MERCER COUNTY COMMUNITY COLLEGE

COURSE OUTLINE

AVI 217		Flight 6
Course Number		Course Title

1	1	1
Credits	Class Hours	Laboratory Hours

Text: Instrument Flying Handbook, Department of Transportation, Federal Aviation Administration FAA-H-8083-15

Airman's Information Manual – Department of Transportation, Federal Aviation Administration

Practical Test Standards for the Commercial Airplane Multi-Engine Land

Owners Manual for Aircraft Used

Airplane Flying Handbook, Department of Transportation, Federal Aviation Administration FAA-H-8083-3A

Length of Course:

This course is self-paced. It will require: 9 Hours Fight Training Devise (FTD) or Personal Computer Aviation Aided Training Devise (PCATD) and 10 Hours Flight or the time needed to meet Practical Test Standards

Catalog Description:
An independent study course involving self-study, ground, instruction, use of simulation and flight training. The student will develop the proficiency, knowledge and skills to complete the required practical examination to add a multi-engine class instrument rating single engine commercial certificate and instrument rating.

Pre-requisite:
Single Engine Land Commercial Pilot
Instrument Rating

Joseph Blasenstein
COURSE COORDINATOR

Lesson Progress Checks:

_____ 135 Ground Trainer, Takeoff, in-flight maneuvers, landing procedures
_____ 140 Ground Trainer: The student will be able to perform all phases of Multi-engine operations, recover from engine failures & make proper decisions regarding operations.
_____ 145 Normal Multi-Engine Operations
_____ 151 Multi-Engine Aircraft: The student will perform all tasks required for the Multi-Engine class, Instrument Rating as specified by the Practical Test Standards.

Lesson 132 – Multi-Engine Operations Instruction

Flight Training Device or PCATD

Objectives: The student will be introduced to the Instrument training device. Terms and nomenclature will be reviewed as well as aerodynamics. Basic procedures will be introduced for cabin familiarization, checklists, takeoff, in-flight and landing procedures.

Content: 1. Pre-flight Orientation
There will be a review of airspeeds to be used for normal rotation, lift-off, transition, climb, cruise climb. The Pilot Operating Handbook will be the source of this information. Power setting procedures for cruise and synchronization for propellers will be discussed and demonstrated. Approach speeds and flap settings will also be included. Multi-Engine aerodynamics will briefly be discussed. Performance charts for multi-engine operations will be discussed. Review of multi-engine packet.

2. Introduction
   A. Instrument Trainer Familiarization
      a. Location of controls
         1. Throttle
         2. Propeller
         3. Mixture control
         4. Trim
         5. Flight instruments
         6. Radios

   B. Engine Start checklist
   C. Before Takeoff checklist
   D. Takeoff
      a. Rotation
      b. Liftoff (VMC +5)
      c. Transition
      d. Climb
      e. Cruise climb
      f. Leveling off
      g. Propeller Synchronization

   E. Inflight Maneuvers
      a. Straight and level
      b. Turns level
      c. Descents straight ahead
      d. Climbs straight ahead
      e. Descending turns
      f. Climbing turns
      g. Steep turns

F. Landing procedures
   a. Fuel fullest tank
   b. Fuel pumps
   c. Approach speed
   d. Landing gear down and locked
   e. Flap setting
   f. Approach above VMC
   g. Gump check

Post flight Discussion.

Completion Standards:

The student will understand the airspeeds and aerodynamics for aircraft operations. The student will demonstrate an understanding of the aerodynamics and airspeeds for operations as presented in the packet. The student will be able to find relevant info in the POH. Procedures in utilizing the checklists for starting, before takeoff, takeoff, climb, leveling off will be followed. In flight maneuvers and landing procedures will be practiced. Rollout from turns should be within 10° of the pre-selected heading. Altitude should be held within 100 feet and airspeed within 10 knots of assigned airspeed.

Lesson 133 – Multi-engine Operations Instruction

Flight Training Device or PCATD

Objective: The student will acquire additional proficiency in multi-engine operations. Airspeeds and basic procedures will be practiced. The student will refine his/her skills for engine start-up, checklist usage, takeoff, climb, leveling off, inflight maneuvers and landing.

Content: 1. Preflight Orientation

The student will recite the V speeds for the aircraft. Approach speeds and landing procedures will be known and explained by the student.

