SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: **System Planning I**

Course No.: **CSD310**

Program: **Computer Programmer/Analyst**

Semester: **Five**

Author(s): **Willem de Bruyne**

Date: **September 1998**

Previous
Outline Dated: **May 1997**

APPROVED: _____ _____
Dean   Date

TOTAL CREDITS: 5

PREREQUISITES: CSN201, CSD204, CSD205, CSD206

LENGTH OF COURSE: 4 HOURS PER WEEK

I. **COURSE DESCRIPTION:** In this hands on course, the student will learn and practice the skills needed to develop basic client/server, Windows-based business applications using PowerBuilder and object-oriented programming techniques.

The student will be using the PowerBuilder painters and PowerScript language to build a variety of PowerBuilder objects, including application objects, windows, menus, and DataWindow objects. You will write code to develop basic business apllications in two major Windows styles: SDI, and MDI.

Students will also learn the basics of configuring the PowerBuilder environment, debugging applications, and creating a distributing EXE of the PowerBuilder applications.

II. **LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course the student will demonstrate the ability to:

1. **Students will be introduced to PowerBuilder development environment. (8% of course)**

    Potential Elements of performance:

    ➢ Briefly describe what PowerBuilder is and how it fits into the client/server development environment
    ➢ List the PowerBuilder objects and briefly explain their uses within PowerBuilder applications
    ➢ Define what an attribute is and identify the attributes of various objects
    ➢ Define what an event is and identify common events for various objects
    ➢ Describe the process of using PowerBuilder to develop an application
    ➢ Describe the use of various common features of the PowerBuilder painters

2. **The students will create their first application object.   (6% of course)**

    Potential Elements of performance:

    ➢ Identify the components of an application object
    ➢ Create a PowerBuilder application object using the Application painter

3. Students will build a Window in PowerBuilder (7% of course)

Potential Elements of performance:

➢ List the various types of windows and describe their potential uses
➢ Identify window attributes and window controls, and describe their purposes
➢ Create a window, define its style, and place controls in it using the Window painter
➢ Define the styles of various controls.

4. Students will write Scripts to make a Window or Control behave in a certain manner --The Basics (10% of course)

Potential Elements of performance:

➢ Explain how to associate a script with a window or a control in a window
➢ Describe the purpose of functions
➢ Write a script that incorporates a control statement, assignment statements, and one or more function calls
➢ Use the PowerScript painter to code and compile your scripts

5. Students will deliver a completed application - The Basics (5% of course)

Potential Elements of performance:

➢ Create an executable file for an application
➢ List the files a user needs to run an application

6. Students will be administering a Database with the PowerBuilder environment. (10% of course)

Potential Elements of performance:

➢ Describe the capabilities of the Database painter
➢ Describe the PowerBuilder extended table and column attributes and their uses
➢ Use the Database painter to create or modify a table, specifying its extended table and column attributes, indexes, and primary and foreign keys
➢ Use the Data Manipulation tool to display, insert, update, and delete rows in tables

➢ Use the Database Administration tool to import and execute a file of SQL statements
➢ Use the Preferences painter to set preferences for the Database painter

7. The students will build the Result Set for DataWindow Objects in PowerBuilder (10% of course)

Potential Elements of performance:

➢ Describe the two primary aspects of DataWindow objects
➢ Give examples of how DataWindow objects are used in applications
➢ Differentiate among the DataWindow object data sources
➢ Use the DataWindow painter to paint the SQL SELECT statement for a DataWindow object that accesses a relational database
➢ Describe the use of the SQL painter

8. Students will enhance the User Interface of a DataWindow Object. (10% of course)

Potential Elements of performance:

➢ Differentiate among the various predefined presentation styles
➢ Describe two methods of specifying the borders and colors of text and column data and the background color of the DataWindow object
➢ List and describe the use of the various bands of a DataWindow object
➢ Use features of the DataWindow painter to format the columns and column headings in a DataWindow object

9.   The students will be introduced to MDI Applications. (10% of course) (10% of course)

Potential Elements of performance:

➢ Describe the characteristics of an MDI application Explain the differences between MDI and SDI applications
➢ Use the appropriate terms for MDI components Identify the window types used in MDI applications Discuss the handling of menus in MDI applications

10. Students will make connects to a Database. (12% of course)

Potential Elements of performance:

➢ Explain the purpose of transaction objects
➢ Define and create transaction objects
➢ Use a transaction object to connect to a database
➢ Check the success or failure of a SQL statement
➢ Embed SQL statements in your scripts

11. Students will build a variety of Menus. (12% of course)

Potential Elements of performance:

➢ Describe the use of menus within an application
➢ Explain the difference between dropdown, cascading, and popup menus
➢ List and define the two menu events
➢ Describe the use of the pronouns ParentWindow and This
➢ Use the Menu painter to create menus that include accelerator keys, shortcut keys, separator lines, the ellipsis, MicroHelp, and associated toolbars
➢ Associate a menu with a window

III. Topics

What is PowerBuilder?
The PowerBuilder application environment
Object-oriented programming concepts
PowerBuilder objects
Application development with PowerBuilder
What is an application object?
Using the Application painter
Creating a new application object
Specifying application-level characteristics
What is a window?
Window appearance
Defining window style
Types of controls
Focus
Saving a window
What is a script?
Variables

Expressions and operators
Fundamentals of the PowerScript language
Flow-of-control statements
Functions
Using the PowerScript painter
What is the executable file?
Creating the executable file
Overview of the Database Painter
Using the Database painter
Viewing and maintaining an existing table
Using the Data Manipulation tool
Creating new entities
Dropping tables, views, indexes, and keys
Using the Database Administration tool
Specifying Database painter preferences
Overview of DataWindow obj ects
Creating a DataWindow object
Data sources
Painting a SQL SELECT statement
Using the Quick Select data source
The SQL painter
User interface component of DataWindow objects
Presentation styles
Setting borders and colors globally for a DataWindow object
Report-level formatting
Formatting columns and column headings
What is MDI?
MDI basics
Menus in MDI applications
Connecting to a database
What is a transaction object?
Creating and initializing transaction objects
Using a transaction object to connect to a database
Disconnecting from a database
Embedded SQL
What is a menu?
Menu basics
Menu events and scripts
Creating a new menu
Saving a menu
Associating a menu with a window

IV.   EVALUATION METHODS:

The mark for this course will be arrived at as follows:

Test 1	20%
Test 2	20%
Test 3	20%
Assign 1	10%
Assign 2	10%
Assign 3	20%
	100%

The student will be penalized 2% each time they are late or absent from class, or if they fail to complete assigned lab exercises unless prior permission from the instructor is granted.

The grading scheme used will be as follows:

A+	90 - 100%	Outstanding achievement
A	80 - 89%	Excellent achievement
B	70 - 79%	Average achievement
C	60 - 69%	Satisfactory achievement
R	Repeat	
X	Incomplete.	

V.   SPECIAL NOTES

1.   In order to pass this course the student must obtain an overall **test/quiz** average of 60% or better.
2.   Assignments must be submitted by the due date according to the specifications of the instructor. Late assignments will normally be given a mark of zero. Late assignments will only be marked at the discretion of the instructor in cases where there were extenuating circumstances.
3.   The instructor reserves the right to modify the assessment process to meet any changing needs of the class. Consultation with the class will be done prior to any changes.

VI.   PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the instructor.

VII.   REQUIRED STUDENT RESOURCES

USING POWERBUILDER 5, by Charles A. Wood

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