	18	42	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Perform maintenance and repair of hydraulic and pneumatic power systems
   a. Repair hydraulic and pneumatic power systems components
   b. Identify and select hydraulic fluids
   c. Inspect, check, service, troubleshoot, and repair hydraulic and pneumatic power systems

Curriculum Standards

Title 14 CFR Part 147

Course Number and Name: **APT 2243 Landing Gear and Protection Systems**

Description: This course includes aircraft landing gear systems, position and warning systems, and ice and rain control systems.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	32	42	74

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft landing gear systems
   a. Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems

2. Maintain aircraft position and warning systems
   a. Inspect, check, and service speed and configuration warning systems, electrical brake controls, and anti-skid systems
   b. Inspect, check, troubleshoot, service, and repair landing gear position indicating and warning systems

3. Maintain ice and rain control systems
   a. Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2251 Environmental Control**

Description: This course includes information about inspecting, troubleshooting, and servicing environmental control systems and cabin atmosphere control systems.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
1	14	24	38

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Perform procedures to maintain aircraft environmental control systems
   a. Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, pressurization systems, and air cycle machines
   b. Inspect, check, troubleshoot, service, and repair oxygen systems

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2263 Aircraft Instrumentation Systems**

Description: This course includes information on aircraft instrument systems, communications and navigation systems, and aircraft fire protection systems.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
3	42	42	84

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Maintain aircraft instrument systems
   a. Inspect, check, service, troubleshoot, and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, time, temperature, pressure, and position indicating systems to include use of built-in test equipment
   b. Install instruments, and perform a static pressure system leak test

2. Maintain aircraft communications and navigation systems
   a. Inspect, check, and troubleshoot autopilot, servos, and approach coupling systems
   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
   c. Inspect and repair antenna and electronic equipment installations

3. Maintain aircraft fire protection systems
   a. Inspect, check, service, and troubleshoot smoke and carbon monoxide detection systems
   b. Inspect, check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2271 Aircraft Fuel Systems**

Description: This course includes information on construction, inspection, and maintenance of various fuel systems and components including tanks, pumps, strainers, tubing, and hoses.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
1	18	18	36

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Perform procedures for construction, inspection, and maintenance of aviation fuel systems
   a. Check and service fuel dump systems
   b. Perform fuel management, transfer, and defueling
   c. Inspect, check, and repair pressure fueling systems
   d. Repair aircraft fuel system components
   e. Inspect and repair fluid quantity indicating systems
   f. Troubleshoot, service, and repair fluid pressure and temperature warning systems
   g. Inspect, check, service, troubleshoot, and repair aircraft fuel systems

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 2282 Airframe Inspection and Review**

Description: This course includes airframe conformity and air worthiness inspections and maintenance procedures. Review of all airframe courses.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Clock Hours
2	14	42	56

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Perform airframe conformity and airworthiness inspection and maintenance procedures
   a. Perform airframe conformity and airworthiness inspections
   b. Review airframe systems inspection and maintenance procedures

2. Conduct airframe review
   a. Review all courses related to airframe systems

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **APT 233(1-5) Special Project for Aviation Maintenance Technology**

Description: This course includes practical application of skills and knowledge gained in other aviation or aviation-related technical courses. The instructor works closely with the student to ensure that the selection of a project will enhance the student's learning experience.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
1	0	2	30
2	0	4	60
3	0	6	90
4	0	8	120
5	0	10	150

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Develop a written plan that details the activities and projects to be completed
   a. Utilize a written plan that details the activities and projects to be completed
   b. Perform written occupational objectives in the special project

2. Assess accomplishment of objectives
   a. Prepare daily written assessment of accomplishment of objectives
   b. Present weekly written reports of activities performed and objectives accomplished to the instructor

3. Utilize a set of written guidelines for the special project
   a. Develop and follow a set of written guidelines for the special project

Curriculum Standards

Title 14 CFR Part 147

Course Number and Name: **APT 234(1-6) Supervised Work Experience for Aviation Maintenance Technology**

Description: This cooperative program between industry and education is designed to integrate the student's technical studies with industrial experience. Variable credit is awarded on the basis of 1 semester hour per 45 industrial contact hours.

