Course: COMP 3010 Spreadsheet-Based Applications with Visual Basic
Department: Computer Science and Software Engineering
Credit Hours: 3 hours (LEC. 2, LAB. 3)
Designation: COMP Elective credit for CSCI, SWEN, and WIRS
Prerequisites: COMP 1000 or higher

1. Texts or Major Resources
   Software: Visual Basic Application for Excel

2. Course Description
   Design and implementation of applications such as simulations, spreadsheet front-ends for modeling, interfaces to databases, and multimedia applications.

3. Course Objectives
   In this course, students will develop the ability to design and implement software applications using technologies that include programmable spreadsheets and databases. Students will be able to develop software tools that interface with production systems and embed analytical models into these systems.

4. Course Requirements and Evaluation
   Exam 1 – 20%
   Exam 2 – 20%
   Homework Assignments – 10%
   Project – 15%
   Final Exam – 35%
   Letter grades will be assigned on the standard 10%-point scale: A = 90-100; B = 80-89; C = 70-79; D = 60-69; F = 0-59.

5. Topical Outline
   Chapter 1: Introduction to Computer Systems (1 week)
     1.1 Introduction to computer technology
     1.2 Computer technology in production systems
     1.3 Examples
   Chapter 2: Visual Basic Applications (VBA) for Excel (3 weeks)
     2.1 Introduction to spreadsheet modeling with Excel
     2.2 VBA for Excel
     2.3 VBA editor
     2.4 Recording, playing, and visualizing macros
2.5 Worksheet objects and methods
2.6 Cell objects and methods
2.7 Application objects and methods
2.8 Worksheet and cell reference in VBA
2.9 VBA object browser

Chapter 3: Fundamentals of Programming with VBA (6 weeks)
3.1 Concepts of computer programming
3.2 VBA variables and data types
3.3 Procedures
3.4 Control structures
3.5 Math functions
3.6 Arrays
3.7 Functions

Chapter 4: Fundamentals of Databases (2 weeks)
4.1 Introduction to databases
4.2 Relational databases
4.3 Tables
4.4 Database operations

Chapter 5: Application Development (2 weeks)
5.1 The development process
5.2 Case study

Project presentations and exams (1 week)

6. Labs
1. Excel
2. Excel
3. VBA editor
4. Excel macros
5. VBA browser
6. VBA procedures
7. VBA control structures
8. VBA control structures
9. VBA math functions
10. VBA arrays
11. VBA functions
12. Database retrieval
13. Database modification
14. Case study
15. Case study

7. Course Policies

Accommodation Policy: A student needing special accommodations (e.g., school events, disabilities, etc.) should bring that need to the instructor’s attention as soon as possible, along with the appropriate written verification.

Academic Honesty: Each student will be held responsible for adherence to the University’s Student Academic Honesty Code.

Attendance: While there is no attendance policy per se for the course, attendance at all scheduled class meetings is expected and is crucial to passing the course. There will be no unannounced quizzes.

Make-up Work: Work missed during the semester will be assigned a grade of zero points. Make-up work will be given only for valid University excuses with appropriate written verification. It is always the student’s responsibility to initiate arrangements for make-up work, and these arrangements must be initiated within one week of the original missed due date.