

Reedley College

Proposed Course Modification

Course # / Title AERO 2/Aviation Maintenance Technology

CHECK OFF SHEET

PRELIMINARY STEPS. Do before completing Course Modification Form.

(EACH BOX SHOULD BE CHECKED AS COMPLETED BEFORE SUBMISSION.)

1. Communicate with the Curriculum Chair regarding intent to modify an existing course outline (recommended, not required).
2. List term for implementation of modifications:
 Fall 2010 Spring _____ Summer _____
3. Check one:
Do not complete Fresno City College course alignment page if:
 x No similar course or program at FCC.
_____ Course currently in common with FCC course or accepted in lieu of and changes will not affect status.

Complete Fresno City College course alignment page if:

- _____ Course currently in common with FCC course or accepted in lieu of. Changes may affect status. Consult with counterparts at FCC and complete alignment page
- _____ Course not in common or accepted in lieu of but may be with proposed changes consult with FCC counterparts

4. Changes sought in the following:

| | | | | |
|-----------------------------|-----|-------|----|--------------|
| CSU General Education Code | Yes | _____ | No | <u> x </u> |
| Transfer Baccalaureate List | Yes | _____ | No | <u> x </u> |

If yes to either, schedule an appointment with the Articulation Officer

5. Changes sought in number of repeats for credit:

_____ Yes
 x No

If yes, secure a **Course Repetition** form from the Curriculum Office.

PROPOSED COURSE MODIFICATION FORM

- Appropriate sections of Course Outline of Record completed.

FINAL steps (Do after completing Course Outline of Record)

1. Signature Form. Secure signatures of the Department Chair and the Associate Dean before submitting the completed course proposal to the Curriculum Office.
2. Program Description. Course modification will change an existing program which is or will be described in the college catalogue.

_____ Yes x No

If yes, complete **Program Description Form** before submitting modification.

3. Final Check. All items above have been completed and checked off before modification is submitted.

**Reedley College
PROPOSED COURSE MODIFICATION**

All changes and modifications in the official course outline must come to the Curriculum Committee. Though minor changes may seem obvious, even these need to come to committee for information and to update the official curriculum. Changes in programs or in several department offerings should be submitted together if possible so that the whole picture is clear.

OUTLINE. Please fill in current existing course number, title, and units for course to be modified.

Department Industrial Technology Course No. AERO 2
 Course Title Aviation Maintenance Technology Units 17.5
 Effective Date 08/01/2010

**A. PROPOSED CHANGES.
(Indicate below all proposed changes to be made in the course outline.)**

I. Cover Page

- | | |
|---|---|
| <p><u> </u> 1. Course ID</p> <p><u> </u> 2. Course Title</p> <p><u> </u> 3. Units</p> <p><u> </u> 4. Lecture/Lab Hours</p> <p><u> </u> 5. Grading Basis</p> <p><u> x </u> 6. Entrance Skills: Basic Skills Prerequisites/Advisories</p> <p><u> x </u> 7. Subject Prerequisites/Corequisites/Advisories</p> | <p><u> </u> 8. Classification (Degree applicable, Non-degree applicable, or Pre-collegiate Basic skills)</p> <p><u> </u> 9. General Education Pattern, Graduation Requirement, and Major Category</p> <p><u> </u> 10. General Education Pattern/Baccalaureate (CSU)</p> <p><u> </u> 11. Repeatability</p> <p><u> x </u> 12. Catalog Description</p> |
|---|---|

Other pages

- | | |
|--|--|
| <p><u> x </u> II. Course Outcomes</p> <p><u> x </u> III. Course Objectives</p> <p><u> x </u> IV. Course Content Outline</p> <p><u> x </u> V. Approved Readings</p> | <p><u> x </u> VI. Methods of Grading</p> <p><u> </u> VII. Levels of Educational Materials</p> <p>Additional Pages (optional depending on course)</p> <p><u> </u> Request for Repeatability/Limitation on Enrollment</p> |
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B. DESCRIPTION OF CHANGES AND MODIFICATIONS.

| ITEM NO. | CHANGED FROM | CHANGED TO | REASON |
|----------|--|--|--|
| 6 | Basic Skills Advisories: | Basic Skills Advisories: Eligibility for English 125, English 126, and Math 101 | Students need these basic skills to succeed in the course |
| 7 | Subject Advisories: AERO 1 | Subject Advisories: AERO 1 | Adds a suggested sequence, advising AERO 1 to be taken before AERO 2 |
| 12.. | Skills and knowledge appropriate to FAA Regulation Part 147 to include: Cabin Atmosphere Control Systems, Hydraulic and Pneumatic Power Systems, Aircraft Fuel Systems, Fuel Metering Systems, Engine Fuel Systems, Aircraft Landing Gear Systems, Position and Warning Systems, Ice and Rain Control Systems, Fire Protection Systems, Engine Fire Protection Systems, Assembly and Rigging, Engine Instrument Systems. | Aero 2 meets the FAA Airframe and Powerplant Systems requirements including: Cabin Atmosphere Control Systems, Hydraulic and Pneumatic Power Systems, Aircraft Fuel Systems, Fuel Metering Systems, Engine Fuel Systems, Aircraft Landing Gear Systems, Position and Warning Systems, Ice and Rain Control Systems, Fire Protection Systems, Engine Fire Protection Systems, Assembly and Rigging, Engine Instrument Systems. Successful completion of Aero 1, 2, 3 and 4 qualifies student to take the licensing exams required for Airframe and Powerplant certification. | Provide clarification to readers |
| II. | A. Meet the Federal Aviation Administration requirements for the majority of the "System" subjects as | A. Meet Federal Aviation Administration requirements for the majority of the Airframe and Powerplant | Clarification of outcome "A" and "C" |

