

Aviation Maintenance Technology: Scope & Sequence

Year 1, Semester 1

AV101-Aviation Technologies General Curriculum
(416 hours)

District Pre-Assessment

Unit 1 (208 Hours)

- 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, Bi-Monthly Officer Meetings, Monthly General Meetings.

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

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

Technical Standard: 2.1, 2.2, 2.3, 3.1, 3.2, 1.1-1.4

Unit 2 (208 Hours)

- Pubs, Forms, Records: Maintenance forms, records, and inspection reports
- Mechanic Privileges: Mechanic privileges per FAA part 65
- Materials & Processes: Perform precision measurements, Nondestructive testing methods
- 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/Servicing: Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards

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, ELA.11-12.RI.2, 5.NF.B3, 5.NF.B.6, 5.NF.B.7, 6.RP.A.3, 6.EE.A.2, 7.EE.B.3, 7.RP.A.3, 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)

Technical Standards: 8.1, 8.2, 12.1, 11.1, 5.1, 5.2, 5.3, 9.1 - 9.4, 7.1 - 7.4, 4.1, 4.2, 6.1 - 6.4

ADE Technical Skills Assessment Test

Year 1, Semester 2

AV102-Aviation Airframe Systems I

AV103 - Aviation Airframe Systems Summer
(564 Hours)

Unit 1 (282 Hours)

- Wood Structures: Inspect, service, and repair wood structures
- Aircraft Coverings: Inspect, service, and repair fabric and fiberglass covering materials
- Aircraft Finishes: Inspect, maintain, and apply finishing materials
- Sheet Metal/Structures: Layout, cut, bend, sheet metal, Rivets, fasteners, composites, Interiors, windows, doors
- Communication/Navigation: Inspect and service aircraft communication/navigation systems
- Fuel Systems: Inspect, service, and repair aircraft fuel systems and components
- Ice/Rain Protection: Inspect, service and repair aircraft ice and rain systems
- Fire Protection: Inspect, service, and repair aircraft fire detection and extinguishing 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)

Technical Standard: A.1, A.2, A.3, B.4, B.5, C.6 - C.9, D.10 - D.16, E.39, E.40, F.41 - F.47, I.53, I.54, I.55

Unit 2 (282 Hours)

- Welding: Weld, solder, and braze materials using gas/arc welding methods
- 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
Technical Standard: E.17 - E.21, H.51, H.52, B.30, B.31, B.32, G.48, G.49, G.50

District Post Assessment

Year 2, Semester 1

AV201 Aviation Airframe Systems II
(204 Hours)

Unit 1 (102 Hours)

- Assembly & Rigging: Inspect, assemble, and rig aircraft systems and components
- Cabin Atmosphere Control Systems: Inspect, service repair, and troubleshoot 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

Technical Standard: F.22 - F.27, C.33, C.34, C.35

Unit 2 (102 Hours)

- Airframe Inspection: Perform airframe conformity and airworthiness inspections
- Aircraft Instruments: Inspect, service repair, and troubleshoot aircraft instrument systems and components

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)

Technical Standard: G.28, D.36, D.37, E.38, H.51

Year 2, Semester 2

AV202 – Aviation Powerplant

AV203 - Aviation Powerplant Summer
(766 Hours)

Unit 1 (383 Hours)

- Turbo Engines: Inspect, service repair, and troubleshoot of aircraft turbine engines
- Auxiliary Power Units: Inspect, service repair, and troubleshoot of auxiliary power unit systems and components
- Engine Instrument Systems: Inspect, service repair, and troubleshoot engine instrument systems
- Engine Fire Protection: Inspect, service repair, and troubleshoot engine fire protection systems
- Engine Electrical: Inspect, Service Repair, and Troubleshoot Engine Electrical Systems
- Engine Fuel Systems: Inspect, Service Repair and Troubleshoot Engine Fuel Systems
- 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)

Technical Standard: B.5, B.6, B.7, C.8, M.41, A.9, A.10, B.11, A.9, A.10, B.11, C.12, C.13, F.20 - F.24, G.24, G.25, K.33 - K.39, L.40

Unit 2 (383 Hours)

- Reciprocating Engines: Inspect, Service Repair, overhaul and troubleshoot of reciprocating engines
- Ignition & Starting: Inspect, Service Repair, and troubleshoot of ignition and starting systems
- Engine Induction: Inspect, Service Repair and Troubleshoot Induction Systems
- Engine Exhaust: Inspect, Service Repair and Troubleshoot of Engine Exhaust Systems
- Lubrication Systems: Inspect, Service Repair and Troubleshoot Engine Lubrication Systems
- Cooling Systems: Inspect, Service Repair and Troubleshoot of Engine Cooling 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

Technical Standard: A.1 - A.4, B.8, E.17, E.18, E.19, H.26 -
H.28, J.31, J.32, H.26 - H.28, J.31, J.32, D.14 - D.16, I.29, I.30,
D.14 - D.16, I.29, I.30

District Post-Assessment

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