



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

**LAST REVIEW: 2004-2005**

**NEXT REVIEW: 2009-2010**

**STATUS: A**

**COURSE TITLE: Navigation/Support Systems Items**

**COMMON COURSE NUMBER: AVS 0093C**

**CREDIT HOURS: 3.75**

**CONTACT HOUR BREAKDOWN**

*(per 16 week term)*

**CLOCK HOURS: 180**

*(Voc. Course ONLY)*

**Lecture: 180**

**Lab:**

**Clinic:**

**Other:**

**PREREQUISITE(S): Airframe & Powerplant training, Electronics training, previous experience**

**COREQUISITE(S):**

**PRE/COREQUISITE(S):**

**COURSE DESCRIPTION:** *(750 characters, maximum)*

The purpose of this program is to prepare students for employment radio mechanics (85514608) and as avionics technicians (823.281-010). The course content includes, but is not limited to, troubleshooting, repair and installation of airborne radio communications, radio navigation and radar equipment systems in accordance with regulatory and industry standards. Also included is instruction in basics of AM and FM transmitters and receivers and avionics equipment. Skills preparation for passing licensing/certification tests required by industry forms an integral part of the curriculum.

**UNIT TITLES**

- 1. Maintenance of Airborne Radio Navigation Systems and Equipment**
- 2. Maintenance of Airborne Radar Systems**
- 3. Principles of Operation of Area Navigation (R-NAV) Systems**



**Common Course Number: AVS 0093C**

**UNITS**

**Unit 1 Maintenance of Airborne Radio Navigation Systems and Equipment**

**General Outcome:**

**1.0 The student shall:**

**Specific Measurable Learning Outcomes:**

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

- 1.1 Describe the principles and theory of operation of VHF omnirange receivers, converters and indicators.
- 1.2 Determine through performance checks, the serviceability of VHF omnirange systems.
- 1.3 Troubleshoot to the component/module level malfunctioning omnirange systems.
- 1.4 Repair and return to service omnirange systems equipment.
- 1.5 Describe the principles and theory of operation of instrument landing systems (ILS).
- 1.6 Determine through performance checks the serviceability of localizer, glideslope and marker beacon receivers, converters and indicators.
- 1.7 Troubleshoot to the component/module level malfunctioning ILS systems and equipment.
- 1.8 Repair and return to service ILS systems and equipment.
- 1.9 Describe the principles of operation of microwave landing systems.
- 1.10 Describe the principles and theory of operation of Automatic Direction Finders (ADF).
- 1.11 Determine through performance checks the serviceability of ADF systems.
- 1.12 Troubleshoot to the component/module level malfunctioning ADF systems.
- 1.13 Repair and return to service ADF systems.
- 1.14 Describe radio navigation systems/equipment interface with other aircraft instruments and systems.



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### **Unit 2 Maintenance of Airborne Radar Systems**

#### **General Outcome:**

#### **2.0 The student shall:**

#### **Specific Measurable Learning Outcomes:**

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

- 2.1 Describe the principles and theory of operation of Air Traffic Control (ATC) transponders and altitude encoders.
- 2.2 Determine through performance checks the serviceability of ATC transponders and altitude encoders.
- 2.3 Troubleshoot to the component/module level ATC transponders.
- 2.4 Repair and return to service ATC transponders.
- 2.5 Describe the principles and theory of operation and Distance Measurements Equipment (DME).
- 2.6 Determine through performance checks the serviceability of DME systems.
- 2.7 Troubleshoot to the component/module level malfunctioning DME systems.
- 2.8 Repair and return to service DME transponders.
- 2.9 Describe the principles and basic theory of operation of weather radar systems.
- 2.10 Describe the basic principles of operation of the 3M/RYAN Stormscope.



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## **Unit 3 Principles of Operation of Area Navigation (R-NAV) Systems**

### **General Outcome:**

#### **3.0 The student shall:**

### **Specific Measurable Learning Outcomes:**

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

- 3.1** Describe the principles of operation of VHF R-NAV systems (VOR-DME).
- 3.2** Describe the principles of operation of hyperbolic R-NAV systems (Loran C) (Omega/VAF).