Fundamentals of Application Development
JMA 201

MASTER SYLLABUS

Journalism and Multimedia Arts

Duquesne University

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by
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I. COURSE DESCRIPTION

This course provides the student with an overview of the application development process and environment. The student will study the development methodology of a data enabled application. Concepts include consistent interface design, development and implementation of algorithms, and validation and storage of information.

The student will adopt a methodology and appreciation for software development while developing competency in using the Visual Studio integrated development environment. The student will also demonstrate knowledge of N-Tier architecture systems and basic interface design.

Prerequisites (courses that must be completed prior to taking JMA 201)**:**   None

II. GENERAL OBJECTIVES

The general objectives of JMA 201 are to prepare students to:

1. Understand the software development process.
2. Understand basic control structures of a programming language.
3. Understand the use of objects, properties and methods.
4. Understand and apply user interface design conventions.
5. Recognize the roles of the business logic tier versus the data tier of applications.
6. Be able to create basic programs with database interactivity.

III. SPECIFIC OBJECTIVES

When the course ends the student should be able to:

1. Understand the importance of requirements gathering, flowcharting, and algorithm development to application development.
2. Understand the Visual Studio Integrated Development Environment for program development and debugging.
3. Describe the use of data types, variable scope, and basic syntax rules of a language.
4. Describe basic program flow control structures such as loops and decision structures.
5. Describe functions, subroutines, objects, and classes.
6. Describe the need for validation and robust error handling.
7. Describe the appropriate interface controls for use in development of the Graphic User Interface of an application.
8. Identify the roles of the programming logic and the database in application development.
9. Plan and develop an application with a consistent interface, input validation, error handling, and database connectivity for storage.

IV. TOPIC OUTLINE

Topic	Allocation

APPLICATION DEVELOPMENT Overview
    Requirements Gathering
    Flowcharting
    Algorithm Development
    Implementation and Testing
    Data Storage Considerations
	10%

OVERVIEW OF PROGRAMMING
    Visual Studio IDE
    Syntax Rules
    OOP Hierarchy
    Program Compilation and Execution
    Event Handling
	10%

Topic	Allocation

Visual Basic Language
    Operators and Characters
    Variables
    Data Typing
        Strings, Numbers, Objects
        Casting and Conversion
        Arrays
    Program Control Structures
        If…Then
        Select…Case
        For…Next
        Do…While
    Subroutines and Functions
        Integral Functions
        Event Handlers
        Parameters
        Code Reuse
        Returning values
	30%

Topic	Allocation

VISUAL BASIC CONTROLS
Input Controls Summary
    Properties and Methods
    Setting and Retrieving
Demonstration of Common Controls
    Text Elements
	20%

Radio and Drop Down List Controls as Arrays Adding References	
DATABASE INTERACTIVITY Connection to Data Tier Data Controls	15%
PROGRAM DEVELOPMENT Hands-on development of application through assignments Guided revision and development of application Validation and Error Handling	15%

V. SUGGESTED STUDENT RESPONSIBILITIES

Class attendance is mandatory and students are expected to participate in discussions. This is an integral part of the learning process.

Students are responsible for reading all materials assigned in the course syllabus. All assignments must be completed with a high presentation level using computer-based tools, and must be handed in on time.

Students will be expected to develop an application throughout the course of the semester. The student is responsible for meeting milestones described in course schedule.

VI. SUGGESTED TEACHING TECHNIQUES

Teaching procedures employed for Information Systems I include lecture, software demonstration, question and answer, and group discussion. Lectures are extracted from the reading material but are not intended to be a replacement for it. Lectures should be given in a lab environment to develop familiarity with the development environment. Extensive work at the computer is required outside the classroom sessions.

VII. SUGGESTED EVALUATION

A common final examination for all sections will be given. The common final examination will cover the classroom component of the course only. A midterm will be given during the semester. Quizzes and written homework will be given at the discretion of the instructor. Assessment of computer-based training will be at the discretion of the course coordinator. The recommended grading scheme is as follows:

Task	Weight
Midterm Exam	20%

Final Exam	30%
Quizzes, Textbook and Homework	25%
Programming Assignments	25%
Non-Attendance (up to a 5% deduction)	-5%

VIII. RECOMMENDATIONS TO THE INSTRUCTOR

Do not give extra credit for additional assignment or extra-curricular activities without the express consent of the course coordinator. It is important that our course sections have a consistent approach to evaluating and assigning grades.

IX. TEXTBOOKS AND REFERENCES

Suggested Textbooks:

- *Sams Teach Yourself Visual Basic 2008 in 24 Hours: Complete Starter Kit.* James Foxall, 2008. Sams. ISBN-10: 0672329840; ISBN-13: 978-0672329845

Online Reference:

Microsoft MSDN VB:
http://msdn2.microsoft.com/en-us/library/2x7h1hfk(VS.80).aspx

Online Publications:

Byte: http://www.byte.com

PC Magazine: http://www.pcmag.com

PC World: http://www.pcworld.com

Smart Computing: http://www.smartcomputing.com

ZDNet: http://www.zdnet.com