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

Course No.: MSE555 **Title: Object-Oriented Software Construction**
Cr Hrs: 3

Lecture Hours: 3 **Laboratory Hours: 0**

COURSE DESCRIPTION:

Prerequiste:

GOALS:

This course addresses concepts of object-oriented software development. It provides an integrated view of subjects related to the different phases of software development using object-oriented techniques. The couse covers Object-Oriented Analysis and Design (OOA/OOD), Object-Oriented Programming (OOP), and Object-Oriented Testing (OOT) techniques. It discusses and evaluates the suitability of different software development lifecycles for object-oriented paradigms. Also, covered in the course are the subjects of object-oriented metrics and case studies in object-oriented software development. This course requires extensive practical programming background. The course requires development of small to medium size programs as well as relatively modest term project that requires usage of the concepts demonstrated throughout the semester. All course assignments are on individual basis. Students not already familiar with Object-Oriented programming language such as ADA 95, C++ or Java, are expected to learn the language of their choice very rapidly.

PERFORMANCE OBJECTIVES:

1. Describe OOA, OOD, OOP, and OOT techniques.

2. Understand the fundamental concepts related to OOA, OOD, OOP, and OOT.

3. Describe and understand the differences between object-oriented and function-oriented methods.

4. Describe and understand the object-oriented terminology (e.g. object, class, message, method).

5. Identify the software lifecycle consideration for object-oriented techniques.

6. Build a software product based on object-oriented techniques.

Department of Computing and Mathematics
COURSE OUTLINE FOR MSE555, Continued

TEXTBOOK:

Texel, P.P. and Williams, C.B., *Use Cases Combined with Booch, OMT, UML Process and Products*, Prentice Hall, 1997.
Hortstmann, C.S., *Practical Object-Oriented Development in C++ and Java*, Wiley, 1997.

SUGGESTED SUPPLEMENTAL MATERIALS:

PREREQUISITE KNOWLEDGE BY TOPIC:

1. MSE500
2. Proficiency in use of modern programming languages (e.g. ADA, C++)

TOPIC	CLASS HOURS	COURSE OBJECTIVES
1. Overview of Object-Oriented Technology	8	Understand the fundamental concepts related to OOA, OOD, OOP, and OOT.
2. Lifecycle for Object-Oriented Software Development	2	Understand the fundamental concepts related to OOA, OOD, OOP, and OOT
3. Object-Oriented Analysis	10	Object modeling, dynamic modeling and function modeling
4. Object-Oriented Design	10	Class and Methods design, Object interface design
5. Object-Oriented Metrics	4	Design evaluation
6. Object-Oriented Programming	8	Messages, Instances and Initialization, Inheritance Static and Dynamic Binding, Polymorphism
7. Object-Oriented Testing	3	Build a software product based on object-oriented techniques.

LABORATORY:

COMPUTER USAGE: Extensive use of C++ or Java Programming as well of use of CASE Tools for design

GRADING SYSTEM:

Short Assignments	35%
Term Project	40%
Exam	25%

ESTIMATED CONTENT:

Skills:	**60%**
Content:	**40%**