



BROWARD COMMUNITY COLLEGE COURSE OUTLINE

LAST REVIEW: 2008-2009

NEXT REVIEW: 2013-2014

STATUS: A

(i.e. 2003-2004)

(i.e. 2008-2009)

(A, I, D)

COURSE TITLE: Induction Systems

COMMON COURSE NUMBER: AMT 0460

CREDIT HOURS: 1

CONTACT HOUR BREAKDOWN

(per 16 week term)

CLOCK HOURS: 26.25

Lecture: 11.5

Lab: 14.75

(Voc. Course ONLY)

Clinic:

Other:

PREREQUISITE(S): None

COREQUISITE(S): None

PRE/COREQUISITE(S): None

COURSE DESCRIPTION *(750 characters, maximum):* The course is designed to give the student the needed knowledge and experience needed to service and maintain induction systems, superchargers, and exhaust systems. Material covered includes controls, indicators, theory of operation and inspection criteria. 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. Engine Ice and Rain Control Systems
2. Heat Exchangers and Superchargers
3. Carburetor Air Intake and Induction Manifolds



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ASSESSMENT:

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 service and maintain induction systems, superchargers and exhaust systems.

**** 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: (highlight in green ALL that apply) (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*



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Common Course Number: AMT 0460

UNITS

Unit 1 Engine Ice and Rain Control Systems

General Outcome:

- 1.0 The student shall:** The students should be able to inspect, check, troubleshoot, service and repair engine ice and rain control systems.

Specific Measurable Learning Outcomes:

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

- 1.1 Describe the principles of alcohol injection to control induction system icing.
- 1.2 Explain the effect of ice within the induction system on engine operation.
- 1.3 Describe the operating principles of carburetor air heaters used to prevent or eliminate ice in an engine induction system.
- 1.4 Describe the method used to prevent the entry of rain into the induction system of a reciprocating engine.
- 1.5 Describe the operating principles of electrically heated inlet ducts.
- 1.6 Explain the use of engine bleed air to control engine inlet icing.
- 1.7 Explain the causes of carburetor and induction system icing.



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Unit 2 Heat Exchangers and Superchargers

General Outcome:

- 2.0 The student shall:** The students should be able to inspect, check, service and repair heat exchangers and superchargers.

Specific Measurable Learning Outcomes:

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

- 2.1 Describe the effect of using heated air during periods of high engine power output.
- 2.2 Discuss the pressures present in the various portions of the induction system of supercharged and unsupercharged reciprocating engines.
- 2.3 Describe the principles of operation and control of turbo superchargers.
- 2.4 Describe the principles of operation and control of integral superchargers.
- 2.5 Explain the purpose and operation of the induction system impeller used in some radial engines.



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Unit 3 Carburetor Air Intake and Induction Manifolds

General Outcome:

- 3.0 The student shall:** The students should be able to inspect, check, service and repair carburetor air intake and induction manifolds.

Specific Measurable Learning Outcomes:

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

- 3.1 Describe the position of the carburetor heat control during engine starting.
- 3.2 Describe the purpose and location of the induction system screen in a reciprocating engine.
- 3.2 Describe the purpose and location of the "hot spot" heater in the induction system of some reciprocating engines.
- 3.4 Describe the installation and operation of a multi-point priming system on a radial engine.
- 3.5 Describe the purpose, location and servicing requirements for carburetor air filters.
- 3.6 Describe the purpose and operation of ram air intake ducts on reciprocating engines.