SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: **Web DBMS**

CODE NO. : **CSD320** **SEMESTER: 5**

PROGRAM: **COMPUTER PROGRAMMER/PROGRAMMER ANALYST**

AUTHOR: **Frank Turco**

DATE: **Aug, 2005** **PREVIOUS OUTLINE DATED:** **Aug, 2004**

APPROVED:

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DEAN **DATE**

TOTAL CREDITS: **5**

PREREQUISITE(S): **CSD303 or CSD3030**

HOURS/WEEK: **4**

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I. COURSE DESCRIPTION:

This course will broaden the student's knowledge of database implementations. The focus will be to use their previous database experiences and implement these skills in database driven web sites. A variety of mediums and technologies will be examined and used throughout the course to expose students to the alternatives that exist in web-based databases.

The course covers the concepts and practical aspects of creating a web site and web database processing. It will also reacquaint students with relational database concepts, SQL, HTML and more importantly how they relate to creating a database driven web site. Students will be expected to create and manage a web server (Apache). They will be required to code and work with scripting languages, PHP(the "PHP Hypertext Preprocessor") in the creation of server-side scripts and Javascript on the client-side.

If time permits, they will also work with a variety of alternative technologies that allow databases to communicate with web pages such as Active Server Pages and Coldfusion.

The ultimate goal of the course is the creation and implementation of a soundly designed database that is totally integrated in a realistic and well-designed web site. The students will be expected to work together as team members in developing a fully integrated website.

II. TOPICS:

1. **Learn the web based database processing environment .**
2. **Designing and implementing a Web based database using MySQL.**
3. **Developing Scripts using PHP.**
4. **Design, code and implement a fully integrated database driven web site in the PHP/MySQL environment.**
5. **Developing Scripts using ASP (if time permits).**

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III. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

1. Learn the web based database processing environment.

Potential elements of the performance:

- define and describe Web Basics such as:
  i) Architecture of the World Wide Web
  ii) Web Addressing
  iii) Client / Server Architecture
- describe the difference between static and dynamic Web pages
- explore different technologies that can be used to create dynamic Web Pages that interact with a database
- explore different technologies used to create the Web site
- describe the role each server product plays in creating and maintaining an appropriate web site
- install Apache Web Server, PHP, MYSQL , and PHPMyAdmin

This learning outcome will constitute approximately 15% of the course grade (possible weighting strategy) and take approximately 1 week.

Resources: Text: Chapter 1 , Appendix A, B, C and
Professor's handouts and lectures

2. Design and implement a database using MySQL Server.

Potential elements of the performance:

- define and apply database analysis and design principles to create effective normalized database relations (using Entity Relationship Modelling)
- create the relations and populate them on the Server
- use SQL programming to add, modify, delete and view data from the Client

This learning outcome will constitute approximately 15% of the course grade (possible weighting strategy) and take approximately 2 weeks.

Resources: Textbook: Appendix A, B, C and previous course material

3. Incorporate Programming Components of PHP Into a Website.

Potential elements of the performance:

- describe the role of the PHP engine and the web server
- define what is meant by interpretation and execution
- discuss the different parameters associated with variables such as: data types, operations, and naming conventions
- discuss and apply two ways of sending form information (user input)
- understand and apply the different methods that HTML forms can use to encapsulate data, such as: text fields, checkboxes, radio buttons, listboxes, hidden form fields, password fields, and Submit and Reset buttons
- understand and apply the following programming structures of PHP:

if statement	comparison operators	equality operators
logical operators	***switch*** statement	include files
while loop	***do while*** loop	***for*** loop
arrays	functions	

- apply error handling for security and aesthetic purposes
- apply debugging techniques to solve logic errors
- understand the limitations of HTML and HTTP and how PHP overcomes them
- understand and apply the concept of ***"cookies"***
- understand the basic concept of object-oriented programming in PHP and how objects can facilitate code re-use
- manipulate objects and define new classes of objects
- understand and be able to manipulate files and directories
- send e-mail via PHP
- create, open, manipulate and output images with PHP
- insert records into a database table using PHP

This learning outcome will constitute approximately 50% of the course grade (possible weighting strategy) and take approximately 8 weeks.

Resources: Textbook: chapters 2-7
Professor's handouts and lectures

4. Combine PHP and MySQL to Create a Data-Driven Website.

Potential elements of the performance:

- understand and apply PHP functions that will allow connectivity to a database
- understand and apply the various ways of retrieving data stored in a MySQL database
- limit the number of results returned from a query
- order and group results
- insert records into a database table using PHP
- delete records from a database
- update records on a database

This learning outcome will constitute approximately 20% of the course grade (possible weighting strategy) and take approximately 3 weeks.

Resources: Chapter 8 – 14, Previously discussed textbook material
Professor's handouts and lectures

5. Develop Server Side Scripts using Active Server Pages.

Potential elements of the performance:

- create dynamic Web pages that retrieve and display database data using Active Server Pages
- process form inputs using Active Server Pages
- create a Web application using client and server-side scripts in the Active Server Page environment
- learn how to share data values among different pages in a Web application
- insert, update, and delete database records using Active Server Pages
- work with more advanced HTML features such as Frames, Forms, Cascading Syle Sheets

This learning outcome will constitute approximately 10% of the course grade (possible weighting strategy) and take approximately 1 week.

