



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: Engine Instrument Systems

COMMON COURSE NUMBER: AMT 0400

CREDIT HOURS: 1

CONTACT HOUR BREAKDOWN

(per 16 week term)

CLOCK HOURS: 31.5

(Voc. Course ONLY)

Lecture: 12

Lab: 19.5

Clinic:

Other:

PREREQUISITE(S): None

COREQUISITE(S): None

PRE/COREQUISITE(S): None

COURSE DESCRIPTION *(750 characters, maximum):* Students will have knowledge of operation, installation, marking and interpretation of power plant instruments powered by or actuated by non-electrical means. They will be able to install, adjust, and calibrate these instruments in accordance with federal aviation agency and manufacturers' recommendations. This course will provide experience in inspection, checking, servicing, troubleshooting, and repair of engine instrument systems that are electrical in nature. 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. Fluid Rate of Flow Indicating Systems
2. Engine Temperature, Pressure, and R.P.M. Indicating Systems



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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 operate, install, interpret, and repair electrical and non-electrical power plant systems.

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UNITS

Unit 1 Fluid Rate of Flow Indicating Systems

General Outcome:

- 1.0 **The student shall:** The students should be able to troubleshoot, service and repair fluid rate-of-flow indicating systems.

Specific Measurable Learning Outcomes:

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

- 1.1 Explain the purpose and operating principles of a fuel-flow indicating system.
- 1.2 Discuss the relationship between fuel flow and the power output of an engine.



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Unit 2 Engine Temperature, Pressure and R.P.M. Indicating Systems

General Outcome:

2.0 The student shall: The students should be able to inspect, check, service, troubleshoot and repair engine temperature, pressure and r.p.m. indicating systems.

Specific Measurable Learning Outcomes:

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

- 2.1 Explain the operating principles of thermocouple-type temperature indicating systems.
- 2.2 Discuss the effect of a broken or leaking manifold pressure gauge line.
- 2.3 Define the purpose and operating principles of an exhaust gas analyzer system.
- 2.4 Discuss the purpose and operating principles of a manifold pressure indicating system.
- 2.5 Explain the operating principles of engine oil temperature indicating systems.
- 2.6 Apply markings to the glass face of engine instruments.
- 2.7 Install tachometer drives.
- 2.8 Determine the reason for failure of an electric tachometer system.
- 2.9 Discuss the requirements for a carburetor air temperature indicating system.
- 2.10 Determine the reason for an off-scale reading of a ratiometer-type indicating system.
- 2.11 Determine the cause of erratic indications when using a thermocouple system.
- 2.12 Explain the purpose and operating principles of fuel pressure warning systems.

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- 2.13 Discuss the installation practices for thermocouple leads.
- 2.14 Explain the operation and use of synchronous motors.
- 2.15 Measure the resistance of thermocouple leads.
- 2.16 Determine the cause of an inverse reading in a thermocouple temperature indicating system.
- 2.17 Identify the types and application of thermocouples used to indicate turbine engine temperatures.