| | | | |
|-------------|--|---|--|
| | <p>specified in the Approved Aviation Maintenance Technician School.</p> <p>B. Adhere to ethical and legal maintenance standards as prescribed in the Federal Aviation Administration, Federal Aviation Regulations.</p> <p>C. Given acceptable manufacturers documentation, complete assigned inspections, modifications, repairs, calculations, and/or troubleshooting procedures.</p> <p>D. Develop acceptable documentation for return to service certification of aircraft and/or related component parts.</p> <p>E. Work successfully in a team atmosphere, alternately assuming the roles of leader and of team player.</p> <p>F. Apply safety procedures in a shop environment and follow hazardous material handling procedures.</p> | <p>“Systems” subjects as specified in the Approved Aviation Maintenance Technician School Agreement.</p> <p>B. Recognize implication of ethical and legal maintenance standards as prescribed in the Federal Aviation Administration, Federal Aviation Regulations.</p> <p>C. Complete assigned inspections, modifications, repairs, calculations, and/or troubleshooting procedures, while determining if provided documentation is valid.</p> <p>D. Develop acceptable documentation for return to service certification of aircraft and/or related component parts.</p> <p>E. Work successfully in a team atmosphere, alternately assuming the roles of leader and of team player.</p> <p>F. Apply safety procedures in a shop environment and follow hazardous material handling procedures.</p> | |
| <p>III.</p> | <ol style="list-style-type: none"> 1. (2) Inspect, check, troubleshoot, service, and repair engine ice and rain control systems 2. (2) Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems 3. (1) Repair heating, cooling, air-conditioning, pressurization, and oxygen systems components 4. (1) Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, and pressurization systems. 5. (2) Inspect, check, troubleshoot, service, and repair oxygen systems 6. (3) Inspect check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems. 7. (1) Rig rotary-wing aircraft 8. (2) Rig fixed-wing aircraft 9. (2) Check alignment of structures 10. (3) Assemble aircraft components including flight control surfaces 11. (3) Balance and rig | <ol style="list-style-type: none"> 1. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems (Level 2) 2. Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems (Level 2) 3. Repair heating, cooling, air-conditioning, pressurization, and oxygen systems components (Level 1) 4. Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, and pressurization systems. (Level 1) 5. Inspect, check, troubleshoot, service, and repair oxygen systems (Level 2) 6. Inspect check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems. (Level 3) 7. Rig rotary-wing aircraft (Level 1) 8. Rig fixed-wing aircraft (Level 2) 9. Check alignment of structures (Level 2) 10. Assemble aircraft components including flight control surfaces | <p>Clarification of FAA levels in objectives</p> |