2. Review
   1. Location of controls
   2. Engine start utilizing checklist
   3. Before takeoff checklist
   4. Takeoff
   5. Transition
   6. Climb
   7. Cruise climb
   8. Leveling off
   9. Prop synchronization
   10. In flight maneuvers
       a. Turns level

b. Descents straight ahead
c. descending turns
d. Climbing turns
e. Steep turns

11. Landing procedures

3. Introduction
   a. Go around procedures
   b. Short field approach

Completion Standards:

The student will display increased proficiency in multi-engine operations. Where appropriate, the student will maintain altitude, heading and airspeed within 100 feet, 10° and 10 knots. Climb or descent rate within 200 feet per minute of Go around procedures and short field approaches will be practiced.

Lesson 134

Objective: The student will acquire additional proficiency in multi-engine operations. Go around and short field approaches will be performed with increasing skill. Slow flight and stalls will be introduced, along with several instrument approaches.

Content: 1. Preflight Orientation

The instructor will discuss slow-flight and approach to landing and takeoff/departure stalls.

2. Review
   a. Engine start checklist
   b. Before takeoff checklist
   c. Takeoff
   d. Landing procedures
   e. Inflight maneuvers
   f. Go around
   g. Short field approach

3. Introduction
   A. Slow flight
      1. Practiced at or above 3000' AGL
      2. Establish an airspeed in which an increase in the angle of attack, load factor or reduction in power will result in a stall.
   B. Stalls
      1. Approach to landing (power off stall) configuration at or above 3000' AGL
         a. Establish a stabilized descent

b. Transition to a pitch attitude that will induce a stall.
c. Recovers promptly
d. Retracts flaps and landing gear appropriately
e. Accelerates and returns to altitude

2. Take-off stall (power on stall) above 3000' AGL
f. Establishes takeoff or departure configuration
g. Sets power appropriately 65% or better
h. Establishes pitch attitude
i. Recovers promptly
j. Retracts flap and landing gear
k. Accelerates and returns to altitude

C. Instrument Approaches
1. Precision
2. Non-precision

Completion Standards:

The student will display proficiency in the reviewed maneuvers. Procedures for performing slow flight and power-off and power-on stall will be followed carefully. Competency approaching Practical Test Standard should be displayed in the reviewed material.

Lesson 135 – Multi-Engine Operations Progress Check

Flight Training Device or PCATD

Objective: During this progress check the student will perform takeoff, inflight maneuvers, landing procedures, Go around, short field approach, slow flight stalls. This progress check will be conducted by the Chief Instructor or his assistant to evaluate the student's performance of all the maneuvers learned in the previous lessons.

Content: 1. Preflight orientation: explanation of expectation of student performance and skill.

2. Review
A. Controls
B. Engine Start Checklist
C. Before Takeoff Checklist
D. Takeoff
1. Rotation
2. Liftoff
3. Transition
4. Climb
5. Cruise climb
6. Leveling off
7. Propeller Synchronization
E. Inflight maneuvers
1. Basic Four

a. Climbs
b. Turns
c. Descents
d. Straight and level

2. Steep turns
3. Slow flight
4. Stalls
   a. Approach to landing (power-off)
   b. Takeoff (power-on)
5. Landings
   a. Normal
   b. Cross wind
   c. Short field
6. Go Around procedures
7. Instrument Approaches
   a. Precision
   b. Non-precision

3. Post flight Discussion

Completion Standards:

The student will have demonstrated his/her ability in performing the maneuvers. Specific skills including airspeed control, roll out and heading control, altitude must be shown. Appropriate procedures and information need to be shown and/or recited during this check.

Lesson 136 – Multi-Engine Operations Instruction

Flight Training Device or PCATD

Objectives: During this lesson, the student will be introduced to emergency multi-engine operations.

Content: 1. Preflight Orientation

The instructor will discuss with the student the procedures to be followed in the event of an emergency descent, engine failure on takeoff, after rotation and during flight. A VMC demonstration will also be included.

