



## COURSE SYLLABUS

### Aircraft Powerplant Inspection

Course Title

### AERM 2352

Course Number

### 2 - 4 - 3

Lecture - Lab - Credit

### NONE

Prerequisite

This syllabus has been reviewed and is current on the date indicated.

Prepared By

Date

Brian Hahn

04/04/2011

Reviewed By

\_\_\_\_\_  
Division Director/Designee

\_\_\_\_\_  
Date

**I. Instructor Information**

Name: Willie Rodriguez	Phone: 325-672-4418
Campus Office: ABH 104	email: guillermo.rodriguez@abilene.tstc.edu
Office Hours: 3:00-5:00 M-F	Advisement Hours: by appointment only
Department Chair: Brian Hahn	Chair email: brian.hahn@abilene.tstc.edu

**II. Class Times, Location**

<b>Class Time</b>	<b>Location</b>	<b>Dates of Attendance</b>
<b>10:00-12:55 MW</b>	<b>Abilene AER Hangar</b>	<b>06/29/2011-08/19/2011</b>
<b>11:00-12:55 TTH</b>	<b>Abilene AER Hangar</b>	<b>06/29/2011-08/19/2011</b>
<b>10:00-11:55 F</b>	<b>Abilene AER Hangar</b>	<b>06/29/2011-08/19/2011</b>

**III. Program Outcomes**

Graduates are able to:

- A. Observe and Practice Safety
- B. Analyze & Troubleshoot Engine Systems

**IV. Course Description & Introduction**

In depth coverage of methods and procedures to perform powerplant conformity and airworthiness inspections (including one hundred hour inspections) in accordance with Federal Aviation Regulations and manufacturer's information. Safety procedures will also be addressed.

**V. Learning Outcomes**

The student will:

- A. Perform powerplant conformity inspections and powerplant airworthiness inspections
- B. Demonstrate proper safety procedures

**VI. Assessment Methods & Grading Policy**

Due to the critical nature of an aviation maintenance technician's job description, the following grading scale has been established.

<b>90.00 – 100.00</b>	<b>A</b>
<b>80.00 - 89.99</b>	<b>B</b>
<b>70 .00- 79.99</b>	<b>C</b>

A student must score at least a 70% on all final exams, lab projects and written practical tests.

Quizzes - All quizzes are given at the discretion of the instructor. These can be either oral or written quizzes created by the instructor.

Final Exams - At the end of each subject, the student will take a final exam. When a student scores below a 70% on an exam, he/she may retake the exam up to one time. (This means that the student can take an exam over any one subject no more than two times.) If a student fails the original exam, and then retakes another exam over the subject and passes, the maximum score that the student will receive is the minimum passing score of 70%. No student may complete a course until he/she has achieved at least the minimum passing score on all exams. If a student fails to pass any exam within a course after two attempts, the student must retake the complete course.

Lab Activities and Written Practical Tests (WPT) - For each course in the approved curriculum, there are items (lab activities) that must be completed by the student to at least a 70% level of performance (as determined by the instructor). Written Practical Tests will be given either as an oral or written test, created by the instructor, covering performed lab activities. Students must pass all activities before a final grade for the subject will be given. The following grading system for lab activities and WPTs are as follows:

<b>70.00% or above</b>	<b>P (pass)</b>
<b>69.99% or below</b>	<b>F (fail)</b>

When a student fails to meet the requirements of his/her lab activity or WPT, he/she may do the lab activity again, or retake the WPT, up to one time.

If the student uses any consumable materials during the lab retake, he/she must pay for or supply the materials at the time of use. If the student fails to pass the retake of any labs or WPTs, the student will receive a failing grade and must retake the course that contained the lab or WPT.

Any retakes of tests or labs are done on the student's own time and at the convenience of the instructor. All retakes must take place within 3 working days of the initial attempt. Before a determination of final grades can be done, all lab activities and written practical tests must be completed to at least 70% proficiency. After this has been done the final grade can be calculated.

- (1) Add Quizzes - get average
- (2) Add Subject Exams - get average
- (3) Add Quiz average and Subject Exam average to get average of final grade.

EXAMPLE BELOW:

Quiz #1	90		
Quiz #2	87		
Quiz #3	<u>70</u>		
	247	<u>82.33</u>	
		3/247	<u>82.33 QUIZ AVERAGE</u>

Exam #1	90		
Exam #2	<u>85</u>		
	175	<u>87.50</u>	
		2/175	<u>87.50 EXAM AVERAGE</u>

NOTE: ALL EXAMS MUST BE PASSED WITH A SCORE OR 80% OR HIGHER.