| | | | |
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| | <p>movable surfaces</p> <p>12. (3) Jack aircraft</p> <p>13. (3) Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems</p> <p>14. (1) Inspect, check, and service speed and take-off warning systems, electric brake controls, and anti-skid systems</p> <p>15. (3) Inspect, check, troubleshoot, service, and repair landing gear position indicating and warning systems</p> <p>16. (3) Inspect, check, service, troubleshoot, and repair engine temperature, pressure, and RPM indicating systems</p> <p>17. (2) Troubleshoot, service, and repair fluid rate of flow indicating systems</p> <p>18. (1) Inspect, check, and service smoke and carbon monoxide detection systems</p> <p>19. (2) Repair hydraulic and pneumatic power system components</p> <p>20 (3) Identify and select hydraulic fluids</p> <p>21. (3) Inspect check, service, troubleshoot, and repair hydraulic and pneumatic power systems</p> <p>22. (1) Troubleshoot and adjust engine fuel metering systems and electronic fuel controls</p> <p>23. (3) Overhaul carburetors</p> <p>24. (2) Repair engine fuel metering system components</p> <p>25. (3) Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel systems</p> <p>26. (1) Check and service fuel dump systems</p> <p>27. (1) Perform fuel management, transfer, and de-fueling</p> <p>28. (1) Inspect, check, and repair pressure fueling systems</p> <p>29. (2) Repair aircraft fuel systems components</p> <p>30. (2) Inspect and repair</p> | <p>(Level 3)</p> <p>11. Balance and rig movable surfaces (Level 3)</p> <p>12. Jack aircraft (Level 3)</p> <p>13. Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems (Level 3)</p> <p>14. Inspect, check, and service speed and take-off warning systems, electric brake controls, and anti-skid systems (Level 1)</p> <p>15. Inspect, check, troubleshoot, service, and repair landing gear position indicating and warning systems (Level 3)</p> <p>16. Inspect, check, service, troubleshoot, and repair engine temperature, pressure, and RPM indicating systems (Level 3)</p> <p>17. Troubleshoot, service, and repair fluid rate of flow indicating systems (Level 2)</p> <p>18. Inspect, check, and service smoke and carbon monoxide detection systems (Level 1)</p> <p>19. Repair hydraulic and pneumatic power system components (Level 2)</p> <p>20 Identify and select hydraulic fluids (Level 3)</p> <p>21. Inspect check, service, troubleshoot, and repair hydraulic and pneumatic power systems (Level 3)</p> <p>22. Troubleshoot and adjust engine fuel metering systems and electronic fuel controls (Level 1)</p> <p>23. Overhaul carburetors (Level 3)</p> <p>24. Repair engine fuel metering system components (Level 2)</p> <p>25. Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel systems (Level 3)</p> <p>26. Check and service fuel dump systems (Level 1)</p> <p>27. Perform fuel management, transfer, and de-fueling (Level 1)</p> <p>28. Inspect, check, and repair pressure fueling systems (Level 1)</p> | |
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| | <p>fluid quantity indicating systems</p> <p>31. (2) Troubleshoot, service, and repair fluid pressure and temperature warning systems</p> <p>32. (3) Inspect, check, service, troubleshoot, and repair aircraft fuel systems</p> | <p>29. Repair aircraft fuel systems components (Level 2)</p> <p>30. Inspect and repair fluid quantity indicating systems (Level 2)</p> <p>31. Troubleshoot, service, and repair fluid pressure and temperature warning systems (Level 2)</p> <p>32. Inspect, check, service, troubleshoot, and repair aircraft fuel systems (Level 3)</p> | |
| IV. | <p>A. Cabin Atmosphere Control Systems</p> <p>B. Hydraulic and Pneumatic Power Systems</p> <p>C. Aircraft Fuel Systems</p> <p>D. Fuel Metering Systems</p> <p>E. Engine Fuel Systems</p> <p>F. Aircraft Landing Gear Systems</p> <p>G. Position and Warning Systems</p> <p>H. Ice and Rain Control Systems</p> <p>I. Fire Protection Systems</p> <p>J. Engine Fire Protection Systems</p> <p>K. Assembly and Rigging</p> <p>L. Engine Instrument Systems</p> | <p><u>Lecture:</u></p> <p>A. Cabin Atmosphere Control Systems</p> <p>B. Hydraulic and Pneumatic Power Systems</p> <p>C. Aircraft Fuel Systems</p> <p>D. Fuel Metering Systems</p> <p>E. Engine Fuel Systems</p> <p>F. Aircraft Landing Gear Systems</p> <p>G. Position and Warning Systems</p> <p>H. Ice and Rain Control Systems</p> <p>I. Fire Protection Systems</p> <p>J. Engine Fire Protection Systems</p> <p>K. Assembly and Rigging</p> <p>L. Engine Instrument Systems</p> <p><u>Lab will give students the opportunity to apply concepts to practical applications</u></p> <p>A. Cabin Atmosphere Control Systems</p> <p>B. Hydraulic and Pneumatic Power Systems</p> <p>C. Aircraft Fuel Systems</p> <p>D. Fuel Metering Systems</p> <p>E. Engine Fuel Systems</p> <p>F. Aircraft Landing Gear Systems</p> <p>G. Position and Warning Systems</p> <p>H. Ice and Rain Control Systems</p> <p>I. Fire Protection Systems</p> <p>J. Engine Fire Protection Systems</p> <p>K. Assembly and Rigging</p> <p>L. Engine Instrument Systems</p> | <p>Addition of Lab content outline</p> |
| V. | <p>A. Airframe and Powerplant Technician General Text Book, Jeppesen, 2004</p> <p>B. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2003</p> <p>C. Airframe and</p> | <p>A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010, ISBN# 0-88487-337-4</p> <p>B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009, or equivalent</p> <p>C. Airframe and Powerplant</p> | <p>Update of text publication dates</p> |

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|-----|--|---|--|
| | <p>Powerplant Technician Powerplant Textbook, Jeppesen, 2004</p> <p>D. Aircraft Gas Turbine Powerplants, Jeppesen, 1977</p> <p>E. Aircraft Inspection and Repair (AC-43.13-1B &2A, FAA, supplied by Jeppesen, 1998</p> <p>F. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2003</p> <p>G. Aviation Mechanic Handbook, Crane, 1992</p> <p>H. Airframe and Powerplant Mechanic Powerplant Handbook (AC-65-12A), FAA, 1996</p> <p>I. Dictionary of Aeronautical Terms, Crane, 1991</p> <p>J. Computer-Based-Training hardware and software</p> <p>K. Aircraft and aircraft mock-up components</p> <p>L. Microfiche Library, ATP, 2006</p> <p>M. CD library, various</p> <p>N. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various</p> | <p>Technician Airframe Textbook, Jeppesen, 2009, or equivalent</p> <p>D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009, or equivalent</p> <p>E. Aircraft Inspection and Repair (AC-43.13-1B &2B,) FAA, supplied by Jeppesen, 2008, or equivalent</p> <p>F. Dictionary of Aeronautical Terms, Crane, 2008, or equivalent</p> <p>G. Aviation Mechanic Handbook, Crane, 2006, or equivalent</p> <p>H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002, or equivalent</p> <p>I. Computer-Based-Training hardware and software</p> <p>J. Aircraft and aircraft mock-up components</p> <p>K. Microfiche Library, ATP, 2008</p> <p>L. CD library, various</p> <p>M. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various</p> | |
| VI. | <p>A. Writing</p> <ol style="list-style-type: none"> 1. Technical reports. 2. Complete aircraft discrepancy reports and maintenance forms and records. 3. Write discrepancy reports and maintenance records <p>B. Problem Solving</p> <ol style="list-style-type: none"> 1. The two general types of piston engine exhaust systems can be broadly classified as: <ol style="list-style-type: none"> A. B. 2. allow for expansion and contraction of the exhaust system. 3. Spring-loaded allow for movement | <p>A. Writing</p> <p><i>Required assignments may include but are not limited to the following:</i></p> <p>Discrepancy reports Laboratory reports Log Book entries</p> <p>Sample student prompt;</p> <p>Complete aircraft discrepancy reports and maintenance forms and records.</p> <p>B. Problem Solving</p> <p><i>Required assignments may include, but are not limited to the following:</i></p> <p>Quizzes Lab reports Lab projects</p> <p>Sample student prompt;</p> <p>Trouble shoot inoperative fuel quantity system List parts needed to repair fuel quantity system to operating condition</p> | Simplification of methods to measure student achievement |