2. Introduction
   A. Emergency Descent
   B. Engine failure prior to rotation
      1. Abort takeoff
      2. Brake
   C. Engine failure after rotation with gear down and sufficient runway remaining for a complete stop.
      1. Maintain directional control
      2. Throttles closed
      3. Land straight ahead, brake as required

D. Engine failure after rotation with gear up and decision made to continue
    1. Maintain directional control
    2. Mixtures, props, throttles full forward
    3. Flaps and gear up
    4. ID with dead foot, verify by closing throttle
    5. Feather prop
    6. Mixture to cutoff of failed engine
    7. Climb at blue line
    8. Declare an emergency and land

E. VMC Demonstration
    1. Clearing turns
    2. Clean configuration: mixtures-rich, props-forward. fuel pump on
    3. Close left throttle while maintaining heading and altitude
    4. Slow AC to 100 KIAS
    5. Increase right throttle (operating engine) to full power, maintain heading with rudder, no bank
    6. Increase pitch attitude, decrease airspeed until full rudder is applied to maintain directional control
    7. Recover at the first sign of loss of directional control or first indication of stall (horn or buffet)
    8. Recover by reducing power on the operating engine

Post Flight Discussion

Completion Standards:

The student will understand the seriousness of engine out-operations. Procedures for these operations will be practiced. Recovery procedures will be performed with caution yet accurately and expeditiously done.

<u>Lesson 137 – Multi-engine operations Instruction</u>

Flight Training Device or PCATD

Objectives: The student will acquire additional proficiency in reacting to emergencies. This lesson will include a review of engine failure prior to rotation, after rotation and VMC. This lesson will introduce approach and landing with an inoperative engine, systems and equipment malfunctions.

Content: 1. Preflight orientation: explanation of the landing and approaching on airport with an inoperative engine. Discuss the landing profile and common types of system and equipment malfunctions.

2. Review
    A. Emergency descent
    B. Engine failures prior to rotation

C. Engine failure after rotation
D. VMC demonstration

3. Introduction
   A. Approach and landing with an inoperative engine
   B. Systems and equipment malfunction
   C. Systems and equipment malfunctions
      a. loss of power
      b. engine roughness
      c. carburetor or induction icing
      d. loss of oil pressure
      e. landing gear or flap malfunction
      f. inoperative trim
      g. smoke/fire/engine compartment fire
      h. vacuum/pressure and associated flight instrument malfunction

Completion Standards:

The student will exhibit proficiency in handling the various engine failure scenarios. A VMC demonstration will be performed competently. The student will perform the appropriate corrective procedures when called upon to do systems and equipment malfunctions.

Lesson 138 – Multi-engine operations Instruction

Flight training Device or PCATD

Objective: Emergency operations will be reviewed in the first part of this lesson. Multi-engine operation will thereafter follow. These maneuvers to be introduced include maneuvering with one engine inoperative, engine failure during flight referencing instruments and instrument approach with one engine inoperative referencing instruments.

Content: 1. Preflight orientation: The instructor will review procedures for maneuvering with one engine inoperative and thereafter review procedures to be followed for flying referencing instruments with an engine failure and conducting an instrument approach.

2. Introduction
   A. Multi-engine maneuvers with one engine inoperative
      a. Recognize engine failure and maintain control
      b. Follows appropriate procedures
   B. Engine Failure during flight by reference to instruments
      a. Follow prescribed procedures
      b. Demonstrates coordinated flight
   C. Instrument approach – one engine inoperative by reference to instruments
      a. Follows prescribed procedures
      b. Follows simulated ATC procedures
      c. Establishes a rate of descent that will ensure arrival at MDA or DH/DA from which a descent to landing can be made

Completion Standards:

The student will demonstrate satisfactorily emergency operations, including emergency descent, engine failure prior to rotation and after rotation, VMC demonstration. He will also competently handle system and equipment malfunctions and VFR approach on landing with one engine inoperative. The introduction of multi-engine maneuvers with one engine inoperative by reference to instruments will be conducted and practiced without loss of control.

Lesson 139 – Multi-engine operations Instruction

Flight Training Device or PCATD

Objective: The first part of this lesson will be a review of Multi-engine maneuvers with one engine inoperative. Included in this review will be flight operations involving engine failure with reference to instruments for engine failure, instrument approach. A general overall review of multi-engine operations will follow.

Content:
1. Review
   A. Multi-engine maneuvers with one engine inoperative and approaches by reference to instruments will be performed.
   B. Multi-engine preflight procedures, takeoffs and landings, steep turning, slow flight and stalls, emergency operations and multi-engine operations will be practiced.

Completion Standards:

The student will demonstrate competency in performing the elements involved with multi-engine operations.

Lesson 140 – Multi-engine operations Progress Check

Flight Training Device or PCATD

Objective: During this progress check the student will perform the elements for the multi-engine airplane operations. The items will include preflight preparation, preflight procedures, takeoff and landings, performance maneuvers, steep turns, slow flight and stalls, emergency operations and multi-engine operations.