Quiz Average	82		
Exam Average	<u>88</u>		
	170	<u>85.00</u>	
		2/170	<u>85.00 FINAL GRADE</u>

**VII. Textbook/Reference Materials**

A&P Powerplant Textbook  
ISBN: 9781560277101

20XX Powerplant Test Guide (most current year offered)  
ISBN: 9781560277439

Advisory Circular 43.13 1B/2B—Acceptable Methods, Techniques and Practices  
ISBN: 9780977489695

**VIII. Additional Resources & Supplies**

AER-required tools as needed to complete the assignment.

**IX. Class Participation Policy & Student Conduct**

Every student is required to attend class daily, unless prevented from doing so by a serious

illness or injury, death in the family, or by any other circumstances beyond the student's control. In all cases, attempts must be made to notify the instructor before or during the absence. The number to call is (325) 672-4418.

The student must participate in the classroom or laboratory training while in attendance at school in order to be recorded present. If the student does not participate in the learning activities, he/she will be dismissed for the day and an absence will be recorded.

A student is considered to be excessively absent from a course when absent for 10% of any course's scheduled total hours. At that time the student will be notified in writing that he/she may fail the course. When, for any reason, absences exceed 10% of the course's total scheduled hours, the student will receive a grade of "F", even if he/she has made-up some or all of the time missed. This will necessitate the retaking of the course.

Any student who is tardy for class, laboratory or shop sessions will be charged the time he/she missed and must make the time up.

Personal performance, appearance and attitude of the student toward TSTC, the instructors, fellow students and the F.A.A., are as an important part of training as are attendance, grades and lab activities. If it is determined that the student's intent for attending TSTC is for the primary purpose of anything other than to gain the knowledge and skills needed to become eligible to receive a Certificate of Completion and participate in the F.A.A. examinations, he/she is subject for dismissal from the program.

Any violation of the Discipline Code as listed in TSTC publications (school catalog, policy manual, discipline code, etc.) will result in being dismissed from school with a recorded absence and possible expulsion from the school. Students are responsible for complying with all rules and policies at all times, places, functions, and events.

## **X. Safety**

Campus building occupants are required to evacuate buildings when a fire alarm activates. Alarm activation or announcement requires exiting and assembling outside. Familiarize yourself with all exit doors of each classroom and building you may occupy while receiving instructions. The nearest exit door may not be the door you used when entering the building. Students requiring evacuation assistance should inform the instructor during the first week of class. In the event of evacuation, follow the faculty's or class instructor's instructions. **Do Not** re-enter a building unless given instructions by the Fire Department, Campus/Local Police, or Fire Prevention Services.

Hangar Specifics—Students are required to abide with all safety procedures when performing laboratory projects. This may include, but is not limited to eye protection, hearing protection, etc. Students who do not observe appropriate safety precautions will

be dismissed from class, with an absence recorded for the missed time. Horseplay, vandalism, theft or any other destructive act will likely result in expulsion from the AER program and college.

**XI. Special Needs**

If you have a condition, such as a physical or mental disability, which will make it difficult for you to carry out the work as outlined, or which will require extra time on examinations, please notify the Counseling and Testing Office during the first week of the course so that appropriate arrangements can be made.

**XII. Course Schedule**

<b>Course Terminal Objectives</b>		
<b>FAR 147, Appendix D., I.,</b>		
<i>Teaching Level</i>	<i>Objective</i>	
	<b>C. Engine Inspection</b>	
3	8. <i>m powerplant conformity and airworthiness inspections.</i>	
Weeks	Learner Objectives	Assignments / Activities
<b>UNIT 1:</b>		
<b>Week 1: Overview</b>		
Lecture	Overview of the subject material covered in this course; required textbooks, tools, and lab module. 1. Given a list of standard terms used in the aviation maintenance industry, the student will define each term.	Handout course syllabus and terminology paper. Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 1 pages 1-7. Lecture on aviation personnel maintenance responsibilities.
Lab	2. Define terms using textbooks.	Perform research on terminology used in aviation maintenance inspections.
Lecture	3. Identify specific FAA regulations and Advisory Circulars pertaining to aircraft inspections. 4. Describe the inspections required for certified aircraft. 5. Describe annual inspection. 6. Describe 100 hour inspection. 7. Describe progressive inspection 8. Describe the inspections for large and	<b>Test 1: Terminology</b> Lecture on the different type of inspection and the different aircraft categories. Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 2 pages 1-14.