Hour Breakdown:

Semester Credit Hours	Lecture	Externship	Contact Hours
1	0	3	45
2	0	6	90
3	0	9	135
4	0	12	180
5	0	15	225
6	0	18	270

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Apply technical skills needed to be a viable member of the workforce
   a. Prepare a description of technical skills to be developed in the supervised work experience program
   b. Develop technical skills needed to be a viable member of the workforce

2. Apply skills developed in other program area courses
   a. Perform skills developed in other program area courses in the supervised work experience program

3. Apply human relationship skills
   a. Practice human relationship skills in the supervised work experience program

4. Apply and practice positive work habits and responsibilities
   a. Perform assignments to develop positive work habits and responsibilities

5. Work with the instructor and employer to develop written occupational objectives to be accomplished
   a. Perform written occupational objectives in the supervised occupational experience program

6. Assess accomplishment of objectives
   a. Prepare daily written assessment of accomplishment of objectives
   b. Present weekly written reports of activities performed and objectives accomplished to the instructor

7. Utilize a set of written guidelines for the supervised work experience
   a. Develop and follow a set of written guidelines for the supervised work experience

Curriculum Standards
Title 14 CFR Part 147

Course Number and Name: **WBL 191(1-3), WBL 192(1-3), WBL 193(1-3), WBL 291(1-3), WBL 292(1-3), and WBL 293(1-3)** **Work-Based Learning I, II, III, IV, V, and VI**

Description: A structured work-site learning experience in which the student, program area teacher, Work-Based Learning Coordinator, and worksite supervisor/mentor develop and implement an educational training agreement. Designed to integrate the student's academic and technical skills into a work environment. Includes regular meetings and seminars with school personnel for supplemental instruction and progress reviews. (1-3 sch: 3-9 hours externship)

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Apply technical skills and related academic knowledge needed to be a viable member of the workforce
   a. Apply technical skills needed to be a viable member of the workforce
   b. Apply skills developed in other related courses in a work-based setting
   c. Perform tasks detailed in an educational training agreement at the work setting

2. Apply general workplace skills to include positive work habits and responsibilities necessary for successful employment
   a. Demonstrate pro-active human relationship skills in the work setting to include conflict resolution, team participation, leadership, negotiation, and customer/client service
   b. Demonstrate time, materials, and resource management skills
   c. Demonstrate critical thinking skills such as problem solving, decision making, and reasoning
   d. Demonstrate acquiring, evaluating, organizing, maintaining, interpreting, and communicating information
   e. Demonstrate positive work habits and acceptance of responsibilities necessary for successful employment

APPENDIX A: RECOMMENDED TOOLS AND EQUIPMENT

CAPITALIZED ITEMS

1. Auxiliary power unit
2. Booth, spray, with accessories
3. Borescope, aircraft engine
4. Brake, bench, universal box, and pan
5. Brake, sheet metal
6. Cabinet, abrasive dry blast
7. Cabinet, flammable storage
8. Cabinet, sanitary, with safety glasses
9. Cabinet, tool
10. Caliper, vernier, dial, and manual (7)
11. Carburetor (15)
12. Carburetor cut away
13. Cart, recovery/recycle air-conditioning service
14. Charger, aircraft battery
15. Charger/analyzer, aircraft battery
16. Cleaner, steam, portable
17. Compressor, portable, with spray painter
18. Computer, with CD/DVD capability (10)
19. Cylinder heating unit
20. Dial indicator set
21. Disc brake trainer, with wheel
22. Drill, air, angle, 1/4-in.
23. Drill, air, right angle (15)
24. Drill press, 3/4-in., floor
25. Electrical system cut away
26. Engine, aircraft, opposed
27. Engine, aircraft, radial
28. Engine, aircraft, jet
29. Fuel control
30. Fuel flow bench
31. Growler, armature
32. Gun, huck, 3/16-in. rivet (10)
33. Gun, huck, 1/4-in. rivet (10)C
34. Hydraulic mule (variable pressure)
35. Hoist, aircraft (straddler type)
36. Hone, cylinder, set
37. Hydraulic system cut away
38. Insert, valve seat
39. Instrument systems cut away
40. Jack, aircraft, set
41. Kit, hose, fabrication
42. Kit, system charge test
43. Landing gear components cut away
44. Lathe, aircraft armature
45. Lathe, with accessories
46. Leak detector
47. Machine, magnaflux
48. Machine, valve grinding

