SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Object Oriented Analysis & Design

CODE NO. : CSD307 **SEMESTER:** V

PROGRAM: Computer Programmer / Analyst

AUTHOR: Douglas McKinnon

DATE: Aug 03 **PREVIOUS OUTLINE DATED:** N/A

APPROVED:

_____ _____

DEAN **DATE**

TOTAL CREDITS:

PREREQUISITE(S): CSD202

HOURS/WEEK: 4

I. COURSE DESCRIPTION:

In this course students will learn how to: produce various, detailed, object models and designs from system requirements; apply the modeling concepts and constructs provided by the Unified Modeling Language (UML); identify use cases and expand them into full behavioural designs; and ultimately transform their analytic discoveries into a system design that is well documented and ready for implementation.

Students will work individually and within a simulated project team to develop their project management, interpersonal, communication, analytic, design, and presentation skills.

Students will also learn to use Computer Aided Software Engineering (CASE), tools for project management and UML modeling deliverables.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. **Describe the evolution of System Development Methodologies**

   Potential Elements of the Performance:

   Compare the classical system development life cycle (SDLC) with OO and RAD methodologies

   Understand the evolution of systems development methodologies

   Understand the basic characteristics of Object Oriented systems

   Understand the benefits of using the Unified Modeling Language (UML) in object-oriented systems analysis and design

   Be familiar with the roles and responsibilities of the project team members.

2. **Understand the project initiation process and standard project evaluation calculations**

   Potential Elements of the Performance:

   Understand the importance of linking the information system to business objectives
   Be able to create a system request

   Assess technical, economic and organizational feasibility

   Perform feasibility analysis including project costs and benefits, differentiate between tangible and intangible costs and benefits, assign monetary values to costs and benefits, determine cash flow, return on investment, and net present value.

3. **Understand the Project Management process**

   Potential Elements of the Performance:

   Be able to create a project work plan

   Identify tasks associated with the project work plan

   Become familiar with how to staff a project and associate appropriate tasks

   Become familiar with estimation of time and costs at the task level

   Understand how computer aided software engineering, standards, and documentation improve the efficiency of a project

   Work with an implementation of project management software

   Understand how to identify and reduce risk on a project

   Effectively participate and communicate with project team members

   Illustrate the ability to control, direct and participate in all aspects of the project .

4. **Apply Object Oriented Analysis Techniques**

Potential Elements of the Performance:

Understand the rules and style guidelines for use-cases and use-case diagrams

Understand the process used to create use-cases and use-case diagrams

Be able to create use-cases and use-case diagrams with a UML modeling tool

Understand the rules and style guidelines for creating Class-Responsibility-Collaboration (CRC) cards, class diagrams, and object diagrams

Understand the process used to create CRC cards, class diagrams, and object diagrams

Be able to create CRC cards, class diagrams, and object diagrams with a UML modeling tool

Understand the relationship between the structural and use-case diagrams

Understand the rules and style guidelines for sequence, collaboration, and state-chart diagrams

Understand the process used to create sequence, collaboration, and state-chart diagrams

Be able to create sequence, collaboration, and state-chart diagrams with a UML modeling tool

Understand the relationship between the behavioral, structural and use-case models

5. **Apply Object Oriented Design Techniques**

Potential Elements of the Performance:

Understand the transition from analysis to design

Understand the use of factoring, partitions and layers

Be able to create package diagrams

Develop Infrastructure design

Develop Network model

Develop Hardware/Software Specifications

Develop Security and contingency plans

Understand User Interface design principles

III. TOPICS:

1. System Development Methodologies
2. Project initiation and standard evaluation calculations
3. Project Management processes and deliverables
4. Object Oriented Analysis Techniques
5. Object Oriented Design Techniques

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Textbook:

Systems Analysis and Design - An Object-Oriented approach with UML

Author(s): Dennis, Wixom & Tegarden
Publisher: John Wiley & Sons Inc.
ISBN: 0-471-41387-9

a) At least 5 3.5" high density floppy disks
b) Instructor's handouts, guidance, and material as it relates to the individual topics, assignments and/or laboratory exercises
c) Additional reference material will be provided to students, placed in the library for the student use, or referenced on-line

V. EVALUATION PROCESS/GRADING SYSTEM:

Theory tests, practical tests and quizzes	35%
Assignments and lab work	30%
Semester Project	35%

The tentative breakdown is as follows:

3 Formal Theory Tests
2 Practical Tests
12 Assignments/Quizzes/Lab work
1 Semester Project

Some minor modifications to the above percentages may be necessary.

The instructor reserves the right to adjust the overall mark up or down 5% based on participation and whether the student illustrates an improving trend.

The instructor reserves the right to adjust the overall mark down 3% per instance based on attendance to regularly scheduled lecture and lab periods. Absenteeism will affect the student's ability to succeed, and to interact with project members. Absenteeism should be discussed with your Professor, in advance if possible, in all cases.

The student must achieve a passing grade in all major evaluation and grading system components to achieve an overall passing grade in the course.

Quizzes may be administered without prior notice to students.

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%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
F (Fail)	59% 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.

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 E1204 or call Extension 493 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” will receive 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.

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.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

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.