- without leakage, and slight misalignment of the parts.
- 4. Exhaust use the velocity of the exiting exhaust gases to produce a venturi effect.
- 5. Exhaust system parts should never be marked with a pencil.
- 6. A crack on an exhaust system component will often show as a streak on the outside of the part.
- 7. Exhaust system failure almost always creates what two hazards?
 - A.
 - B.
- 8. Carbon buildup in the waste gate unit of a turbocharged engine is often referred to as deposits.

C. Skill demonstrations
Powerplant Systems and Components
EXHAUST SYSTEM,
Subject: Q-32a

INSPECT, CHECK, TROUBLESHOOT, SERVICE AND REPAIR PISTON ENGINE EXHAUST SYSTEM

- GOALS:
- 1. To be able to identify the components of an aircraft exhaust system.
 - 2. To be able to locate dangerous defects in exhaust systems.
 - 3. To properly use inspection tools and equipment.
 - 4. To be able to define and explain the procedure for repairing an aircraft exhaust system.

REFERENCES: Applicable Aircraft Maintenance Manual AC 43.13-1a

EQUIPMENT: Flashlight, Inspection Mirror

C. Skill demonstrations
Required assignments may include, but are not limited to the following:
 Lab project
 Research project
 Exam

Sample Student Prompt;
 Reassemble carburetor using appropriate maintenance manual

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| | <p style="text-align: center;">Applicable Assigned Aircraft</p> <p style="text-align: center;">Cessna 150</p> <p style="text-align: center;">Cessna 172</p> <p style="text-align: center;">Cessna 210</p> <p style="text-align: center;">Piper Twin Comanche</p> <p>PROJECT: 1. Inspect an aircraft exhaust system for cracks, warpage, and condition in accordance with the applicable Aircraft Maintenance Manual and an 100 hour inspection.</p> <p style="padding-left: 40px;">2. On a discrepancy form, list and submit the defects identified on the assigned aircraft exhaust system.</p> <p style="padding-left: 40px;">3. Complete and submit an AD & Sb research form.</p> <p style="padding-left: 40px;">4. On an Maintenance Release Form, as an entry, describe the recommended repair process, documenting your sources of the repair procedures.</p> <p style="padding-left: 40px;">5. Complete and submit an appropriate log book entry.</p> | | |
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(Additional sheets may be attached if necessary.)

C. **EXPLANATIONS.** If course modification results in changes in the program which will require use of the program description form, please give rationale.

Please attach the complete outline before modifications to this form. If only the first page of the outline is being modified, also attach the new first page. If other pages of the outline are being modified, please attach the complete new outline.

