

## **ENG EC447 Software Design**

### **2008-2009 Catalog Data:**

Prereq: ENG EC 440, and CAS CS 330 or ENG EC 330. Object-oriented software design. Application design for windowed graphical environments. Design project using C++ and Microsoft Windows. Requires a working knowledge of the C programming language. 4 cr.

### **Class/Lab Schedule:**

Lecture: 4 hours/week

**Status in the Curriculum:** Elective

### **Textbooks and other required materials:**

Software Design with C# .NET, Thomas P. Skinner (not published, draft will be provided online free of charge)

### **Reference:**

1. Microsoft Electronic Learning Library, Microsoft Press, (available through MSDNAA at no charge, details will be provided)
2. Programming Microsoft Windows Forms (Pro Developer) by Charles Petzold (Paperback - Nov 2, 2005)
3. Programming Microsoft Windows with C#, Charles Petzold, Microsoft Press, 2002.

### **Coordinator:**

Thomas P. Skinner, Associate Professor, ECE Department

### **Prerequisites by topic:**

Students must be fully competent in C++, C#, or Java, algorithms, and data structures (EC330 or equivalent is highly desirable). Operating Systems, EC440, is also required, but may be taken concurrently.

### **Goals:**

This will be a *hands on* programming and design course. When you have completed the course you will be thoroughly familiar with the use of the C# programming language for software development, have developed better software design skills, and have a working knowledge of programming Microsoft Windows using the .NET class library. These are some of the most sought after skills in the software industry today.

### **Course Outcomes:**

1. Learn state of the art design of Windows applications.
2. Apply knowledge of programming languages, algorithms, and programming to challenging problems.
3. Gain a better understanding of software engineering.

4. Better understanding of operating systems.
5. Learn to use modern software design and programming tools.

**Course Outcomes mapped to Program Outcomes:**

<b>Program Outcomes:</b>	<b>a</b>	<b>b</b>	c	d	e	f	g	h	i	j	k
<b>Course Outcomes:</b>	1-5		1		2,5	3	3	3			5
<b>Emphasis:</b>	5	1	5	1	4	2	3	2	1	1	5

1=not at all; 5=a great deal;

**Topics in Project Assignments**

1. Introduction
2. Getting Started
3. A Tour of Windows Forms
4. Forms, Text, and Graphics - A Closer Look
5. Basic Controls
6. Indexers, Interfaces, and Enumerators
7. Dialogs
8. More Mouse
9. Files
10. Delegates and Events
11. Working with Strings
12. Bitmaps
13. Toolstrips, Status Strips & Splitters
14. Working with Threads

**Contribution of Course to Meeting the Professional Component:**

Engineering topics: 100%

Math & Basic Science: 0%

General Education: 0%

**Prepared by:** Thomas P. Skinner

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