Resources: Websites as specified on page 6.
Professor's handouts, and lectures

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*****NOTE: The topics specified above will overlap in several areas of skill development and are not necessarily intended to be explored in isolated learning units or in the order specified.**

IV. REQUIRED RESOURCES / TEXTS / MATERIALS:

Textbook to be used as reference material:

1. **"PHP and MYSQL for Dynamic WebSites" 2nd Edition by Larry Ullman**

Websites:

1. **www.explodingnet.com/articles/latest/6**
   Database Powered Websites: A simple explanation of the three tiered structure
2. **www.explodingnet.com/articles/latest/7**
   Getting Started With database Driven Websites
3. **www.compsci.buu.ac.th/docs/website/DatabaseDrivenWebsites.html**
   Setting Up Database Driven Websites
4. **www.sitepoint.com/special/1**
   Your Guide to Building Database-Driven Websites
5. **www.php.net/tut.php**
   PHP Tutorial
6. **www.mysql.com/documentation/index.html**
   MySQL Documentation
7. **www.bath.ac.uk/students-union/impact/files/impact.pdf**
   Database Driven Websites with PHP and MySQL
8. **www.aspin.com**
   ASP Resource Index
9. **http://www.htmlgoodies.com/beyond/aspdir.html**
   ASP Tutorials
10. **http://hotwired.lycos.com/webmonkey/99/03/index1a.html**
    Webmonkey Tutorials

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V. EVALUATION METHODS:

Tests and Quizzes	40 %
Assignments and Lab Work	60 %

The tentative breakdown is as follows:

2 Formal Theory Tests	15 %	each
3 Quizzes (best 2 of 3)	5%	each
6 Assignments	5 %	each
1 Major Project (including sub tasks)	30 %	each

Some minor modifications to the above percentages may be necessary.

The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 - 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

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OTHER EVALUATION CONSIDERATIONS

In order to pass this course the student must obtain an overall quiz average of **50%** or better, as well as, an overall assignment average of **50%** or better. A student who is not present to write a particular quiz, and does not notify the instructor beforehand of their intended absence, may be subject to a zero grade on that quiz.

ELIGIBILITY FOR XGRADES/UPGRADING OF INCOMPLETES

When a student's course work is incomplete or final grade is below 50%, there is the possibility of upgrading to a pass when a student meets all of the following criteria:

1. The student's attendance has been satisfactory.
2. An overall average of at least 50% has been achieved.
3. The student has not had a failing grade in all of the theory tests taken.
4. The student has made reasonable efforts to participate in class and complete assignments.

NOTE: **The opportunity for an X grade is usually reserved for those with extenuating circumstances.** The nature of the upgrading requirements will be determined by the instructor and may involve one or more of the following: completion of existing labs and assignments, completion of additional assignments, re-testing on individual parts of the course or a comprehensive test on the entire course.

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ASSIGNMENT/PROJECT SPECIFIC INFORMATION

1. Assignments/Projects will be assigned to student "assignment/project teams", each consisting of two, three or four students.

2. It is the responsibility of the project team to clarify any system requirements with the user / professor.

3. At various intervals, the instructor will require each assignment/project team to report on the progress made on their respective assignment/project. At that time, each team member will be required to complete a Peer Evaluation Form used to "grade" each team member's contribution to the assignment/project.

4. At the completion of an assignment/project, the respective assignment/project team may be required to present and demonstrate the functionality of their system to the user / professor.

5. The grade assigned to the overall assignment/project and to each team member will be determined using two sources:

    a) Peer Evaluation Form
    b) Presentation of project to professor(s)
    c) Instructor observation of classroom work

6. Assignments/projects must be submitted by the due date according to the specifications of the instructor. Late assignments will normally be penalized at 10% per day late. Late assignments will only be marked at the discretion of the instructor in cases where there were extenuating circumstances.

** Note: When an assignment/project is presented to the professor, each team member may be required to demonstrate his/her assigned task(s). The assignment/project will receive an overall grade and each team member will receive an individual grade that may or may not be equivalent to the overall assignment/project grade or to the grades of other team members.

VI. SPECIAL NOTES

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1101 or call Extension 2493 so that support services can be arranged for you.

Retention of course outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Rights and Responsibilities*. Students who engage in "academic dishonesty" are subject to receiving an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material. In the case of assignment submissions, any assignment deemed to be copied, will result in a **zero** grade being assigned to **all** students involved in that particular incident.

Attendance:
Absenteeism will affect a student's ability to succeed in this course. Absences due to medical or other unavoidable circumstances should be discussed with the instructor. There will be an attendance factor included in the lab evaluation.

Course outline amendments:
The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

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VII. PRIOR LEARNING ASSESSMENT

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

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.