Content:
1. Review
   A. Review elements of the multi-engine Practical Test Standards appropriate for the rating.

Completion Standards:

The student will perform the elements of the multi-engine Practical Test Standards with competence exhibited so that he may proceed to the actual aircraft.

Lesson 141 – Multi-engine operations Instruction

Multi-engine Aircraft

Objective: The student will be instructed on the preflight of the aircraft. Items for inspection and checking will be pointed out. Basic procedures will be introduced after cockpit familiarization including engine start, and before takeoff checklists, taxiing, takeoff, inflight maneuvers and landing procedures.

Content: 1. Preflight orientation

The instructor and student will conduct a preflight inspection utilizing an approved aircraft checklist in hand. Emphasis will be placed on inspecting fuel quantity, landing gear, tire inflation and condition, propellers and control surfaces. Engine start procedures and before takeoff checklist will be followed. Taxiing with braking an asymmetric thrust will be introduced. Takeoff procedures will be reviewed. Inflight maneuvers will be introduced and landing procedures will be followed:

2. Introduction
    - A. Preflight aircraft inspection
        - a. Cockpit
        - b. Left wing trailing edge
        - c. Left wing leading edge
        - d. nose section
        - e. Right wing leading edge
        - f. Right wing trailing edge
        - g. Fuselage right side
        - h. Empennage
        - i. Fuselage left side
    - B. Before starting checklist
    - C. Starting
    - D. Before takeoff
    - E. Takeoff
        - a. Rotation
        - b. Liftoff
        - c. Transition to climb
        - d. Climb
        - e. Cruise climb
        - f. Leveling off
    - F. Inflight maneuvers
        - a. Straight and level
        - b. Turns, level right and left
        - c. Descents straight ahead
        - d. Climbs straight ahead
        - e. Descending turns
        - f. Climbing turn

g. Steep turns

G. Landing Procedures
   a. Before landing check
   b. Fuel Selector
   c. Auxiliary fuel pump on
   d. Mixture control
   e. Carburetor heat
   f. Cowl flaps
   g. Landing gear
   h. Landing and taxi lights
   i. Wing flaps
   j. Airspeed
   k. Prop high RPM
   l. Taxi to parking
   m. Secure aircraft

Post Flight Discussion

Completion standards:

The student will understand and follow the preflight inspection. Procedures for starting taxiing, before takeoff, takeoff, climb leveling off will be followed. Inflight maneuvers and landing procedures will be practiced. Roll out from turns should be within 10° of the pre-selected heading. Altitude should be held within 100 feet and airspeed within 10 knots of assigned airspeed.

Lesson 142 – Multi-engine Operations Instruction

Multi-Engine Aircraft

Objective: The student will acquire additional proficiency in multi-engine operations. Airspeeds and basic procedures will be practiced. The student will refine their skills for engine start up, check list usage, takeoff, climb, leveling off inflight maneuvers and landing.

Content: 1. Preflight Orientation

The student will review with his instructor the weights of the aircraft, fuel capacity, V speeds for operation, blue line and red line speeds. Basic procedures and profiles for takeoff and landing will also be discussed.

2. Review
   1. Preflight aircraft inspection
   2. Before starting checklist
   3. Starting
   4. Before takeoff
   5. Takeoff
   6. In flight maneuvers

7. Landing procedures
8. Taxiing procedures

3. Introduction
    1. Go around procedures
    2. Short field approach

Completion Standards:

The student will display increased proficiency in multi-engine operations. Where appropriate, the student will maintain altitude, heading and airspeed within 100 feet, 10° and 10 knots. Climb and descent rates within 200 feet per minute. Go around and short field approaches will be practiced.

Lesson 143 – Multi-engine Operations Instruction

Multi-engine Aircraft

Objective: The student will be practicing multi-engine operations. Go around and short field approaches will be performed with increasing skill. Stabilized approach will be emphasized. Slow flight and stall will be introduced along with several instrument approaches.

Content: 1. Preflight Orientation

The instructor will discuss slow flight approach to landing stalls and takeoff/ departure stalls. Precision and non-precision instrument approaches will also be introduced.

