

*Engineering and Technology Education Department*  
*Semester Course Syllabus*

**AV 2140 - AIRCRAFT TURBINE POWERPLANT  
AND MAINTENANCE OPERATIONS  
3 Credits**

I. Catalog Description

Theory of turbine powerplants, including turbine engine and components operation hot section inspection and servicing. Aircraft engine 100 hour inspections, and maintenance with laboratory application of principles and components studied.

II. Course Objective

The objective of this course is for each student to gain a theoretical knowledge of aircraft powerplant maintenance. This will include instruction in the following areas: propellers and controls, ignition systems, engine instruments, fire detection and protection and cooling systems. Upon completion, each student will be able to achieve the level of proficiency indicated by the number in parenthesis.

Teaching Level

A. PROPELLERS

- (1) 1. Description and Nomenclature
- (2) 2. Propeller Theory
- (2) 3. Propeller Operating Principles
- (2) 4. Propellers for "light aircraft"
- (2) 5. Propeller Balancing
- (3) 6. Propeller Removal and Installation
- (3) 7. Inspection, servicing, and repair of propeller
- (2) 8. Propellers for "large aircraft"
- (2) 9. Propellers Governing Systems
- (2) 10. Propeller Control Systems
- (1) 11. Inspect, check, service, and repair prop synchronizing and ice control systems
- (1) 12. Ice Control Systems
- (2) 13. Propeller Lubricants
- (1) 14. Inspect and troubleshoot unducted fan systems and components

B. TURBINE ENGINES

- (1) 1. The basic gas turbine engine
- (1) 2. Jet engine terms

- (1) 3. Types of gas turbine engines
- (1) 4. Engine components, designs, operation, and inspection
- (2) 5. Engine systems and accessories
- (3) 6. Inspect, service, troubleshoot, and repair turbine engine electrical starting systems
- (1) 7. Inspect, service, troubleshoot, and repair turbine engine pneumatic starting systems

C. ENGINE EXHAUST SYSTEMS

- (2) 1. Types of exhaust systems
- (2) 2. Construction techniques and design
- (2) 3. Repair engine exhaust system components
- (3) 4. Inspect, check, troubleshoot, service and repair engine exhaust systems

D. ENGINE FIRE PROTECTION SYSTEMS

- (3) 1. Fire detection systems
- (3) 2. Fire extinguishing systems

E. ENGINE INSPECTION

- (3) 1. Use of Airworthiness Directives
- (3) 2. Conformity of powerplant to specifications

III. Text

- A&P Technician Powerplants Textbook, workbook, and study guide by Jeppeson -AC 43.13-1A & 2A, Aircraft Inspection and Repair/Aircraft Alterations

IV. Grades

Determined by the total points of examinations, quizzes, and lab assignments. At least two major exams will be given.

V. Examination Schedule

Quizzes	300 points
Two Major Exams	400 points
Final Exam	<u>300 points</u>
	1,000 total points

VI. Attendance

It will be the responsibility of each student to consult with the instructor of each class and determine attendance status. A minimum number of **60 clock hours** are required in this course. All absences must be made up before FAA Powerplant Certification can be granted. Any days missed may be made up by turning in a **typed** 400 word minimum report on the subject material missed. **This report must be turned in by Friday of the following week.** Each day you miss, a -25 points will be recorded. When a report is received by the deadline, the -25 points will be removed and credit will be given just as if you were in attendance. If you select not to turn in a report as stated above, the minus points will be deducted from your final grade and the number of hours missed need to be made up prior to

the qualification test. When the time is made up after the quarter, it will not change your final grade.

VII. Accommodation for Persons With Disabilities

Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435)797-2444 voice, (435)797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.