

# STRANDS AND STANDARDS

## AVIATION 2



### Course Description

Students will get an exposure to physics of flight, aircraft systems, airport operations, Federal Aviation Regulations/Aeronautical Information Manual. (FAR/AIM)

<b>Intended Grade Level</b>	9-12
Units of Credit	0.5
Core Code	40.11.00.00.132
Concurrent Enrollment Core Code	N/A
Prerequisite	N/A
Skill Certification Test Number	N/A
Test Weight	N/A
<b>License Area of Concentration</b>	CTE and/or Secondary Education 6-12
<b>Required Endorsement(s)</b>	
Endorsement 1	Aviation-Flight
Endorsement 2	Aviation-Maintenance
Endorsement 3	N/A

## STRAND 1

Students will understand the principles of flight and aerodynamics.

### Standard 1

Four forces of flight:

- Lift
- Weight
- Thrust
- Drag

### Standard 2

Airfoil:

- Production of Lift
- Bernoulli vs. Newton

### Standard 3

Axes (plural of axis) of Motion:

- Pitch
- Yaw
- Roll

## STRAND 2

Students will understand aircraft systems.

### Standard 1

Know the basic airframe systems:

- Electrical
- Fuel
- Oil
- Hydraulic
- Pitot-Static
- Environmental pressurization, oxygen

### Standard 2

Aircraft Instruments:

- Six-pack
- Glass cockpit
- Navigation
- Collision avoidance

### Standard 3

Flight Controls:

- Fixed wing
- Rotor

### Standard 4

Propulsion systems:

- Piston
- Turboprop
- Turboshaft
- Turbofan
- Turbojet
- Ramjet
- Rocket
- Electric

## STRAND 3

Students will understand aviation operations and related aviation business.

### Standard 1

Air carrier operations:

- Route structure
- Hub & spoke
- Carrier Equipment
- Revenue Flight Management

### Standard 2

Corporate Aviation:

- Business Model (who owns the equipment?)
- Equipment types for corporate aviation
- Tax Benefits

### Standard 3

Fixed Base GA:

- FBO
- MRO
- Flight Instructor
- Other aviation operations

### Standard 4

Unmanned Base Operation

### Standard 5

Urban Air Mobility

## STRAND 4

Students will understand federal aviation regulations and aeronautical information manual.

### Standard 1

Certification Standards:

- Certificates/Ratings
- Currency
- Proficiency

### Standard 2

Federal Aviation Regulations / Aeronautical Information Manual (FAR/AIM):

- CFR Title 14
- FAR Organization (Parts)
- AIM Organization (Sections)
- Frequently referenced FAR Parts (61, 91, 107, 121, 135, 141, 147)

## STRAND 5

Students will understand aviation organizations.

### Standard 1

Understand role of Government Aviation Organizations:

- Department of Transportation (DOT)
- Federal Aviation Administration (FAA)
- International Civil Aviation Organization (ICAO)
- National Aeronautics and Space Administration (NASA)
- National Transportation Safety Board (NTSB)
- Transportation Security Administration (TSA)
- Department of Defense (DOD)

### Standard 2

Understand the role of Professional Aviation Organizations:

- Aircraft Owners and Pilots Association (AOPA)
- National Business Aviation Association (NBAA)
- Experimental Aircraft Association (EAA)
- Airline Pilots Association (ALPA)
- Women in Aviation International (WAI)
- Civil Air Patrol (CAP)

## Performance Skills

- Demonstrate how control surface effect principles of flight
- Identify aviation fluids
- Identify fluid contaminant
- Demonstrate proper fueling technique
- Check oil level
- Run a checklist

## Workplace Skills

Students will develop professional and interpersonal skills needed for success in industry. Determine the difference between hard skills and soft skills.

- Hard Skills: Hard skills are specific, teachable abilities that can be defined and measured
- Soft Skills: Personal attributes that enable someone to interact effectively and harmoniously with other people.

Identify soft skills needed in the workplace

- Professionalism
- Respect legal requirements/expectations
- Good communication skills
- Resourcefulness & creativity
- Work ethic