Reedley College

SIGNATURE FORM

Submission/Recommendation/Action

Course Department and Number: Industrial Technology/AERO 2

Course Title: Aviation Maintenance Technology

Effective Date: 08/01/2010

1. Submitted By: Keith Zielke Date: 01/20/2010

2. Reviewed by Department: _____ Date: _____
Department Chair's Signature
Attach department recommendation. (optional)

3. Received/Reviewed by Dean of Instruction: _____ Date: _____
Dean's Signature

4. Approved by Curriculum Committee on: _____
Date

Curriculum Committee Chair Date

Vice President of Instruction Date

5. Reviewed by Articulation Officer: _____ Date: _____

CSU GE Code submitted for articulation: _____



CREDIT COURSE OUTLINE

I. COVER PAGE

(1)
Course ID: AERO 2

(2)
Course Title: Aviation Maintenance Technology

(3)
Units: 17.5

| | | | | | | | | | | | | | | | | |
|--|--|-----------------|---------------------|----------------------------|--------------------|----------------------------|---|----|--|--|--------------------|---|------------------------|--|------------------------------|--|
| <p>(4) Lecture / Lab Hours:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Total Course Hours</td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td style="padding-left: 40px;">Total Lec hours:</td> <td style="border: 1px solid black; text-align: center;">15</td> <td></td> </tr> <tr> <td style="padding-left: 40px;">Total Lab hours:</td> <td style="border: 1px solid black; text-align: center;">15</td> <td></td> </tr> </table> <p>Lec will generate _____ hour(s) outside work Lab will generate _____ hour(s) outside work.</p> | Total Course Hours | | | Total Lec hours: | 15 | | Total Lab hours: | 15 | | <p>(8) Classification:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Degree applicable:</td> <td style="border: 1px solid black; text-align: center;">x</td> </tr> <tr> <td>Non-degree applicable:</td> <td style="border: 1px solid black;"></td> </tr> <tr> <td>Pre-collegiate basic skills:</td> <td style="border: 1px solid black;"></td> </tr> </table> | Degree applicable: | x | Non-degree applicable: | | Pre-collegiate basic skills: | |
| Total Course Hours | | | | | | | | | | | | | | | | |
| Total Lec hours: | 15 | | | | | | | | | | | | | | | |
| Total Lab hours: | 15 | | | | | | | | | | | | | | | |
| Degree applicable: | x | | | | | | | | | | | | | | | |
| Non-degree applicable: | | | | | | | | | | | | | | | | |
| Pre-collegiate basic skills: | | | | | | | | | | | | | | | | |
| <p>(5) Grading Basis:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Grading scale only</td> <td style="border: 1px solid black; text-align: center;">x</td> </tr> <tr> <td>Pass/No Pass option</td> <td style="border: 1px solid black;"></td> </tr> <tr> <td>Pass/No Pass only</td> <td style="border: 1px solid black;"></td> </tr> </table> | Grading scale only | x | Pass/No Pass option | | Pass/No Pass only | | <p>(9) RC Fulfills AS/AA degree requirement: (area)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="border: 1px solid black;"></td> </tr> <tr> <td>General education category:</td> <td style="border: 1px solid black;"></td> </tr> </table> <p>Major: _____ Aeronautics</p> | | | General education category: | | | | | | |
| Grading scale only | x | | | | | | | | | | | | | | | |
| Pass/No Pass option | | | | | | | | | | | | | | | | |
| Pass/No Pass only | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| General education category: | | | | | | | | | | | | | | | | |
| <p>(6) Basic Skills Prerequisites:</p> | <p>(10) CSU:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Baccalaureate:</td> <td style="border: 1px solid black; text-align: center;">x</td> </tr> </table> <p>(11) Repeatable: (A course may be repeated three times)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="border: 1px solid black; text-align: center;">0</td> </tr> </table> | Baccalaureate: | x | | 0 | | | | | | | | | | | |
| Baccalaureate: | x | | | | | | | | | | | | | | | |
| | 0 | | | | | | | | | | | | | | | |
| <p>Basic Skills Advisories: Eligibility for English 125, English 126, and Math 101</p> | <p style="text-align: center;">For Office Use Only</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; border: 1px solid black;">New</td> <td style="width: 15%; border: 1px solid black;"></td> <td style="width: 15%; border: 1px solid black;">Mod</td> <td style="width: 15%; border: 1px solid black;">x</td> <td style="width: 40%; border: 1px solid black;">Effective Date: 08/01/2010</td> </tr> </table> | New | | Mod | x | Effective Date: 08/01/2010 | | | | | | | | | | |
| New | | Mod | x | Effective Date: 08/01/2010 | | | | | | | | | | | | |
| <p>(7) Subject Prerequisites (requires C grade or better):</p> | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; border: 1px solid black;">SAM Priority: C</td> <td style="border: 1px solid black;">DATATEL ID: 4997</td> </tr> <tr> <td style="border: 1px solid black;">Unit Code: 272040</td> <td style="border: 1px solid black;">TOPS Code: 0950.00</td> </tr> <tr> <td style="border: 1px solid black;">Reporting ID: 600992.00</td> <td style="border: 1px solid black;">Date Reporting ID Assigned</td> </tr> </table> | SAM Priority: C | DATATEL ID: 4997 | Unit Code: 272040 | TOPS Code: 0950.00 | Reporting ID: 600992.00 | Date Reporting ID Assigned | | | | | | | | | |
| SAM Priority: C | DATATEL ID: 4997 | | | | | | | | | | | | | | | |
| Unit Code: 272040 | TOPS Code: 0950.00 | | | | | | | | | | | | | | | |
| Reporting ID: 600992.00 | Date Reporting ID Assigned | | | | | | | | | | | | | | | |
| <p>Subject Corequisites:</p> | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; border: 1px solid black;">Program Status:</td> <td style="border: 1px solid black;">Course LHE: 26.25</td> </tr> </table> | Program Status: | Course LHE: 26.25 | | | | | | | | | | | | | |
| Program Status: | Course LHE: 26.25 | | | | | | | | | | | | | | | |
| <p>Subject Advisories: AERO 1</p> | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; border: 1px solid black;">Replaced by:</td> <td style="border: 1px solid black;"></td> </tr> <tr> <td style="border: 1px solid black;">Date:</td> <td style="border: 1px solid black;"></td> </tr> </table> | Replaced by: | | Date: | | | | | | | | | | | | |
| Replaced by: | | | | | | | | | | | | | | | | |
| Date: | | | | | | | | | | | | | | | | |
| <p>(12) Catalog Description:</p> <p>Aero 2 meets the FAA Airframe and Powerplant Systems requirements: Cabin Atmosphere Control Systems, Hydraulic and Pneumatic Power Systems, Aircraft Fuel Systems, Fuel Metering Systems, Engine Fuel Systems, Aircraft Landing Gear Systems, Position and Warning Systems, Ice and Rain Control Systems, Fire Protection Systems, Engine Fire Protection Systems, Assembly and Rigging, Engine Instrument Systems. Successful completion of Aero 1, 2, 3 and 4 qualifies student to take the licensing exams required for Airframe and Powerplant certification.</p> | | | | | | | | | | | | | | | | |

II. COURSE OUTCOMES:

(Specify the learning skills the student demonstrates through completing the course and link critical thinking skills to specific course content and objectives.)

