**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 | x |
| Transfer Baccalaureate List | Yes |  | No | x |

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

Other pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | II. Course Outcomes  |  | x | VI. Methods of Grading |
| x | III. Course Objectives  |  |  | VII. Levels of Educational Materials |
| x | IV. Course Content Outline  |  | **Additional Pages (optional depending on course)** |
| x | V. Approved Readings  |  |  | Request for Repeatability/Limitation on Enrollment |

**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 1to 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. The completion of Aero 1, 2, 3 and 4 qualifies the student for Licenser eligibility to maintain all aircraft Airframes and Powerplants. | Provide clarification to readers |
| II. | A. Meet the Federal Aviation Administration requirements for the majority of the “System” subjects as specified in the Approved Aviation Maintenance Technician School.B. Adhere to ethical and legal maintenance standards as prescribed in the Federal Aviation Administration, Federal Aviation Regulations.C. Given acceptable manufacturers documentation, complete assigned inspections, modifications, repairs, calculations, and/or troubleshooting procedures.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. | 1. Meet the Federal Aviation Administration requirements for the majority of the

Airframe and Powerplant “Systems” subjects as specified in the Approved Aviation Maintenance Technician School.B. Recognize 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. | Clarification of outcome “A” and “C” |
| III. | 1. (2) Inspect, check, troubleshoot, service, and repair engine ice and rain control systems2. (2) Inspect, check , troubleshoot, service, and repair airframe ice and rain control systems3. (1) Repair heating, cooling, air-conditioning, pressurization, and oxygen systems components4. (1) Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, and pressurization systems.5. (2) Inspect, check troubleshot, service, and repair oxygen systems6. (3) Inspect check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems.7. (1) Rig rotary-wing aircraft8. (2) Rig fixed-wing aircraft9. (2) Check alignment of structures10. (3) Assemble aircraft components including flight control surfaces11. (3) Balance and rig movable surfaces12. (3) Jack aircraft13. (3) Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems14. (1) Inspect, check, and service speed and take-off warning systems, electric brake controls, and anti-skid systems15. (3) Inspect, check, troubleshot, service, and repair landing gear position indicating and warning systems16. (3) Inspect, check, service, troubleshoot, and repair engine temperature, pressure, and RPM indicating systems17. (2) Troubleshoot, service, and repair fluid rate of flow indicating systems18. (1) Inspect, check, and service smoke and carbon monoxide detection systems19. (2) Repair hydraulic and pneumatic power system components20 (3) Identify and select hydraulic fluids21. (3) Inspect check, service, troubleshoot, and repair hydraulic and pneumatic power systems22. (1) Troubleshoot and adjust engine fuel metering systems and electronic fuel controls23. (3) Overhaul carburetors24. (2) Repair engine fuel metering system components25. (3) Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel systems26. (1) Check and service fuel dump systems27. (1) Perform fuel management, transfer, and de-fueling28. (1) Inspect, check, and repair pressure fueling systems29. (2) Repair aircraft fuel systems components30. (2) Inspect and repair fluid quantity indicating systems31. (2) Troubleshoot, service, and repair fluid pressure and temperature warning systems32. (3) Inspect, check, service, troubleshoot, and repair aircraft fuel systems | 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 troubleshot, 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, troubleshot, 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)  | Clarification of FAA levels in objectives |
| IV. | A. Cabin Atmosphere Control SystemsB. Hydraulic and Pneumatic Power SystemsC. Aircraft Fuel SystemsD. Fuel Metering SystemsE. Engine Fuel SystemsF. Aircraft Landing Gear SystemsG. Position and Warning SystemsH. Ice and Rain Control SystemsI. Fire Protection SystemsJ. Engine Fire Protection SystemsK. Assembly and RiggingL. Engine Instrument Systems | **Lecture;**A. Cabin Atmosphere Control SystemsB. Hydraulic and Pneumatic Power SystemsC. Aircraft Fuel SystemsD. Fuel Metering SystemsE. Engine Fuel SystemsF. Aircraft Landing Gear SystemsG. Position and Warning SystemsH. Ice and Rain Control SystemsI. Fire Protection SystemsJ. Engine Fire Protection SystemsK. Assembly and RiggingL. Engine Instrument Systems**Lab will give students the opportunity to apply concepts to practical applications**A. Cabin Atmosphere Control SystemsB. Hydraulic and Pneumatic Power SystemsC. Aircraft Fuel SystemsD. Fuel Metering SystemsE. Engine Fuel SystemsF. Aircraft Landing Gear SystemsG. Position and Warning SystemsH. Ice and Rain Control SystemsI. Fire Protection SystemsJ. Engine Fire Protection SystemsK. Assembly and RiggingL. Engine Instrument Systems | Addition of Lab content outline |
| V. | A. Airframe and Powerplant Technician General Text Book, Jeppesen, 2004B. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2003C. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2004D. Aircraft Gas Turbine Powerplants, Jeppesen, 1977E. Aircraft Inspection and Repair (AC-43.13-1B &2A, FAA, supplied by Jeppesen, 1998F. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2003G. Aviation Mechanic Handbook, Crane, 1992H. Airframe and Powerplant Mechanic Powerplant Handbook (AC-65-12A), FAA, 1996I. Dictionary of Aeronautical Terms, Crane, 1991J. Computer-Based-Training hardware and softwareK. Aircraft and aircraft mock-up componentsL. Microfiche Library, ATP, 2006M. CD library, variousN. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various  | A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009E. Aircraft Inspection and Repair (AC-43.13-1B &2B, FAA, supplied by Jeppesen, 2008F. Dictionary of Aeronautical Terms, Crane, 2008G. Aviation Mechanic Handbook, Crane, 2006H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002I. Computer-Based-Training hardware and softwareJ. Aircraft and aircraft mock-up componentsK. Microfiche Library, ATP, 2008L. CD library, variousM. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various  | Update of text publication dates |
| VI. | ***A. Writing***1. Technical reports.2. Complete aircraft discrepancy reports and maintenance forms and records.3. Write discrepancy reports and maintenance records***B. Problem Solving*** **PTM, Subject Q, Exhaust, Quiz 1-1**1. The two general types of piston engine exhaust systems can be broadly classified as: A.  B. 2.  allow for expansion and contraction of the exhaust system.3. Spring-loaded  allow for movement 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 or 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** **Level 3****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 43.13-1aEQUIPMENT: Flashlight, Inspection Mirror Applicable Assigned Aircraft Cessna 150 Cessna 172 Cessna 210 Piper Twin ComanchePROJECT: 1. Inspect an aircraft exhaust system for cracks, warpage, and condition in accordance with the applicable Aircraft Maintenance Manual and an 100 hour inspection. 2. On a discrepancy form, list and submit the defects identified on the assigned aircraft exhaust system. 3. Complete and submit an AD & Sb research form. 4. On an Maintenance Release Form, as an entry, describe the recommended repair process, documenting your sources of the repair procedures. 5. Complete and submit an appropriate log book entry. | ***A.Writing******Required assignments may include but are not limited to the following:***Discrepancy reportsLaboratory reportsLog Book entries**Sample student prompt;**Complete aircraft discrepancy reports and maintenance forms and records.***B. Problem Solving******Required assignments may include, but are not limited to the following:***QuizzesLab reportsLab projects**Sample student prompt;**Trouble shoot inoperative fuel quantity system List parts needed to repair fuel quantity system to operating condition***C. Skill demonstrations******Required assignments may include, but are not limited to the following:***Lab projectResearch projectExam**Sample Student Prompt;**Reassemble carburetor using appropriate maintenance manual | Simplification of methods to measure student achievement |