2. Review
    1. Preflight
    2. Engine start checklist
    3. Before Takeoff checklist
    4. Takeoff
        a. Rotation
        b. Liftoff
        c. Transition to climb
        d. Climb
        e. Cruise climb
        f. Leveling off
    5. Inflight maneuvers
    6. Landing procedures
    7. Go around
    8. Short field approach

3. Introduction
    1. Slow flight
        a. Practiced at or above 3000’ AGL
        b. Establishes and maintains an airspeed at which any further increase in angle of attack, increase in load factor or reduction

in power would result in an immediate stall
c. Straight and level flight, turns, climbs and descents will be practiced

2. Stalls
   a. Approach to landing, power off stall configuration at or above 3000'AGL
      1. Clear area
      2. Establishes a stabilized descent
      3. Transition to a pitch attitude that will induce a stall
      4. Recovers promptly
      5. Retracts flaps and landing gear appropriately
      6. Accelerates and returns to altitude

3. Instrument approaches
   a. Precision
      1. ILS approach
   b. Non-precision
      1. VOR, localizer, NDB or GPS

Completion Standards:

The student will display proficiency in the reviewed maneuvers. Procedures for performing flow flight, power-off and power-on stalls will be followed carefully. Competency approaching Practical Test Standards should be displayed in the reviewed material.

Lesson 144 – Multi-engine Operations Instruction

Multi-engine Aircraft

Objective: The student will acquire additional proficiency in multi-engine operations in preparation for progress check 145. Items to be reviewed and practiced include: Preflight inspection, cockpit management, engine starting, taxiing, before takeoff checklist, normal and crosswind takeoff, climb, approach and landing, short field takeoff and maximum performance climb, short field approach and landing, steep turns, slow flight and stalls, normal instrument approach and go arounds.

Content:

1. Preflight Orientation
   1. Review performance and limitations of AC oral
   2. Discuss AC systems, and operation, oral
   3. Review items to be practiced

2. Review
   1. Preflight inspection
   2. Cockpit management
   3. Engine Start
   4. Taxiing
   5. Before takeoff checklist
   6. Takeoff
      a. Rotation
      b. Liftoff

c. Transition
d. Climb
e. Leveling off

7. Steep turns
8. Slow flight
9. Approach to landing stalls
10. Takeoff and departure stalls
11. Short field Takeoff and landings
12. Normal and crosswind landings
13. Go around
14. Instrument approaches

3. Post flight discussion
    1. Critique flight

Completion Standards:

The student will display proficiency in the reviewed maneuvers. Competency should be displayed in the reviewed materials.

Lesson 145 – Multi-engine Operations Progress Check

Multi-Engine Aircraft

Objective: This progress conducted by the Chief Flight Instructor or Assistant Chief Flight Instructor will review normal multi-engine operations. Systems and performance characteristics of the aircraft will be reviewed orally.

Content:

1. Review
    A. Preflight inspection
    B. Cockpit management
    C. Engine starting procedures
    D. Taxiing
    E. Before Takeoff checklist
    F. Takeoff
        a. Rotation
        b. Liftoff
        c. Transition
        d. Climb
        e. Leveling off
    G. In flight maneuvers
        a. Straight and level
        b. Turns, level
        c. Climbing and descending turns
        d. Climbs and descents
    H. Steep turns
    I. Slow flight
    J. Approach to landing stalls
    K. Takeoff and departure stalls

L. Short field takeoff and landings
M. Normal and crosswind landings
N. Go around
O. Instrument approaches
P. Securing aircraft

2. Post flight discussion

Completion Standards:

The student will have demonstrated his competency in performing the reviewed maneuvers. Appropriate procedures, competencies and oral recitation need to be elicited before the student can proceed to the next lesson.

Lesson 146 – Multi-engine Operations Instruction

Multi-Engine Aircraft

Objective: During this lesson the student will be introduced to emergency multi-engine operations.

Content:

1. Pre flight Orientation
   A. The instructor will discuss with the student the procedures to be followed in the event of an emergency descent, engine failure on takeoff after rotation and during flight. VMC procedures will also be discussed.

