COUSE SYLLABUS

INFO 5100: Application Engineering and Development, Fall 2014

Instructor:	Professor Kal Bugrara
Classroom:	West Village F 020
Lecture Time:	5:00pm – 7:30pm Friday
Contact:	kmb@coe.neu.edu – Professor Kal Bugrara
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Course Aims

The primary objectives of this course are to learn the java programming language by practicing the design and analysis of solutions to real-world business problems and to equip students with practical design and programming techniques for the purpose of building significant business applications quickly. In a step-by-step manner, the instructor will take you through the process of systematically combining user tasks, business processes, and data to assemble applications that are user friendly and meet business requirements. You will learn how to employ the object-oriented paradigm, visual user interface design principles, the Java Programming language, as well as productivity tools to put together complicated, powerful business applications with ease and to master the art of how methodologically to write software programs for any kind of business problems. We will practice simple and smart ways of making software programming enjoyable.

An Interactive Setting

Besides the lectures, the class will have lab sessions, which will permit continuous interaction. The time will be divided into lecture, lab, help sessions; students will engage in hands-on design and programming under instructor supervision. For the duration of the semester, we will focus on a single business problem – you will focus on one problem for the entire semester and that you will start small and gradually expand the scope. Students will practice the art of how to break down business requirements into small manageable components, program the components, and assemble those components into useful systems.

Our Approach

Students will select a practical business problem and articulate its underlying user requirements. They will engineer an information model capturing the important aspects of the business problem and define the business processes necessary to deliver the solution that will satisfy the stated business requirements as well as define the user tasks as screen designs. We will work on identifying and incorporating the information needed for the task (screen) at hand. The information model will be linked to user screens through input and output flows and data transformation.

Students will build an inventory system for warehouse operations: the warehouse serves multiple retailers in different geographical areas. Warehouse operations employ a multitude of suppliers, offering wholesale products and services for the benefits of the retailers. What if a user of the new

software wants to scale your implementation to support multiple warehouses in different localities? You will learn how Java and other object-oriented techniques can help you to do just that, in a fast and fun way.

Element of the Java Programming Language

This course covers the essential elements of the Java programming language—such as arrays, control structures, class definitions, class hierarchies, inheritance, objects, streams, constructors, collections, as well as visual forms and components. It shows how to develop and execute Java applications. Various programming assignments, which strengthen the understanding of java language, object-based, and event-driven programming, will be studied.

Tools

Java 7, Java Swing Toolkit, NetBeans 7, and others.

Tentative Schedule of the Course

Week	**Date**	**Topic/Activity**	**Type**
Week1	September 5th, 2014	Introduction to the course	Lecture
Week2	September 12th, 2014	Creating and displaying multiple objects	Lecture
Week3	September 19th, 2014	Define user processes	Lecture
Week4	September 26th, 2014	Modeling the supply-side	Lecture
Week5	October 3rd, 2014	Designing the user into the application	Lecture
Week6	October 10th, 2014	Order processing	Lecture
Week7	October 17th, 2014	Digital Marketing	Lecture
Week8	October 24th, 2014	Business cases	Lecture
	October 24th, 2014	Final Project Announcement	Final Project
	October 25th, 2014	Mid-term exam	Exam
Week9	October 31st, 2014	Eco-System Design Techniques part I	Lecture
Week10	November 7th, 2014	Eco-system Design part II	Final Project
Week11	November 14th, 2014	Final Project Status Check	Lecture
Week12	November 21st, 2014	Case Studies	Lecture
Week12	November 21st, 2014	Final Project Status Check	Final Project
Week13	November 28th, 2014	Advanced Topics	Lecture
Week14	December 5th, 2014	Advanced Topics	Lecture
Week14	December 6th, 2014	Final exam	Exam
Week15	December 7th, 2014	Final Project Submission	Final Project
Week15	December 8th, 2014 – December 12th, 2014	Final Project Presentation	Final Project

Grading

Coursework will be weighted as follows:

Name	**Percentage**
Assignment and Lab	20%
Mid-term Exam	25%
Final Exam	25%
Final Project	30%

Plagiarism Policy

When there is evidence that a student has committed plagiarism, copied the work of others, allowed others to copy their work, cheated on an exam, altered class material or scores, or has inappropriate possession of exams, or sensitive material, the incident will be investigated. The consequences for academic dishonesty are severe.