

# Aviation Maintenance Technology: Scope & Sequence

## Year 1, Semester 1

AV101-Aviation Technologies General Curriculum  
(432 hours)

### District Pre-Assessment

#### Unit 1 (216 Hours, Class: 102 Hrs. & Lab: 114 Hrs.)

- Human Factors: Human Factors impact in aviation maintenance.
- Drawings: Aircraft blueprints, drawings, symbols, graphs, and system schematics
- Math: Area, volume, ratio, proportion, algebra, and percentage problems.
- Weight/Balance: Weigh aircraft, compute and record data
- Basic Electricity: Capacitance, inductance, voltage, current, resistance, and continuity

CTSO Integration (Leadership Skills): Officer Elections,

Professional Skills: 4.A-F, 7.A-C, 8.A-I

Academic Standards: 5.NF.B3, 5.NF.B.6, 5.NF.B7, 6.RP.A.3, 6.EE.A.2, 7.EE.B.3, 7.RP.A.3, HS+Phy.P4U1.8

Work-based Learning: Guest Speaker (Jobs in aviation)

ADE Technical Standards: 1.1-4, 2.1-3, 3.1-2

FAA Technical Standards: General: 1, 2, 3, 8, 12

#### Unit 2 (216 Hours, Class: 99 Hrs. & Lab: 117 Hrs.)

- Regulations, Maintenance forms, records, Publications and Mechanic Privileges per FAA part 65
- Materials & Processes: identify and select aircraft hardware and materials.
- Physics: Principles of simple machines, gas, fluid, heat, aerodynamics; and theory of flight
- Cleaning/Corrosion: Inspect, identify, remove, and treat aircraft corrosion and perform aircraft cleaning
- Fluid Lines/Fittings: Fabricate and install rigid and flexible fluid lines and fittings
- Ground Ops/Service: Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards
- Inspection Concepts and Techniques: precision measurements

Certification: FAA- General exam

CTSO Integration (Leadership Skills): SkillsUSA Fall Leadership Conferences, Bi-Monthly Officer Meetings, Monthly General Meetings.

Professional Skills: 3.A-E, 6.A-C, 9.A-C

Academic Standards: ELA.11-12.RI.10, ELA.11-12.L.4, ELA.11-12.SL.4, ELA.11-12.RI.7, HS.P2U1.5, HS.P3U2.7, HS.P3U1.6, HS+Phy.P4U1.8

Work-based Learning: Mock Interview, Resumes. Simulated lab experience (fluid lines and fittings)

ADE Technical Standards: 4.1-2, 5.1-3, 6.1-4, 7.1-4, 8.1-2, 9.1-4, 11.1, 12.1

FAA Technical Standards: General: 4, 5, 6, 7, 9, 10, 11

## Year 1, Semester 2

AV102-Aviation Airframe Systems I  
AV103 - Aviation Airframe Systems Summer  
(516 Hours)

#### Unit 1 (258 Hours, Class: 80 Hrs. & Lab: 178 Hrs.)

- Non-Metallic Structures: Inspect, service, and repair wood structures. Composites, wet layups
- Metallic Structures: Layout, cut, bend, sheet metal, Rivets, fasteners, composites, Interiors, windows, doors
- Fuel Systems: Inspect, service, and repair aircraft fuel systems and components
- Ice/Rain Protection: Inspect, service and repair aircraft ice and rain systems

CTSO Integration (Leadership Skills): SkillsUSA State Conference, Bi-Monthly Officer Meetings, Monthly General Meetings.

Professional Skills: 1.A-D, 2.A-C,

Academic Standards: ELA.11-12.L.4, ELA.11-12.SL.4, ELA.11-12.RI.7, ELA.11-12.RI.2

Work-based Learning: Simulated Lab experience (industry competition)

FAA Technical Standard: Airframe - 13, 14, 22, 24

#### Unit 2 (258 Hours, Class: 80 Hr. & Lab: 178 Hr.)

- Fire Protection: Inspect, service, and repair aircraft fire detection and extinguishing systems
- Landing Gear: Inspect, service, and repair aircraft landing gear systems
- Hydraulics/Pneumatics: Inspect, service, and repair aircraft hydraulic and pneumatic systems
- Aircraft Electrical: Inspect, service, and repair aircraft electrical systems

CTSO Integration (Leadership Skills): SkillsUSA National Conference, Bi-monthly officer meetings, monthly general meetings.

Professional Skills: 5.A-E

Academic Standards: ELA.11-12.L.4, ELA.11-12.SL.4, ELA.11-12.RI.7, ELA.11-12.RI.2, HS+Phy.P4U1.8

Work-based Learning: Simulated lab experience (Sheet metal), Landing gear. Mock interviews, resume update

FAA Technical Standard: Airframe - 17, 18, 23, 25

### ADE Technical Skills Assessment Test District Post Assessment

## Year 2, Semester 1

AV201 Aviation Airframe Systems II  
(252 Hours)

### Unit 1 (126 Hours, Class: 50 Hrs. & Lab: 76 Hrs.)

- Flight Controls: Inspect, assemble, and rig aircraft systems and components
- Aircraft Instrument/ Communications and Navigation: Inspect, service repair, and troubleshoot aircraft instrument systems and components. Inspect and service aircraft communication/navigation systems
- Rotorcraft Fundamentals: flight control assembly and rigging for a rotary aircraft

CTSO Integration (Leadership Skills): Officer Elections, CTSS Officer Training, Fall Leadership Conference, Bi-Monthly Officer Meetings, Monthly General Meetings.