2. Introduction
   A. Emergency descent
   B. Engine failure prior to rotation
      a. Abort takeoff
      b. Brake
   C. Engine failure after rotation with gear down and sufficient runway remaining for a complete stop
      a. Maintain directional control
      b. Throttles closed
      c. Land straight ahead
      d. Brake as required
   D. Engine failure after rotation with gear up and decision made to continue
      a. Maintain directional control
      b. Mixture, props, throttles full forward
      c. Flaps and gear up
      d. ID with dead foot, verify by cautiously closing throttle
      e. Feather prop or high pitch attitude
      f. Climb at blue line
      g. Declare an emergency and land
   E. VMC Demonstration
      a. Clearing turns

b. Clean configuration
    1. mixture-rich
    2. prop forward
    3. fuel pump on
c. Close left throttle while maintaining heading and altitude
d. Slow AC 100 KIAS
e. Increase right throttle (operating engine) to full power, maintain heading and bank toward operating engine no more than 5°
f. Increase pitch attitude which decrease airspeed until full rudder is applied to maintain directional control
g. Recover at the first sign of loss of directional control or first indication of stall (horn or buffer)
h. Recover by reducing power on the operating engine losing altitude and increasing airspeed

Post flight Discussion

Completion Standards:

The student having experienced these engine-out operations will understand the seriousness of these emergencies. Recovery procedures will be performed with caution and accurately and expeditiously done.

Lesson 147 – Multi-Engine Operations Instruction

Multi-Engine Aircraft

Objective: The student will acquire additional proficiency in reacting to emergencies. This lesson will include a review of an emergency descent, engine failure prior to rotation, after rotation and VMC. This lesson will introduce approach and landing with an inoperative engine, systems and equipment malfunctions.

Content: 1. Pre flight Orientation: Explanation of the procedures for an approach to landing at an airport with an inoperative engine. Discuss the landing profile for landing with an inoperative engine. Review common types of system and equipment malfunctions.

2. Review
    a. Emergency descent
    b. Engine failure prior to rotation
    c. Engine failure after rotation
    d. Engine failure after rotation with gear up and decision made to continue
    e. VMC demonstration

3. Introduction
    a. Approach and landing with an inoperative engine
    b. Drag demonstration
    c. System and equipment malfunction

1. Loss of power
2. Engine roughness
3. Carburetor or induction icing
4. Loss of oil pressure
5. Landing gear or flap malfunctions
6. Inoperative trim
7. Smoke/fire
8. Vacuum/pressure and associated flight instrument malfunction

Completion Standards:

The student will exhibit proficiency in handling the various engine failure scenarios. The VMC demonstration will be performed proficiently. Newly introduced approach to landing with an inoperative engine and system and equipment failures will be performed by the student utilizing appropriate corrective procedures.

Lesson 148 – Multi-Engine Operations Instruction

Multi-Engine Aircraft

Objective: Emergency operations will be practiced the first part of this lesson. The Student thereafter will be referencing instruments being introduced to engine failure during flight, instrument approach with one engine inoperative. The student will be introduced to maneuvers with one engine inoperative as per Practice Test Standards.

Content:

1. Pre flight Orientation: The instructor will discuss procedures for maneuvering with one engine inoperative. Procedures will be reviewed for flying with one engine inoperative while making an instrument approach. Emergency operational procedures will also be discussed.

2. Review
   - A. Emergency descent
   - B. Engine failure prior to rotation, after rotation
   - C. VMC demonstration
   - D. Drag demonstration
   - E. System and equipment malfunctions
   - F. Approach and landing VFR with an engine inoperative

3. Introduction
   - A. Multi-engine maneuvers with one engine inoperative
     1. If practical the feathering of one propeller shall be demonstrated
     2. Follow appropriate procedures
   - B. Engine failure during flight by referencing instruments
     1. Follow proscribed procedures
     2. Demonstrates coordinated flight
   - C. Instrument approach – one engine inoperative by referencing instruments
     1. Follows proscribed procedures
     2. Follows simulated ATC procedures

3. Establishes a rate of descent that will ensure arrival at MDA or DH/DA from which a descent to landing can be made

Completion Standards:

The student will satisfactorily demonstrate emergency operations including an emergency descent, engine failure on takeoff prior to rotation and after rotation, VMC demonstration, system and equipment malfunctions, approach and landing VFR with an engine inoperative. The introduction of multi-engine maneuvers with one engine inoperative by referencing to instruments will be conducted and practiced without loss of control by the student.

Lesson 149 – Multi-Engine Operations Instruction

Multi-Engine Aircraft

Objective: The first part of this lesson will be a review of multi-engine maneuvers with one engine inoperative. Included in these operations is engine failure with reference to instruments, single engine instrument approaches, feathering and defeathering operations. The latter part of the lesson will focus on overall review of multi-engine operations.