	turbine powered multi-engine aircraft. 9. Describe conformity inspections. 10. Describe inspections required air charter and air carrier operations.	
Lab	11. Answer question pertaining to aircraft inspections.	Give student handout of 12 questions for students to answer. When finished give student handout of 26 questions for student to answer.
<b>Week 2: Types of Inspections</b>		
Lecture	12. Describe inspections for Part 121 air carriers 13. Describe special inspections. 14. Describe altimeter and static system certifications. 15. Describe ATC transponder inspection. 16. Describe the requirements for emergency locator transmitters. 17. Describe other equipment inspections.	Continue lecture on the different type of inspection and the different aircraft categories. Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 2 pages 1-14.
Lab:	18. Finish answering questions in handouts.	Give student handout of 12 questions for students to answer. When finished give student handout of 26 questions for student to answer.
Lecture	19. Discuss Type Certificate Data Sheets, there content and how they are used in inspections. 20. Discuss Aircraft Specifications, there content and how they are used in inspections. 21. Discuss Supplemental Type Certificates, there content and how they are used in inspections. 22. Discuss Airworthiness Directives, there content and how they are used in inspections. 23. Discuss Advisory Circulars pertaining to inspections, there content and how they are used in inspections. 24. Discuss maintenance manuals, parts manuals and other publications, there content and how they are used in inspections.	Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 3 pages 1-14. Lecture on publications, both FAA and manufactures that pertain to and are used in aircraft inspections.
Lab	25. Research Type Certificate Data Sheets for the aircraft assigned.	Perform research of TCDS pertaining to assigned

		aircraft.
<b>Weeks 3: Inspection Standards and Practices</b>		
Lecture	<p><b>Unit 2 Exam</b></p> <p>26. Describe inspection performance standards.</p> <p>27. Describe inspection performance rules.</p> <p>28. Describe checklist requirements.</p> <p>29. Describe functional checks required.</p> <p>30. Describe rotorcraft performance rules.</p> <p>31. Describe inspection procedures.</p>	<p>Unit 2 test packet</p> <p>Scantron</p> <p>Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 4 pages 1-4.</p> <p>Lecture on standard practices used in the aircraft industry for aircraft inspection.</p>
Lab	32. Research Airworthiness Directives for the assigned aircraft.	
Lecture	<p>33. Describe the Pre-inspection phase.</p> <p>34. Describe the Look Phase.</p> <p>35. Describe the Service and Repair Phase.</p> <p>36. Describe the Functional Check Phase.</p> <p>37. Describe the Return To Service Phase.</p> <p>38. Describe Parts Approval, hardware standards, PMA's, TSO's, and Surplus/Salvage Parts.</p>	<p>Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 4 pages 1-4.</p> <p>Continue lecture on standard practices used in the aircraft industry for aircraft inspection.</p>
Lab	39. Continue research Airworthiness Directives for the assigned aircraft.	Continue research of AD's pertaining to assigned aircraft.
<b>Weeks 4: Performing Airworthiness Inspection</b>		
Lecture	<p>40. Discuss Pre-inspection Preparation.</p> <p>41. Discuss work orders and contracts.</p> <p>42. Discuss maintenance records and researching records for information.</p> <p>43. Discuss the requirements for aircraft cleaning.</p> <p>44. Discuss tools, equipment, and parts required to perform an inspection.</p> <p>45. Discuss the removal of inspection plates, cowling, seats, carpet and interior panels.</p> <p>46. Discuss the procedures for performing the airframe inspection.</p> <p>47. Discuss the procedures for performing the interior inspection.</p> <p>48. Discuss the procedures for performing the wing inspection inspection.</p> <p>49. Discuss the procedures for performing the fuselage inspection.</p> <p>50. Discuss the procedures for performing the empennage inspection inspection.</p>	<p>Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 5 pages 1-12.</p> <p>Lecture on the performing of an inspection including tools used and how to look for problems.</p>