Upon completion of this course, students will be able to:

- A. Meet the Federal Aviation Administration requirements listed for the majority of the Airframe and Powerplant "Systems" subjects as specified in the Approved Aviation Maintenance Technician School Agreement.
- B. Recognize and define the implication of ethical and legal maintenance standards as prescribed in the Federal Aviation Administration, Federal Aviation Regulations.
- C. Complete assigned inspections, modifications, repairs, calculations, and/or troubleshooting procedures, while determining if provided documentation is valid.
- D. Develop acceptable documentation for return to service certification of aircraft and/or related component parts.
- E. Work successfully in a team atmosphere, alternately assuming the roles of leader and of team player.
- F. Apply safety procedures in a shop environment and follow hazardous material handling procedures.

III. COURSE OBJECTIVES:

(Specify major objectives in terms of the observable knowledge and/or skills to be attained.)

In the process of completing this course, students will:

1. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems (Level 2)
2. Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems (Level 2)
3. Repair heating, cooling, air-conditioning, pressurization, and oxygen systems components (Level 1)
4. Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, and pressurization systems. (Level 1)
5. Inspect, check, troubleshoot, service, and repair oxygen systems (Level 2)
6. Inspect, check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems. (Level 3)
7. Rig rotary-wing aircraft (Level 1)
8. Rig fixed-wing aircraft (Level 2)
9. Check alignment of structures (Level 2)
10. Assemble aircraft components including flight control surfaces (Level 3)
11. Balance and rig movable surfaces (Level 3)
12. Jack aircraft (Level 3)
13. Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems (Level 3)
14. Inspect, check, and service speed and take-off warning systems, electric brake controls, and anti-skid systems (Level 1)
15. Inspect, check, troubleshoot, service, and repair landing gear position indicating and warning systems (Level 3)
16. Inspect, check, service, troubleshoot, and repair engine temperature, pressure, and RPM indicating systems (Level 3)
17. Troubleshoot, service, and repair fluid rate of flow indicating systems (Level 2)
18. Inspect, check, and service smoke and carbon monoxide detection systems (Level 1)
19. Repair hydraulic and pneumatic power system components (Level 2)
20. Identify and select hydraulic fluids (Level 3)
21. Inspect, check, service, troubleshoot, and repair hydraulic and pneumatic power systems (Level 3)
22. Troubleshoot and adjust engine fuel metering systems and electronic fuel controls (Level 1)
23. Overhaul carburetors (Level 3)
24. Repair engine fuel metering system components (Level 2)
25. Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel systems (Level 3)
26. Check and service fuel dump systems (Level 1)
27. Perform fuel management, transfer, and de-fueling (Level 1)
28. Inspect, check, and repair pressure fueling systems (Level 1)
29. Repair aircraft fuel systems components (Level 2)
30. Inspect and repair fluid quantity indicating systems (Level 2)
31. Troubleshoot, service, and repair fluid pressure and temperature warning systems (Level 2)
32. Inspect, check, service, troubleshoot, and repair aircraft fuel systems (Level 3)

*Skill Levels (Federal Aviation Administration Format):

1. Knowledge/Skill Level 1 C requires comprehension of general principle, but no manipulative skill application.
2. Knowledge/Skill Level 2 C requires comprehension of general principles, limited practical application and development of limited manipulative skills to perform basic operations.
3. Knowledge/Skill Level 3 C requires comprehension of general principles, performance of practical application and development of manipulative skills to minimum airworthiness standards.

IV. COURSE CONTENT OUTLINE:**Lecture:**

- A. Cabin Atmosphere Control Systems
- B. Hydraulic and Pneumatic Power Systems
- C. Aircraft Fuel Systems
- D. Fuel Metering Systems
- E. Engine Fuel Systems
- F. Aircraft Landing Gear Systems
- G. Position and Warning Systems
- H. Ice and Rain Control Systems
- I. Fire Protection Systems
- J. Engine Fire Protection Systems
- K. Assembly and Rigging
- L. Engine Instrument Systems

Lab will give students the opportunity to apply concepts to practical applications

- A. Cabin Atmosphere Control Systems
- B. Hydraulic and Pneumatic Power Systems
- C. Aircraft Fuel Systems
- D. Fuel Metering Systems
- E. Engine Fuel Systems
- F. Aircraft Landing Gear Systems
- G. Position and Warning Systems
- H. Ice and Rain Control Systems
- I. Fire Protection Systems
- J. Engine Fire Protection Systems
- K. Assembly and Rigging
- L. Engine Instrument Systems

Note: The Aero program courses are regulated by the Federal Aviation Administration to include approximately 50% lecture and 50% lab in all of the subjects.

V. APPROPRIATE READINGS

Reading assignments may include but are not limited to the following:

- A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010, ISBN# 0-88487-337-4
- B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009, or equivalent
- C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009, or equivalent
- D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009, or equivalent
- E. Aircraft Inspection and Repair (AC-43.13-1B & 2B,) FAA, supplied by Jeppesen, 2008, or equivalent
- F. Dictionary of Aeronautical Terms, Crane, 2008, or equivalent
- G. Aviation Mechanic Handbook, Crane, 2006, or equivalent
- H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002, or equivalent
- I. Computer-Based-Training hardware and software
- J. Aircraft and aircraft mock-up components
- K. Microfiche Library, ATP, 2008
- L. CD library, various
- M. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various

| | |
|--------------------------|---|
| <input type="checkbox"/> | Global or international materials or concepts are appropriately included in this course |
| <input type="checkbox"/> | Multicultural materials and concepts are appropriately included in this course. |

If either line is checked, write a paragraph indicating specifically how global/international and/or multicultural materials and concepts relate to content outline and/or readings.

