COMPUTER SCIENCE 5044
Object-Oriented Programming with Java
(ADP TITLE: Obj-Oriented Pgmming with Java)

I.   CATALOG DESCRIPTION

5044   Object-Oriented Programming with Java

Object-oriented programming concepts and the Java programming language. The application of design strategies, notations, and patterns related to object-oriented systems. Techniques and libraries for developing applications related to the World Wide Web. . Credit will not be given for both 2704 and 5044. Not for Computer Science major or minor credit; not for graduate credit for CSA or INFS programs.

Pre: Proficiency in a high-level programming language (e.g., FORTRAN, C, C++, or Java) equivalent to 1044 and prior course work, practical training, or work experience related to developing computer software and systems. (3H, 3C).

II.   LEARNING OBJECTIVES

Having successfully completed this course, the student will be able to:

- Implement small-scale systems in the Java language using sound object-oriented practices;
- Design a software system using a graphical design notation;
- Develop applets for use in web-based applications;
- Apply known design patterns in developing new systems;
- Create basic graphical user interfaces using the Java libraries;
- Identify significant application programmer interfaces in the Java libraries.

III.   JUSTIFICATION

Course Content

Increasingly, an object-oriented approach is the preferred method of designing and implementing contemporary systems. Because of its extensive standard libraries, clean syntax, and expressive capabilities, Java is an important language that embodies the object-oriented approach. In addition, the platform independence provided by Java makes it an ideal language in the context of network applications and the World Wide Web.

Beyond learning the Java language, proficiency in developing good object-oriented software also entails the ability to recognize known patterns of design that can be reapplied, strategies for discovering a good design, and representations for the design that are succinct and easily communicated.

Course Designation/Level

While this course presents some of the same concepts as 2704, a 5000-level designation is deemed appropriate for this course for three reasons. First, this course is specifically targeted for students pursuing a certificate in the Graduate Program in Information Technology and/or the Master of Information Technology degree. This program and degree are intended to serve the needs of individuals who, by virtue of their current employment in information technology, have experience, intuitions, and training in specialized software development topics but have not had a comprehensive and concept-centered educational experience related to software development. Thus, the audience, and hence the level, of the course is significantly different than the on-campus 2704 course. Second, because this course is aimed primarily at employed professionals, the concepts and techniques are presented in a more mature and informed manner, drawing on the experience of the student in a way not possible with sophomore-level students. Third, the topics in the course are more directly connected with their application to the World Wide Web, a pragmatic orientation not given in 2704 but important to a community of practitioners.

IV.   PREREQUISITES AND COREQUISITES

Proficiency in a high-level programming language (e.g., FORTRAN, C, C++, or Java) and prior course work, practical training, or work experience related to developing computer software and systems is required in order to be able to teach the material at a level appropriate for a graduate course.

V.   TEXTS AND SPECIAL TEACHING AIDS

Required text:
Horstmann and Cornell, CORE JAVA. Upper Saddle, NJ: Prentice-Hall, 1999. xxvi, 742.

VI.   SYLLABUS:

		Percent of Course
1.	Introduction	5
2.	Object-Oriented Programming Concepts	35
	objects	
	classes	
	interfaces	
	inheritance	
3.	Object-oriented Design	20
	design notation	
	design strategies	
4.	Design Patterns	10
5.	Developing applets and user interfaces	20
6.	Other Application Programmer Interfaces	10
	Total	100

VII. OLD (CURRENT) SYLLABUS
N/A

VIII. CORE CURRICULUM GUIDELINES
N/A