49. Magneto (20)
50. Magneto cut away
51. Micrometer, set (4)
52. Micrometer, inside and outside, set (4)
53. Micrometer, depth, set (4)
54. Operational twin engine complex aircraft
55. Plane, full system/operational single engine
56. Plasma arc cutter with accessories
57. Plate, surface
58. Power plant accessories cut away
59. Press, arbor
60. Protractor, propeller
61. Propeller balancer
62. Propeller, constant speed
63. Propeller, fixed pitch
64. Propeller, ground adjustable
65. Propeller, hydramatic
66. Propeller stand
67. Pump, strut
68. PT6 hot section kit
69. Refrigerant, reclaiming, and servicing unit
70. Roll forming machine, metal
71. Sander, belt and disc
72. Saw, band
73. Saw, horizontal metal cutoff
74. Saw, reciprocating
75. Scale, aircraft weighing, set
76. Shear, air powered
77. Shear, squaring, 3-ft
78. Shear, squaring, 4-ft
79. Spark plug cleaner, tester and gap setter
80. Stand, engine test (operational)
81. Stand, magneto test
82. Stretcher/shrinker, metal
83. Supercharger cut away
84. Technical library, light aircraft
85. Tester, air speed
86. Test kit, exhaust gas, digital
87. Tester, cylinder, compression, differential (6)
88. Test stand, aircraft generator
89. Tester kit, cylinder head temperature system
90. Test unit, inductance and capacitance
91. Test unit, eddy current
92. Test unit, ultrasonic
93. Tester and cleaner, spark plug
94. Tester, static pressure system
95. Tester, torque wrench
96. Tester, valve spring
97. Tool box, aviation specialty tools
98. Tool, huck rivet puller
99. Tool, tube beading, set
100. Tractor, tug
101. Trainer, operational maintenance run stand, turbine engine

102. Trainer, operational maintenance run stand, reciprocating engine
103. Trainer, jet engine removal, installation, and rigging
104. Tube, flaring, kit (7)
105. Tube, bender, set
106. Turbocharger
107. Unit, ground power, portable
108. Washer, parts
109. Welder, electric arc with accessories
110. Welder, Metal Inert Gas (MIG) with accessories
111. Welder, Tungsten Inert Gas (TIG) with accessories
112. Welding and cutting unit, oxy-fuel with accessories (10)

Other equipment items can be added when deemed appropriate by the community college industry craft committee or by industry/business training requirements

NON-CAPITALIZED ITEMS

1. Balancer, aircraft wheel
2. Bench, work (20)
3. Bucking bars, rivet (20)
4. Brake rivet tools, set
5. Cabinet, file (4)
6. Cabinet, storage (10)
7. Cabinet, shelves, storage (5)
8. Cleaner, vacuum, wet/dry
9. Compressor, air
10. Cylinder wrench, set, Lycoming, and continental
11. Dies and block, set
12. Disc, engine timing
13. Drill, air, 3/8-in. (20)
14. Drill attachment
15. Drill, cordless 3/8-in. drive
16. Drill, air, 1/4-in. (20)
17. Drill, bit sets
18. First aid kit
19. Flange, propeller mounting
20. First aid, eye wash station
21. Gauge, hole, set (4)
22. Gauge, telescoping, set (6)
23. Gear, puller
24. Grinder, bench
25. Grinder, die
26. Grinder, pedestal
27. Gun, grease
28. Gun, paint spray
29. Gun, solid rivet (20)
30. Gun, rivet cherry (10)
31. Hydrometer, battery (5)
32. Hoist, chain, 2 ton
33. Hose, air, 50 ft (20)
34. Hose, air, 25 ft (20)
35. Kit, ignition parts
36. Kit, helicoil, set