	51. Discuss the procedures for performing the landing gear inspections. 52. Discuss the procedures for performing the electronic installation inspections.	
Lab	53. Perform inspection of specified aircraft engine group or part.	Using proper manuals, checklist and other documentation inspect an assigned section of the aircraft.
Lecture	54. Discuss the areas concerned with the Service and Repair Phase of aircraft inspections. 55. Discuss the activities involved in the cleanliness of the aircraft step of the post inspection phase. 56. Describe the activities involved in the “functional checks” step of the post inspection phase. 57. Describe the activities involved in the “return to service” step of the post inspection phase. 58. Discuss Return to Service Procedures and log book signoffs. 59. Discuss information pertinent to section of inspection being performed today.	Read Jeppesen Aircraft Inspection and Maintenance Records Chapter 5 pages 1-12. Continue lecture on the performing of an inspection including tools used and how to look for problems.
Lab	60. Perform inspection of specified aircraft engine group or part.	Using proper manuals, checklist and other documentation inspect an assigned section of the aircraft.
<b>Week 5: Performing Airworthiness Inspection</b>		
Lecture	61. Discuss information pertinent to section of inspection being performed today.	Discuss the proper procedure, special areas to check, and possible defects an inspector would find while inspecting this area of an aircraft.
Lab	62. Perform inspection of specified aircraft engine group or part.	Using proper manuals, checklist and other documentation inspect an assigned section of the aircraft.
Lecture	63. Discuss information pertinent to section of inspection being performed today.	Discuss the proper procedure, special areas to check, and possible defects

		an inspector would find while inspecting this area of an aircraft.
Lab	64. Perform inspection of specified aircraft engine group or part.	Using proper manuals, checklist and other documentation inspect an assigned section of the aircraft.
<b>Week 6: Performing Airworthiness Inspection</b>		
Lecture	65. Discuss information pertinent to section of inspection being performed today.	Discuss the proper procedure, special areas to check, and possible defects an inspector would find while inspecting this area of an aircraft.
Lab	66. Perform inspection of specified aircraft engine group or part.	Using proper manuals, checklist and other documentation inspect an assigned section of the aircraft.
Lecture	67. Discuss information pertinent to section of inspection being performed today.	Discuss the proper procedure, special areas to check, and possible defects an inspector would find while inspecting this area of an aircraft.
Lab	68. Perform inspection of specified aircraft engine group or part.	Using proper manuals, checklist and other documentation inspect an assigned section of the aircraft.
<b>Week 7: Performing Airworthiness Inspection</b>		
Lecture	<b>Unit 3 Exam</b> 69. Discuss information pertinent to section of inspection being performed today.	Unit 3 test packet Scantron Discuss the proper procedure, special areas to check, and possible defects an inspector would find while inspecting this area of an aircraft.
Lab	70. Perform inspection of specified aircraft engine group or part.	Using proper manuals, checklist and other documentation inspect an assigned section of the aircraft.
Lecture	71. Discuss different types of entries necessary for inspections.	Read Jeppesen Aircraft Inspection and Maintenance

	72. Discuss Airworthiness Directive entries.	Records Chapter 7 pages 1-4 and Chapter 8 pages 1 -3. Lecture on log book entries used in returning an aircraft to service.
Lab	73. Make an airworthy log book entry. 74. Make an un-airworthy log book entry. 75. Make a progressive inspection entry.	
Lecture /Lab	<b>FINAL EXAM</b>	Final exam packet Scantron

**XIII. Curriculum Vitae**

Guillermo Rodriguez  
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Abilene, Texas 79601  
(325) 672-4418

[guillermo.rodriquez@abilene.tstc.edu](mailto:guillermo.rodriquez@abilene.tstc.edu)

<i>Education</i>	<i>Bachelor of Science</i> Wayland Baptist University Occupational Education Specialization: Corporate Training and Development	<i>August 1995</i>
	<i>Associate of Applied Science</i> Community College of the Air Force Aircraft System Maintenance Technology	<i>February 1994</i>
	<i>Associate of Applied Science</i> Community College of the Air Force Instructor of Technology and Military Science	<i>September 1996</i>
<i>Certifications</i>	FAA Mechanic's Certificate with Airframe & Powerplant ratings Teledyne Continental Motor Training Rolls-Royce Model 250 series II Training	
<i>Employment</i>	Texas State Technical College – Instructor, September 2008 to present Texas State Technical College Corporate College – Instructor. September 2000 to present (Airframe & Powerplant refresher course) Texas Aerospace (FAA repair station) – ISO 9001:2000 and AS 9100 Technician, May 2006 to August 2008 Dyess Air Force Base – Transit Alert, January 2006 to May 2006 Texas State Technical College – Instructor, September 1998 to December 2006	

Student Acknowledgement:

This is to acknowledge that I have received a copy of the syllabus for the course AERM 2352, Aircraft Powerplant Inspection. I understand that it is my responsibility to read and understand the syllabus and to abide by the guidelines presented therein.

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Student Printed Name

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Signature

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Date