Professional Skills: 1.A - 1.D, 2.A - 2.D

Academic Standards: ELA.11-12.L.4, ELA.11-12.SL.4, ELA.11-12.RI.7, ELA.11-12.RI.2, HS.P3U2.7, HS.P3U1.6

Work-Based Learning experiences through field trips to aviation related events, guest speakers, opportunities for volunteering in aircraft restoration activities and related activities

FAA Technical Standard: Airframe - 15, 20, 21, 26

### Unit 2 (126 Hours, Class: 50 Hrs. & Lab: 76 Hrs.)

- Airframe Inspection: Perform airframe conformity and airworthiness inspections
- Environmental Systems/ Water and waste systems: Oxygen systems, pressurization systems, and heaters

Certification: FAA Airframe exam

CTSO Integration (Leadership Skills): Officer Elections, CTSS Officer Training, Fall Leadership Conference, Bi-Monthly Officer Meetings, Monthly General Meetings.

Professional Skills: 1.A - 1.D, 2.A - 2.D

Academic Standards: ELA.11-12.L.4., ELA.11-12.SL.4, ELA.11-12.RI.7, ELA.11-12.RI.2

Work-Based Learning; Simulated lab experience (100 hour inspection)

FAA Technical Standard: Airframe - 16, 19, 27

## Year 2, Semester 2

AV202 – Aviation Powerplant  
AV203 - Aviation Powerplant Summer  
(696 Hours)

### Unit 1 (348 Hours, Class: 112 Hrs. & Lab: 236 Hrs.)

- Turbine Engines: Inspect, service repair, and troubleshoot of aircraft turbine engines
- Ignition & Starting: Inspect, Service Repair, and troubleshoot of ignition and starting systems
- Engine Fuel Systems: Inspect, Service Repair and Troubleshoot Engine Fuel Systems
- Engine Inspection: engine requirements and configuration
- Propellers: Inspect, Service Repair and Troubleshoot Propeller Systems

CTSO Integration (Leadership Skills): Bi-Monthly Officer Meetings, Monthly General Meetings State SkillsUSA competition, & SkillsUSA National Conference

Professional Skills: 1.A - 1.D, 2.A - 2.D

Academic Standards: ELA.11-12.L.4, ELA.11-12.SL.4, ELA.11-12.RI.7, ELA.11-12.RI.2, 5.NF.B3, 5NF.B.6, 5.NF.B7, 6.RP.A.3, 6.EE.A.2, 7.EE.B.3, 7.RP.A.3

Work-Based Learning: Simulated lab experience (Engine overhaul)

FAA Technical Standard: Powerplant: 29, 30, 35, 36, 38, 40

### Unit 2 (348 Hours, Class: 94 Hrs. & Lab: 254 Hrs.)

- Reciprocating Engines: Inspect, Service Repair, overhaul and troubleshoot of reciprocating engines
- Engine Fire Protection: Inspect, service repair, and troubleshoot engine fire protection systems
- Engine Electrical: Inspect, Service Repair, and Troubleshoot Engine Electrical Systems
- Engine Induction and Cooling systems: Inspect, Service Repair and Troubleshoot Induction Systems and Cooling systems
- Engine Exhaust and Reverser Systems: Inspect, Service Repair and Troubleshoot of Engine Exhaust and Reverser Systems
- Lubrication Systems: Inspect, Service Repair and Troubleshoot Engine Lubrication Systems
- Engine Instrument Systems: Inspect, service repair, and troubleshoot engine instrument systems

Certification: FFA - Powerplant exam

CTSO Integration (Leadership Skills): Bi-Monthly Officer Meetings, Monthly General Meetings.

State SkillsUSA competition, Preparation for SkillsUSA National Conference

Professional Skills: 1.A - 1.D, 2.A - 2.D, 3.A-3.E, 4.A - 4.F (Skills USA State), 5.A-5.E,

Academic Standards: ELA.11-12.L.4, ELA.11-12.SL.4, ELA.11-12.RI.7, ELA.11-12.RI.2, 5.NF.B3, 5NF.B.6, 5.NF.B7,

6.RP.A.3, 6.EE.A.2, 7.EE.B.3, 7.RP.A.3, HS.P3U2.7, HS.P3U1.6,  
HS+Phy.P4U1.8

Work-Based Learning; Field trip (Airline Shop tour, Simulated  
lab experience (100 hour inspection) Simulated lab  
experience (Engine overhaul). Mock interviews, Resume  
update

FAA Technical Standard: Powerplant - 31, 32, 33, 34, 37, 39

### **District Post-Assessment**

Arizona Department of Education (ADE)  
Common AZCCR Math Standards (CAMS)  
English Language Art Standards (ELAS)  
Federal Aviation Administration (FAA)