VI. METHODS TO MEASURE STUDENT ACHIEVEMENT AND DETERMINE GRADES:

Students in this course will be graded in at least one of the following four categories. Please check those appropriate. A degree applicable course must have a minimum of one response in category A, B or C.

| A. Writing | | | |
|----------------------------------|---|--|---------------------|
| <i>Check either 1 or 2 below</i> | | | |
| x | 1. Substantial writing assignments are required. Check the appropriate boxes below and provide a written description in the space provided. | | |
| | 2. Substantial writing assignments are NOT required. If this box is checked leave this section blank. For degree applicable courses you must complete category B and/or C. | | |
| | a. essay exam(s) | | d. written homework |
| | b. term or other papers(s) | | e. reading reports |
| x | c. laboratory reports | | f. other (specify) |

Required assignments may include but are not limited to the following:

Discrepancy reports

Laboratory reports

Log Book entries

Sample Student Prompt;

Complete aircraft discrepancy reports and maintenance forms and records.

| B. Problem Solving | | | |
|---|----------------------|---|-----------------------|
| 1. Computational or non-computational problem-solving demonstrations, including: | | | |
| x | a. exam(s) | x | d. laboratory reports |
| x | b. quizzes | | e. field work |
| x | c. homework problems | | f. other (specify) |

Required assignments may include, but are not limited to the following:

Quizzes

Lab reports

Lab projects

Sample Student Prompt;

Trouble shoot inoperative fuel quantity system

List parts needed to repair fuel quantity system to operating condition

| | | | |
|--|-------------------------|---|------------------------|
| C. Skill demonstrations, including: | | | |
| x | a. class performance(s) | x | c. performance exam(s) |
| | b. field work | x | d. other (specify) |

Required assignments may include, but are not limited to the following:

Lab project

Research project

Exam

Sample Student Prompt;

Reassemble carburetor using appropriate maintenance manual

| | | | |
|--|--------------------|---|--------------------|
| D. Objective examinations, including: | | | |
| x | a. multiple choice | x | d. completion |
| x | b. true/false | x | e. other (specify) |
| x | c. matching items | | |

COURSE GRADE DETERMINATION:

Description/Explanation: Based on the categories checked in A-D, it is the recommendation of the department that the instructor's grading methods fall within the following departmental guidelines; however, the final method of grading is still at the discretion of the individual instructor. The instructor's syllabus must reflect the criteria by which the student's grade has been determined. (A minimum of five (5) grades must be recorded on the final roster.)

If several methods to measure student achievement are used, indicate here the approximate weight or percentage each has in determining student final grades.

40% Objective Examination

10% Written Classroom Assignments

50% Lab Applications

FOR DEGREE APPLICABLE COURSES

Course ID: AERO 2

Course Title: Aviation Maintenance Technology

VII. EDUCATIONAL MATERIALS

For degree applicable courses, the adopted texts, as listed in the college bookstore, or instructor-prepared materials have been certified to contain college-level materials.

| Validation Language Level (check where applicable): | College-Level Criteria Met | |
|---|----------------------------|----|
| | Yes | No |
| Textbook | x | |
| Reference materials | x | |
| Instructor-prepared materials | x | |
| Audio-visual materials | x | |

Indicate method of evaluation:

| | |
|--|---|
| Used readability formulae (grade level 10 or higher) | |
| Text is used in a college-level course | x |
| Used grading provided by publisher | |
| Other: (please explain; relate to Skills Levels) | |

| | | |
|--|---|--|
| Computation Level (Eligible for MATH 101 level or higher where applicable) | x | |
| Content | | |
| Breadth of ideas covered clearly meets college-level learning objectives of this course | x | |
| Presentation of content and/or exercises/projects: | | |
| Requires a variety of problem-solving strategies including inductive and deductive reasoning. | x | |
| Requires independent thought and study | x | |
| Applies transferring knowledge and skills appropriately and efficiently to new situations or problems. | x | |
| List of Reading/Educational Materials | | |
| A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010, ISBN# 0-88487-337-4 | | |
| B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009, or equivalent | | |
| C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009, or equivalent | | |
| D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009, or equivalent | | |
| E. Aircraft Inspection and Repair (AC-43.13-1B &2B,) FAA, supplied by Jeppesen, 2008, or equivalent | | |
| F. Dictionary of Aeronautical Terms, Crane, 2008, or equivalent | | |
| G. Aviation Mechanic Handbook, Crane, 2006, or equivalent | | |
| H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002, or equivalent | | |
| I. Computer-Based-Training hardware and software | | |
| J. Aircraft and aircraft mock-up components | | |
| K. Microfiche Library, ATP, 2008 | | |
| L. CD library, various | | |
| M. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various | | |
| Comments: | | |
| | This course requires special or additional library materials (list attached). | |

| | |
|---|---|
| x | This course requires special facilities: Aero Lab |
|---|---|

