



BROWARD COMMUNITY COLLEGE COURSE OUTLINE

LAST REVIEW: 2008-09
2007-2008

NEXT REVIEW: 2013-14
2012-2013

STATUS: A
A

COURSE TITLE: Navigation Science I

COMMON COURSE NUMBER: ASC 1100

CREDIT HOURS: 3

CONTACT HOUR BREAKDOWN: 3
(per 16 week term)

CLOCK HOURS:

Lecture: 48 Lab:

Clinic: Other:

PREREQUISITE(S): Successful completion of College Placement Testing (CPT) must place student into college-level courses for English, Reading and Math, or have instructor's permission.

COREQUISITE(S): ATT 1100

PRE/COREQUISITE(S):

COURSE DESCRIPTION:

Successful completion of this course, together with ASC1100, will prepare students for the FAA Private Pilot (airplane) Computerized Knowledge Exam. The two courses must be taken concurrently towards fulfillment of degree requirements for Professional Pilot Technology, Airport Operations Management and Aviation Operations. The areas of study include airport operations, airspace, flight information publications, basic air navigation including pertinent regulations, preflight planning, cross country navigation, radio navigation and other related topics.

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. Airports and Airspace
2. Flight Information Publications
3. Basics of Air Navigation
4. Radio Navigation
5. Composite Navigation
6. Flight Standards and Aerodynamic
7. FARS Part 61 and 91



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EVALUATION:

Students will be assessed through a series of oral and written quizzes and formal Stage Exams as part of the requirement towards fulfillment of FAA part 141 knowledge for the Private Pilot (airplane) Computerized Knowledge Exam.



Common Course Number: ASC 1100

UNITS

Unit 1: Airports and Airspace

General Outcome:

- 1.0 The student shall:** The students should have acquired the aeronautical knowledge to successfully meet the written examination requirements for a private pilot certificate with an airplane category and single engine class rating in the following and related areas: airport operation and airspace, flight information publications, basic air navigation including pertinent regulations, preflight planning, cross country navigation and radio navigation.

Specific Measurable Learning Outcomes:

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

- 1.1** Identify runway markings.
- 1.2** Identify airport lighting.
- 1.3** Describe a traffic pattern and associated landing aids.
- 1.4** Develop an understanding of varying types and classes of airspace including but not limited to airport traffic areas, transition areas, restricted, prohibited, and warning areas, military operations areas, and temporary flight restricted areas.
- 1.5** Distinguish among different radio and radar services as well as having a basic understanding of radio communication techniques.
- 1.6** Explain basic illumination systems and personal equipment used during night flight as well as a general understanding of local flying procedures.



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Unit 2: Flight Information Publications

General Outcome:

2.0 The student shall be able to demonstrate their ability to use certain flight information publications.

Specific Measurable Learning Outcomes:

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

- 2.1 Recognize and distinguish among various aeronautical charts including sectionals, world aeronautical charts, sectional charts and VFR terminal area charts.
- 2.2 Obtain information from an Airport/Facility Directory.
- 2.3 Define and be familiar with certain regulatory publications including Federal Aviation Regulations, Airworthiness Directives, and Notices to Airmen as well as non regulatory publications including the Aeronautical Information Manual and Advisory Circulars.



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Unit 3: Basics of Air Navigation

General Outcome:

3.0 The student shall: Be able to demonstrate their ability to make navigation calculation utilizing a flight computer.

Specific Measurable Learning Outcomes:

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

- 3.1** Identify specific geographic points using the geographic coordinate system.
- 3.2** Determine answers to time zone problems.
- 3.3** Identify topographical, airspace and obstruction symbols used on navigational charts.
- 3.4** Discuss and apply methods of navigation calculation with a flight computer.
- 3.5** Apply dead reckoning navigation methods to determine a true course, wind correction angle, magnetic heading and ultimately a compass heading for a variety of navigational problems.
- 3.6** Practice solutions to time-speed-distance-relationships, fuel consumption, air speed calculations, true altitude, and density altitude problems.



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Unit 4: Radio Navigation

General Outcome:

4.0 The student shall: Be able to demonstrate their ability to work basic radio navigation problems.

Specific Measurable Learning Outcomes:

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

- 4.1** Distinguish among radio aids to navigation as depicted on aeronautical charts.
- 4.2** Discuss the VHF omni directional range and its associated airborne equipment .
- 4.3** Interpret VHF omni directional range indications.
- 4.4** Understand VOR navigational and related system procedures including tracking proceeding direct, inbound course interception outbound course interception, and operations between radials.
- 4.5** Discuss distance measuring equipment and its purpose.
- 4.6** Discuss automatic direction finding (ADF) equipment, associated ground facilities, and airborne equipment.
- 4.7** Interpret the ADF needle indications as well as having an understanding of the working relationship between magnetic heading, relative bearing and magnetic bearing to the station.



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Unit 5: Composite Navigation

General Outcome:

5.0. The student shall: The students should be able to demonstrate their ability to plan a thorough cross country flight using a variety of resources.

Specific Measurable Learning Outcomes:

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

- 5.1** Discuss the importance of preflight planning and identify specific areas to be covered in the planning.
- 5.2** Discuss and understand how to evaluate weather systems and hazards through graphic weather products and information to determine aircraft performance.
- 5.3** Prepare detailed flight logs including all necessary information for cross country flights.
- 5.4** Describe approach procedures and post-flight activities.



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Unit 6: Flight Standards and Aerodynamics

General Outcome:

- 6.0 The student shall:** Be able to demonstrate understanding of normal and abnormal aircraft procedures and performance, turning tendencies and stability.

Specific Measurable Learning Outcomes:

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

- 6.1** Explain the importance and calculation of short- field take-offs.
- 6.2** Explain and discuss the importance and calculation of short-field landing performance.
- 6.3** Discuss turning tendencies in aircraft.
- 6.4** Explain and discuss aircraft stability



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Unit 7: Regulations

General Outcome:

- 7.0 The student shall:** Be able to demonstrate their ability to understand and discuss Federal Aviation Regulations needed to solo an aircraft and those applicable to private pilots.

Specific Measurable Learning Outcomes:

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

- 7.1** Explain and discuss FAR Part 61
- 7.2** Explain and discuss FAR Part 91