



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

**LAST REVIEW: 2008-2009**

*(i.e. 2003-2004)*

**NEXT REVIEW: 2013-2014**

*(i.e. 2008-2009)*

**STATUS: A**

*(A, I, D)*

**COURSE TITLE: Aircraft Fuel Systems**

**COMMON COURSE NUMBER: AMT 0250**

**CREDIT HOURS: 1**

**CONTACT HOUR BREAKDOWN**

*(per 16 week term)*

**CLOCK HOURS: 40**

*(Voc. Course ONLY)*

**Lecture: 17**

**Lab: 23**

**Clinic:**

**Other:**

**PREREQUISITE(S): None**

**COREQUISITE(S): None**

**PRE/COREQUISITE(S): None**

**COURSE DESCRIPTION** *(750 characters, maximum):* The student is provided with the knowledge and skills needed to maintain fuel systems and fuel system components. He/she will be able to inspect, check, maintain, and repair aircraft fuel system components, fuel dump systems, fuel management and transfer systems, and perform refueling operations. Student fee charged.

General Education Requirements – Associate of Arts Degree (AA), meets Area(s): Area

General Education Requirements – Associate in Science Degree (AS), meets Area(s): Area

General Education Requirements – Associate in Applied Science Degree (AAS), meets Area(s): Area

## UNIT TITLES

1. Fuel Dump Systems
2. Fuel Management, Transfer, and Defueling
3. Pressure Fueling Systems
4. Fuel System Components
5. Fluid Quantity Indicating Systems
6. Fluid Pressure and Temperature Warning System
7. Fuel Systems

**ASSESSMENT:**



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Please provide a brief description (250 characters maximum) that details how students will be assessed on the course outcomes.

1. Quizzes, Test, and/or Final Exam (cumulative/comprehensive);
2. Selected faculty may assess homework, projects, class participation/attendance, and/or extra credit projects. Upon successful completion of this course, the students should be able to maintain fuel systems and fuel system components.

*\*\*\* Complete the following only if course is seeking general education status \*\*\**

### GENERAL EDUCATION Competencies and Skills \*:

Please highlight in green font all Competencies/Skills from the list below that apply to this course. In the box to the right of the Competency/Skill, enter all specific learning outcome numbers (i.e. 1.1, 2.7, 5.12) that apply.

1. Read with critical comprehension	
2. Speak and listen effectively	
3. Speak and listen effectively	
4. Think creatively, logically, critically, and reflectively (analyze, synthesize, apply, and evaluate)	
5. Demonstrate and apply literacy in its various forms: <i>(highlight in green ALL that apply)</i> ( 1. technological, 2. informational, 3. mathematical, 4. scientific, 5. cultural, 6. historical, 7. aesthetic and/or 8. environmental )	
6. Apply problem solving techniques to real-world experiences	
7. Apply methods of scientific inquiry	
8. Demonstrate an understanding of the physical and biological environment and how it is impacted by human beings	
9. Demonstrate an understanding of and appreciation for human diversities and commonalities	
10. Collaborate with others to achieve common goals.	
11. Research, synthesize and produce original work	
12. Practice ethical behavior	
13. Demonstrate self-direction and self motivation	
14. Assume responsibility for and understand the impact of personal behaviors on self and society	
15. Contribute to the welfare of the community	

*\* General Education Competencies and Skills endorsed by '05-'06 General Education Task Force*



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

Common Course Number: AMT 0250

## UNITS

### Unit 1 Fuel Dump Systems

#### General Outcome:

- 1.0 The student shall:** The students should be able to check and service fuel dump systems.

#### Specific Measurable Learning Outcomes:

**Upon successful completion of this unit, the student shall be able to:**

- 1.1 Explain the reasons for requiring fuel dump systems.
- 1.2 Describe the methods used to control the operation of fuel dump chutes and valves.
- 1.3 Describe the principal safety requirements for a fuel dump system.
- 1.4 Describe the purpose of jettison pumps in fuel dump systems.



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**Unit 2 Fuel Management, Transfer, and Defueling**

**General Outcome:**

**2.0 The student shall:** The students should be able to perform fuel management, transfer, and defueling.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 2.1** Explain the precautions required when defueling an aircraft.
- 2.2** Explain the tank-to-tank engine combinations possible with a crossfeed system.
- 2.3** Describe the method of maintaining c.g. limits using fuel transfer technique.
- 2.4** Show the arrangements of fuel system controls, indicators, and warning lights.



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**Unit 3 Pressure Fueling Systems**

**General Outcome:**

**3.0 The student shall:** The students should be able to inspect, check, and repair pressure fueling systems.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 3.1** Describe the method of controlling fuel level during pressure fueling operations.
- 3.2** Describe the methods used to operate fueling valves.
- 3.3** Describe the protection of integral tanks against overpressure during pressure fueling operations.
- 3.4** Describe the arrangement of fueling system controls, indicators, and warning lights.
- 3.5** Describe the precautions required when fueling an aircraft.
- 3.6** Describe the purpose and operation of pilot valves.



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**Unit 4 Fuel System Components**

**General Outcome:**

**4.0 The student shall:** The students should be able to repair aircraft fuel system components.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 4.1 Repair and seal fuel tanks.
- 4.2 Pressure test fuel tanks.
- 4.3 Remove and clean fuel strainers.
- 4.4 Explain the precautions to follow when routing fuel lines.
- 4.5 Describe the method of regulating fuel system pressure.



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**Unit 5 Fluid Quantity Indicating Systems**

**General Outcome:**

**5.0 The student shall:** The students should be able to inspect and repair fluid quantity indicating systems.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 5.1** Describe the methods used to determine the level of fluid in a tank.
- 5.2** Describe the purpose of remote reading electrical gauges.
- 5.3** Explain the effect of aircraft attitude on fluid level measuring devices.



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## Unit 6 Fluid Pressure and Temperature Warning System

### General Outcome:

**6.0 The student shall:** The students should be able to troubleshoot, service, and repair fluid pressure and temperature warning systems.

### Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 6.1 Determine and adjust the pressure or temperature at which warning systems operate.
- 6.2 Determine the cause of incorrect warning system indications and make corrections.
- 6.3 Test the operation of temperature and pressure warning systems.



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## COURSE OUTLINE

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### Unit 7 Fuel Systems

#### General Outcome:

- 7.0 The student shall:** The students should be able to inspect, check, service, troubleshoot, and repair aircraft fuel systems.

#### Specific Measurable Learning Outcomes:

**Upon successful completion of this unit, the student shall be able to:**

- 7.1 Describe the fuel system inspection requirements for aircraft operating in areas of high humidity or wide temperature changes.
- 7.2 Explain the design and installation requirements for aircraft fuel tanks.
- 7.3 Describe the maintenance requirements of fuel tank sumps.
- 7.4 Explain the marking requirements for fuel filler openings.
- 7.5 Explain the purpose of potassium dichromate in a fuel system.
- 7.6 Explain the reason for using booster pumps with engine-driven pumps.
- 7.7 Describe the purpose of baffle plates in fuel tanks.
- 7.8 Describe the installation and operation requirements of fuel valves.
- 7.9 Describe the venting requirements of interconnected fuel tanks.