***(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 |
| --- | --- | --- | --- | --- |

|  |  |  |  |
| --- | --- | --- | --- |
| (4) Lecture / Lab Hours: |  |  | (8)Classification: |
|  Total Course Hours  | Total Lec hours: | 15 |  |
|  | Total Lab hours:  | 15 |  | Degree applicable: | x |
| Lec will generate |  | hour(s) outside work |  | Non-degree applicable: |  |
| Lab will generate |  | hour(s) outside work. |  | Pre-collegiate basic skills: |  |
|  |  |  |  |
| (9)RC | Fulfills AS/AA degree requirement: (area) |  |
| (5)Grading Basis: | Grading scale only | x |  | General education category: |  |
|  | Pass/No Pass option |  |  | Major: | Aeronautics |
|  | Pass/No Pass only |  |  |  |  |
| (6)Basic Skills Prerequisites:  | (10)CSU: | Baccalaureate: | x |
| (11) Repeatable: (A course may be repeated three times) | 0 |
| Basic Skills Advisories: Eligibility for English 125, English 126, and Math 101 | For Office Use Only |
| New  |  | Mod  | x | Effective Date: 08/01/2010 |
| (7)Subject Prerequisites (requires C grade or better):   | SAM Priority: C | DATATEL ID: 4997 |
| Unit Code: 272040 | TOPS Code: 0950.00 |
| Reporting ID: 600992.00 | Date Reporting ID Assigned |
| Subject Corequisites:  | Program Status: | Course LHE: 26.25 |
| Subject Advisories: AERO 1 | Replaced by: Date: |
| (12)Catalog Description: 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. The completion of Aero 1, 2, 3 and 4 qualifies the student for Licenser eligibility to maintain all aircraft Airframes and Powerplants.  |

|  |  |  |
| --- | --- | --- |
| Course ID: AERO 2  |  | Course Title: Aviation Maintenance Technology |

**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 for the majority of the Airframe and Powerplant “Systems” subjects as specified in the Approved Aviation Maintenance Technician School.