Content:

1. Pre flight Orientation

2. Review – Lesson 146 to 148
    - A. Multi-Engine maneuvers
        1. Feathering and defeathering operations above 3000' AGL
    - B. Engine failure during flight by referencing instruments
        1. Follow procedures
    - C. Single engine instrument approaches
    - D. Emergency descent
    - E. Engine failure prior to rotation, after rotation
    - F. VMC demonstration
    - G. System and equipment malfunctions
    - H. Approach and landing VFR with an engine inoperative
    - I. Review of materials 141 to 144
        a. Aircraft ground operations
        b. Takeoff procedures
        c. Steep turns
        d. Slow flight
        e. Approach to landing stalls
        f. Takeoff and departure stalls
        g. Short field takeoff and landings
        h. Go around
        i. Instrument approaches

3. Post flight Discussion
    - A. Critique flight

Completion Standards:

The student will demonstrate competency in performing the elements involved with multi-engine operations.

Lesson 150 – Multi-Engine Operations Progress Check

Multi-Engine Operations

Objective: During this Progress Check the Chief Flight Instructor or his Assistant Chief Flight Instructor will conduct the Multi-Engine instrument flight check. The student must orally and practically display his competency in performing the multi-engine operations as described in Commercial Practical Test Standards.

Content:

1. Review
    - A. Multi-engine operations as listed in Practice Test Standards
        1. Oral
            - a. Performance and limitations
            - b. Operation of system
            - c. Principles of Flight-engine inoperative
        2. Pre flight procedures
        3. Takeoff, landings and go arounds
        4. Performance maneuvers
            - a. Steep turns
        5. Slow flight and stalls
        6. Emergency operations
        7. Multi-engine operations

Completion Standards:

The student will perform the elements of the multi-engine Practical Test Standards that meet or exceed the items as described in the PTS.

MERCER COUNTY COMMUNITY COLLEGE

Class Attendance and Make-up Work Policy

The following criteria will be strictly adhered to with regard to classroom attendance and assignments.

Absences:

1. Class attendance is mandatory for all students. However, it is recognized that occasionally an absence will be necessary. Any student exceeding six (6) hours (not meetings) of absences will automatically be downgraded one grade level at the discretion of the instructor.

2. Three (3) consecutive absences from class without contacting the instructor may be considered cause for an automatic withdrawal from the course by the instructor. If the reason is a medical excuse, the student is required to bring in a doctor's note.

3. If a student decides to discontinue attending the course, it is the student's responsibility to follow through and officially withdraw from the course before the withdrawal deadline date. Failure to do this may result in the student receiving an "F" for the course.

Make-up Work:

1. All assignments are to be turned in on the date specified. Late assignments will be downgraded unless reason for lateness is fully justified.

2. When absence from class is necessary, you are still responsible for making up all delinquent assignments. These assignments must be submitted within one week of your return. No assignments will be accepted after that time.

3. Students MUST be present for all scheduled tests. If you are absent on a test day without justifiable reason, you will not be permitted to make up the test. If your absence is excused, you are responsible for making up the test before the next class period. You must make arrangements for making up the test outside of class.

4. Each student's attendance is reported to the Registrar's Office every four weeks. The Registrar's Office is required by law to make attendance reports on students who are funded by Veterans' Benefits, Social Security payments, and other federal/state and private scholarship programs.

Note: Any exception to the above-stated policy can be made at the discretion of the instructor on an individual basis.

Academic Integrity Statement:

"A student who a.) knowingly represents works of others as his/her own; b.) uses or obtains unauthorized assistance in the execution of any academic work; or c.) gives fraudulent assistance to another student is guilty of cheating. Violators will be penalized." (Student Handbook)

Classroom Conduct Statement:

It is the student's responsibility to attend all of their classes. If they miss a class meeting for any reason, students are responsible for all content that is covered, for announcements made in their absence, and for acquiring any materials that may have been distributed in class. It is expected that students be on time for all their classes. If students walk into a class after it has begun, it is expected that they choose a seat close to where they entered the room so that they do not disrupt the class meeting.

Students are expected to follow ordinary rules of courtesy during class sessions. Engaging in private, side conversations during class time is distracting to other students and to the instructor. Leaving class early without having informed the instructor prior to class is not appropriate. Unless there is an emergency, leaving class and returning while the class is in session is not acceptable behavior. Disruptive behavior of any type, including sharpening pencils during class while someone is speaking, is not appropriate.

The college welcomes all students into an environment that creates a sense of community of pride and respect; we are all here to work cooperatively and to learn together.