

***Engineering and Technology Education Department***  
***Semester Course Syllabus***  
***Fall 2008***

**AV 3280 - ADVANCED TURBINE ENGINES**

2 Credits

Instructor: Randy Chesley  
Room T 103

Catalog Description

Advanced study of turbo-jet propulsion. Comparative examination of jet, fan jet, turbo-prop, and turbo shaft engines. Prerequisite: AV 1100, 2150, and passing scores on CIL exams.

Course Objective

Upon completion of this course, a student should understand and have a working knowledge of:

- (1) A. The background and development of turbine engines
- (1) B. Types, variations, and applications of turbine engines
- (2) C. Engine theory and operation
- (2) D. The construction and design of turbine engines including materials and methods of Construction
- (2) E. New designs and technology
- (3) F. Engine testing and operation
- (2) G. Comparison of turbine engines in service
- (2) H. Trend analysis

Course Fee

There is a \$35.00 course fee paid at the time of registration which is used for tour transportation, training materials and consumables, and turbine fuel. Keep in mind, the components used are very expensive. Exercise care in their use and help to keep costs to a minimum.

Special Assignments:

- A. A paper 10-15 pages in length professionally done on a specific engine of choice. The paper should include the following:
  - 1. Cover sheet
  - 2. Table of contents
  - 3. Engine specification page
  - 4. Colored schematics illustrating airflow pressures, temperatures, velocities, fuel flow through fuel system components, and engine, oil flow through the engines
  - 5. Pressure diagram
  - 6. Temperature diagram
  - 7. Table of components
  - 8. Brief history, description and operation of the engine
  - 9. Latest changes and modifications (include changes to design, materials, and Manufacturing methods)

NOTE: Due by the end of the sixth (6<sup>th</sup>) week of the semester. Be prepared to give a class report on your research.

- B. A comparison chart of the engines listed in the handout (see handout)
- C. Complete assigned lab projects

Grades

Paper	100 points
Assign/project	300 points
Test #1	200 points
Quizzes	100 points
Final	<u>300 points</u>
 Total	 1000 points

Accommodation for Person with Disabilities

In cooperation with the Disability Resource Center, reasonable accommodation will be provided for students with disabilities. Please meet with the instructor during the first week of class to make arrangements. Alternative format print materials, large print, audio, diskette, or Braille, will be available through the Disability Resource Center.

Lab Projects

- A. T53-L-13BA engine disassembly, evaluation, and inspection
- B. Engine run and test
- C. OH-58 Helicopter