FORM A

TARGET COURSE **AERO 2** Aviation Maintenance Technology

Number

Title

BASIC SKILLS ADVISORIES PAGE The skills listed are those needed for eligibility for English 125, 126, and Math 101. These skills are listed as the outcomes from English 252, 262, and Math 250. In the right hand column, list at least three major basic skills needed at the beginning of the target course and check off the corresponding basic skills listed at the left.

| | |
|---|--|
| <p>Math Skills (eligibility for Math 101) (as outcomes for Math 250)</p> <p><input checked="" type="checkbox"/> Performing the four arithmetic operations on whole numbers, arithmetic fractions, and decimal fractions.</p> <p><input checked="" type="checkbox"/> Making the conversions from arithmetic fractions to decimal fractions, from decimal fractions to percents, and then reversing the process.</p> <p><input type="checkbox"/> Applying the concepts listed above to proportions, percents, simple interest, markup and discount.</p> <p><input checked="" type="checkbox"/> Applying the operations of integers in solving simple equations.</p> <p><input type="checkbox"/> Converting between the metric and English measurement systems</p> | <ol style="list-style-type: none"> 1. Perform the four arithmetic operations on whole numbers and fractions. 2. Convert fractions to decimals 3. Perform mathematical calculations |
| <p>Reading Skills (eligibility for English 126) (as outcomes for English 262)</p> <p><input checked="" type="checkbox"/> Using phonetic, structural, contextual, and dictionary skills to attack and understand words.</p> <p><input type="checkbox"/> Applying word analysis skills to reading in context.</p> <p><input checked="" type="checkbox"/> Using adequate basic functional vocabulary skills.</p> <p><input checked="" type="checkbox"/> Using textbook study skills and outlining skills.</p> <p><input type="checkbox"/> Using a full range of literal comprehension skills and basic analytical skills such as predicting, inferring, concluding, and evaluating.</p> | <ol style="list-style-type: none"> 1. Read college level textbooks. 2. Federal Aviation Requirement to read, write, and speak the English language 3. Read lab job sheets |
| <p>Writing Skills (eligibility for English 125) (as outcomes for English 252)</p> <p><input checked="" type="checkbox"/> Writing complete English sentences and avoiding errors most of the time.</p> <p><input checked="" type="checkbox"/> Using the conventions of English writing: capitalization, punctuation, spelling, etc.</p> <p><input checked="" type="checkbox"/> Using verbs correctly in present, past, future, and present perfect tenses, and using the correct forms of common irregular verbs.</p> <p><input type="checkbox"/> Expanding and developing basic sentence structure with appropriate modification.</p> <p><input type="checkbox"/> Combining sentences using coordination, subordination, and phrases.</p> <p><input type="checkbox"/> Expressing the writer's ideas in short personal papers utilizing the writing process in their development.</p> | <ol style="list-style-type: none"> 1. Complete aircraft discrepancy reports and maintenance forms and records. 2. Federal Aviation Requirement to read, write, and speak the English language. 3. Write discrepancy reports and maintenance records |

Check the appropriate spaces.

- Eligibility for Math 101 is **advisory** for the target course.
- Eligibility for English 126 is **advisory** for the target course.
- Eligibility for English 125 is **advisory** for the target course.

If the reviewers determine that an advisory or advisories in Basic Skills are all that are necessary for success in the target course, stop here, provide the required signatures, and forward this form to the department chair, the appropriate associate dean, and the curriculum committee.

Content review completed by _____ Date _____

TARGET COURSE AERO 2 Aviation Maintenance Technology
Number Title

CONTENT REVIEW FOR ALL COURSES IN ADDITION TO BASIC SKILLS COURSES

List in Column 1 at least **three specific major concepts, skills, or kinds of knowledge that a student will learn in the pre- or corequisite or advisory course that are essential to the successful completion in the target course.** In Column 2, state why the skill in Column 1 is essential in relation to the content listed in the course outline of the target course.

| COLUMN 1: Concepts, Skills, Kinds of Knowledge | COLUMN 2: Specifically how this is necessary in the target course |
|--|--|
| <p>(List each prerequisite or advisory separately here. If you need more space, attach a second page B. Be sure to explain each course in Column 2.)</p> <p>Name of prerequisite or advisory course:</p> <p><u>AERO 1</u> Concepts, skills, etc. (List these.)</p> <ol style="list-style-type: none"> 1. OHM'S Law 2. Aircraft Drawings 3. Ground Operations and Servicing | <p>It is advised that the student follows the sequence of the course, but is not mandatory. Aero 1 particularly provides foundational information about the Aviation maintenance industry. The student would have a better understanding of the regulations and procedure if presented in Aero 1, but will be able to gain this information as he or she progresses through Aero 2, 3 or 4.</p> <ol style="list-style-type: none"> 1. Student would benefit from previous exposure and familiarity with Ohm's Law and how it affects the behavior of electrical components and their operation. 2. The ability read and interpret detail, assembly, installation, and sectional type drawings, schematics, charts and graphs would aid the student in understanding the functionality of systems and their components. 3. Aircraft ground handling and servicing knowledge is a basic skill necessary to successfully move and service aircraft while on the ground, and help prevent costly and dangerous accidents. |

If the courses listed in Column 1 are advisory, complete the information below and do not go on to the next page.

Advisory course(s): AERO 1

Content review completed by _____
Signature(s) Date

Vice President of Instruction's Signature _____
Date

Please forward this completed form to the Curriculum Committee.