Global Learning Semesters
Course Syllabus
Course: COMP-465 Object-oriented Software Engineering
Department: Computer Science
Host Institution: University of Nicosia, Nicosia, Cyprus

Course Summary

Course Code	Course Title	Recommended Credit Hours
COMP-465	Object-oriented Software Engineering	3
Semester Offered	**Contact Hours**	**Prerequisites**
Please contact us	42-45	COMP -455 and Junior Standing
Department	**Level of Course**	**Language of Instruction**
Computer Science	Upper Division	English

Course Description

Course designed to provide understanding of the concepts and methodologies of object-oriented software engineering. The course will cover topics, in depth, object-oriented analysis, design, modeling, testing, and pattern reuse. The course will also cover other advanced "post-object-oriented" development paradigms and methodologies including component-based programming and middleware. The course introduces the subjects through lectures, class discussion, paper reading, case examples and group projects. By completing this course, a student will have a deeper understanding of advanced software developing concepts and techniques that aim to improve the programming productivity and software quality.

Prerequisites

COMP -455 and Junior Standing

Topic Areas

1. Introduction.
    Software engineering. Object concepts. Modeling with UML.

2. Requirements elicitation.
    Scenario-based requirements elicitation. Use cases.

3. Object-Oriented analysis.
    Object modeling. Dynamic modeling.

4. System design and architecture.
    Design goals. System decomposition. Persistent data management. Access control. Global control flow.

5. Object design.
    Reuse. Service Specification. Object model restructuring. Object model optimization. Interfaces. Mapping models to code.

6. Object-Oriented testing.
    Functional testing techniques. Testing activities. Plan, design and execution of tests.

7. Component-Based Systems

Component concepts. Interfaces. Types and polymorphism. Component standards and frameworks.

8. Middleware
    Principles of Middleware. Distributed objects. Object-oriented middleware (CORBA and RMI).
    Heterogeneity. Reflection. Advanced Communication. Location.

Readings and Resources

Required Textbook
- B. Bruegge and A. Dutoit, Object Oriented Software Engineering: Using UML, Patterns and Java, 2nd Edition, Prentice Hall, 2004, ISBN: 0-13-047110-0.

Recommended Readings
- J. Cheesman and J. Daniels, UML Components: A Simple Process for Specifying Component-Based Software, Addison-Wesley, 2003, ISBN 0-20-170851-5.
- W. Emmerich, Engineering Distributed Objects, John Wiley and Sons, 2000, ISBN: 0-47-198657-7.
- C. Szyperski, Component Software: Beyond object-oriented programming, 2nd Edition, Addison-Wesley, 2003, ASIN: 0201178885.