37. Kit, tire inflation
38. Machine, crimp/bead
39. Metal holder and pliers (20)
40. Magneto timing lights (10)
41. Meter, digital, volt/ohm (10)
42. Meter, volt/ohm (10)
43. Microshaver, rivet
44. Nicropress tool set
45. Nibbler, air powered
46. Nibbler, hand held
47. Printer, with accessories (4)
48. Ratchet, air, 3/8-in.
49. Rivet, cutters (5)
50. Rivet, straight and angled, set (50)
51. Remover set, valve guide
52. Ring compressor, piston, set
53. Router
54. Sander, air
55. Screw, extractor, set
56. Squeeze, small C (wire fittings)
57. Stools (25)
58. Tachometer tester, strobe type
59. Tap and die, set
60. Tire bead breaker
61. Tensiometer
62. Tester, fabric, maule
63. Tester, high tension lead
64. Tester, valve lifter
65. Tool, bearing puller, set
66. Tool, air-conditioning service manifold
67. Tool, rivnut set
68. Tool, swaging (5)
69. Tool, torque wrench, set
70. Tool, valve guide remover, set
71. Tools, composite, set (10)
72. Towbar, aircraft
73. Torque wrench (10)
74. Tube, cutters
75. V-Block, runout set
76. Valve spring compressor
77. Vise, bench (10)

Other equipment items can be added when deemed appropriate by the community college industry craft committee or by industry/business training requirements

RECOMMENDED INSTRUCTIONAL AIDS

It is recommended that instructors have access to the following items:

1. VCR/DVD player (1 per program)
2. TV, color monitor, 25-in. diameter (1 per program)

3. Screen, projection (1 per program)
4. Data projector (1 per program)
5. Printer
6. Screen projector
7. TV-VCR/CD/DVD
8. Video out (microcomputer to TV monitor)
9. Video projector
10. Videotapes, systems, and procedures (80)

APPENDIX B: CURRICULUM DEFINITION AND TERMS

- Course Name – A common name that will be used by all community colleges in reporting students

- Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students

- Classification – Courses may be classified as the following:
    - Career Certificate Required Course – A required course for all students completing a career certificate.
    - Technical Certificate Required Course – A required course for all students completing a technical certificate.
    - Technical Elective – Elective courses that are available for colleges to offer to students.

- Description – A short narrative that includes the major purpose(s) of the course

- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course

- Corequisites – A listing of courses that may be taken while enrolled in the course

- Student Learning Outcomes – A listing of the student outcomes (major concepts and performances) that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:
    - Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
    - Activities that develop a higher level of mastery on the existing competencies and suggested objectives
    - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
    - Activities that include integration of academic and career–technical skills and course work, school-to-work transition activities, and articulation of secondary and postsecondary career–technical programs
    - Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas

- Sequencing of the course within a program is left to the discretion of the local college. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors. Programs that offer an Associate of Applied Science Degree must include all of the required Career Certificate courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college.

- In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

    - Adding new student learning outcomes to complement the existing competencies and suggested objectives in the program framework
    - Revising or extending the student learning outcomes
    - Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the Mississippi Community College Board [MCCB] of the change)