B. Recognize 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 troubleshot, 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, troubleshot, 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.

|  |  |  |
| --- | --- | --- |
| Course ID: AERO 2 |  | Course Title: Aviation Maintenance Technology |

**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.

|  |  |  |
| --- | --- | --- |
| Course ID: AERO 2 |  | Course Title: Aviation Maintenance Technology |

**V*.* APPROPRIATE READINGS**

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

A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010

B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009

C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009

D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009

E. Aircraft Inspection and Repair (AC-43.13-1B &2B, FAA, supplied by Jeppesen, 2008

F. Dictionary of Aeronautical Terms, Crane, 2008

G. Aviation Mechanic Handbook, Crane, 2006

H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002

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

|  |  |
| --- | --- |
|  | Global or international materials or concepts are appropriately included in this course |
|  | 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.

|  |  |  |
| --- | --- | --- |
| Course ID: AERO 2 |  | Course Title: Aviation Maintenance Technology |

**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** ***Check either 1 or 2 below*** |
| 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

|  |  |  |
| --- | --- | --- |
| Course ID: AERO 2 |  | Course Title: Aviation Maintenance Technology |

|  |
| --- |
| **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.

50% Written (3/4 objective test, ¼ short answer)

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, 2010B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009E. Aircraft Inspection and Repair (AC-43.13-1B &2B, FAA, supplied by Jeppesen, 2008F. Dictionary of Aeronautical Terms, Crane, 2008G. Aviation Mechanic Handbook, Crane, 2006H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002I. Computer-Based-Training hardware and softwareJ. Aircraft and aircraft mock-up componentsK. Microfiche Library, ATP, 2008L. CD library, variousM. 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.

|  |  |
| --- | --- |
| Math Skills (eligibility for Math 101)(as outcomes for Math 250) x Performing the four arithmetic operations on whole numbers, arithmetic fractions, and decimal fractions. x Making the conversions from arithmetic fractions to decimal fractions, from decimal fractions to percents, and then reversing the process. Applying the concepts listed above to proportions, percents, simple interest, markup and discount. x Applying the operations of integers in solving simple equations. Converting between the metric and English measurement systems | 1. Perform the four arithmetic operations on whole numbers and fractions.2. Convert fractions to decimals3. Perform mathematical calculations   |
| Reading Skills (eligibility for English 126) (as outcomes for English 262)  x Using phonetic, structural, contextual, and dictionary skills to attack and understand words. Applying word analysis skills to reading in context. x Using adequate basic functional vocabulary skills. x Using textbook study skills and outlining skills. Using a full range of literal comprehension skills and basic analytical skills such as predicting, inferring, concluding, and evaluating.  | 1. Read college level textbooks.2. Federal Aviation Requirement to read, write, and speak the English language3. Read lab job sheets |
| Writing Skills (eligibility for English 125)(as outcomes for English 252) x Writing complete English sentences and avoiding errors most of the time. x Using the conventions of English writing: capitalization, punctuation, spelling, etc. x Using verbs correctly in present, past, future, and present perfect tenses, and using the correct forms of common irregular verbs. Expanding and developing basic sentence structure with appropriate modification.­ Combining sentences using coordination, subordination, and phrases. Expressing the writer's ideas in short personal papers utilizing the writing process in their development. | 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.

 x Eligibility for Math 101 is **advisory** for the target course.

 x Eligibility for English 126 is **advisory** for the target course.

 x 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 |  |

**FORM B**

|  |  |  |  |
| --- | --- | --- | --- |
| **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 |
| (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.)**Name of prerequisite or advisory course:** AERO 1 Concepts, skills, etc. (List these.)Knowledge of Aviation Maintenance Technician privileges and limitationsKnowledge of Federal Aviation RegulationsKnowledge of licensers requirements for Aviation Maintenance TechnicianAbility to identify aviation hardwareAbility to fabricate fluid lines and fittings | 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 will have a better understanding of the regulations and procedure presented in Aero 1, but will be able to gain this information as he or she progresses through Aero 2, 3 or 4. |
|  |  |
|  |  |
|  |  |

***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.***