

**EMBRY-RIDDLE AERONAUTICAL UNIVERSITY**  
**Department of Computing and Mathematics**  
**COURSE OUTLINE FOR**

**Course No.:** CS225  
**Cr Hrs:** 4

**Title:** Computer Science II

**Lecture Hours:** 3

**Laboratory Hours:** 1

**COURSE DESCRIPTION:**

The course is a continuation of CS 125 (Computer Science I). Topics to be covered include object oriented programming language features, including inheritance, input/output streams, exception processing graphical user interfaces, and threads. Basic computer science principles that will be discussed include: recursion, simple data structures, program design, style, information hiding, data abstraction, reusability, debugging, and testing. Additional features of Personal Software Productivity (PSP) methods will be introduced and PSP will be practiced throughout the course. Prerequisite: CS125

**GOALS:**

The purpose of this course is to familiarize students with mid-level principles of application program design and construction, within an object oriented programming environment. The use of basic graphical user interfaces will be introduced. Abstract data types and basic data structures, both static and dynamic, are discussed. Students complete a significant project using knowledge gained in CS 125 and CS 225. The course includes twelve two-hour closed laboratory sessions.

**PERFORMANCE OBJECTIVES:**

1. To be able to design class specifications and applications based on relatively simple specifications.
2. To be able to construct basic object oriented software applications.
3. To be able to create simple graphical user interfaces.
4. To understand the basic concepts of the Personal Software Process.
5. To understand how to design and implement software reuse.
6. To be able to perform basic software testing and defect removal.
7. To be able to create and manipulate text files.
8. To understand recursion and be able to design recursive algorithms.
9. To understand exception processing and its value in software construction.

**Department of Computing and Mathematics**  
**COURSE OUTLINE FOR CS225, Continued**

**TEXTBOOK:**

Lewis, J. and Loftus, W. (2000). *Java Software Solutions, Foundations of Program Design*. Addison Wesley Publishing Co., New York. (Second Edition).

Brixius, N.L. (2000). *CS225 Laboratory Manual*, Embry-Riddle Aeronautical University. (Second Edition)

Humphrey, W.S. (1997). *Introduction to the Personal Software Process*. Addison Wesley Publishing Co., New York.

**SUGGESTED SUPPLEMENTAL MATERIALS:**

none

**PREREQUISITE KNOWLEDGE BY TOPIC:**

1. Basic knowledge of computer programming.
2. Basic knowledge of the use of Windows NT workstations.

TOPIC	CLASS HOURS	COURSE OBJECTIVES
1. Exception Processing	3	To be able to construct basic object oriented software applications.
2. I/O Streams and Text Files	5	To be able to create and manipulate text files.
3. Inheritance, Composition and Polymorphism	4	To be able to construct basic object oriented software applications. To understand how to design and implement software reuse.
4. Basic Software Engineering	3	To understand how to design and implement software reuse. To understand the basic concepts of the Personal Software Process. To be able to perform basic software testing and defect removal.
5. Recursion	3	To understand recursion and be able to design recursive algorithms.

6.	Basic Data Structures	4	To be able to construct basic object oriented software applications.
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	<b>TOPIC (cont.)</b>	<b>CLASS HOURS</b>	<b>COURSE OBJECTIVES</b>
7.	Graphical User Interfaces	5	To be able to create simple graphical user interfaces.
8.	Events	3	To be able to create simple graphical user interfaces.
9.	Animation and Graphics	3	To be able to create simple graphical user interfaces.

**LABORATORY:**

Weekly 2 hour closed laboratory (12 sessions).

**COMPUTER USAGE:**

Windows NT workstations in open and closed laboratories.

**GRADING SYSTEM:**

Varies with instructor.

**ESTIMATED CONTENT:**

**Skills: 30%**  
**Content: 70%**