APPENDIX C: COURSE CROSSWALK

Course Crosswalk Aviation Maintenance Technology CIP: 47.0607-Aviation Maintenance Technology					
Note: Courses that have been added or changed in the 2020 curriculum are highlighted.					
Existing			Revised		
2016 MS Curriculum Framework			2020 MS Curriculum Framework		
Course Number	**Course Title**	**Hours**	**Course Number**	**Course Title**	**Hours**
APT 1113	Aviation Applied Science	3	APT 1113	Aviation Applied Science	3
APT 1123	Aviation Electricity	3	APT 1123	Aviation Electricity I	3
APT 1134	Aviation Materials and Process	4	APT 1134	Aviation Materials and Processes	4
APT 1142	Aircraft Servicing and Weight Balance	2	APT 1142	Aircraft Servicing and Weight and Balance	2
APT 1153	Maintenance Forms and Records	3	APT 1153	Maintenance Forms and Regulations	3
APT 1162	Reciprocating Engine Theory	2	APT 1162	Reciprocating Engine Theory	2
	APT 1171 was not included in the 2016 document		APT 1171	Human Factors/General Troubleshooting and Inspection Principles	1
APT 1213	Reciprocating Engine Overhaul and Inspection	3	APT 1213	Reciprocating Engine Overhaul and Inspection	3
APT 1222	Turbine Engine Theory	2	APT 1222	Turbine Engine Theory	2
APT 1233	Turbine Engine Overhaul and Inspection	3	APT 1233	Turbine Engine Overhaul and Inspection	3
APT 1241	Power Plant Conformity and Airworthiness Inspection	1	APT 1241	Powerplant Conformity Airworthiness Inspection	1
APT 1254	Lubrication and Fuel Metering Systems	4	APT 1254	Lubrication and Fuel Metering Systems	4
APT 1262	Induction, Cooling, and Exhaust Systems	2	APT 1262	Induction, Cooling, and Exhaust Systems	2
APT 2114	Aviation Electricity II	4	APT 2114	Aviation Electricity II	4
APT 2123	Propellers and Power Plant Review	3	APT 2123	Propellers and Powerplant Review	3
APT 2135	Structures I	5	APT 2135	Structures I	5
APT 2143	Structures II	3	APT 2143	Structures II	3
APT 2212	Aircraft Controls	2	APT 2212	Aircraft Controls	2
APT 2222	Aviation Electricity III	2	APT 2222	Aviation Electricity III	2
APT 2232	Hydraulic and Pneumatic Power Systems	2	APT 2232	Hydraulic and Pneumatic Power Systems	2
APT 2243	Landing Gear and Protection Systems	3	APT 2243	Landing Gear and Protection Systems	3
APT 2251	Environmental Control	1	APT 2251	Environmental Control	1
APT 2263	Aircraft Instrumentation Systems	3	APT 2263	Aircraft Instrumentation Systems	3
APT 2271	Aircraft Fuel Systems	1	APT 2271	Aircraft Fuel Systems	1
APT 2282	Airframe Inspection and Review	2	APT 2282	Airframe Inspection and Review	2
APT 233(1-5)	Special Project for Aviation Maintenance Technology	1-5	APT 233(1-5)	Special Project for Aviation Maintenance Technology	1-5
APT 234(1-6)	Supervised Work Experience for Aviation Maintenance Technology	1-6	APT 234(1-6)	Supervised Work Experience for Aviation Maintenance Technology	1-6

APPENDIX D: RECOMMENDED TEXTBOOK LIST

Recommended Text Book List CIP: 47.0607-Aviation Maintenance Technology		
Book Title	**Author (s)**	**ISBN**
ASA AMT Series	Crane	978-1-61954-519-9
Fast Track Test Guide	Crane	978-1-61954-977-7
FAR/AMT	FAA	978-1-61954-960-9
AC 43.13-1B/2B	FAA	978-1-61954-021-7
Aviation Mechanic Handbook	Crane	978-1-61954-494-9
Dictionary of Aeronautical Terms	Crane	978-1-61954-577-9
ASA AMT Series	Crane	978-1-61954-649-3
Fast Track Test Guide	Crane	978-1-61954-981-4
ASA AMT Series	Crane	978-1-61954-069-9
Fast Track Test Guide	Crane	978-1-61954-979-1
ASA AMT Series	Crane	978-1-61954-070-5