SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: SOFTWARE ENGINEERING

CODE NO. : CSD 306   **SEMESTER:** V

PROGRAM: COMPUTER ENGINEERING

AUTHOR: DOUGLAS MCKINNON

DATE: AUG 2001   **PREVIOUS OUTLINE DATED:** AUG 2000

APPROVED:

_____   _____
                                                        DEAN   **DATE**

TOTAL CREDITS: 6

PREREQUISITE(S): NONE

**LENGTH OF
COURSE:** 16 WEEKS   **TOTAL CREDIT HOURS:** 96

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I.   COURSE DESCRIPTION:

In this course we will follow a systematic approach to software engineering. The students will learn and work with the necessary tools and techniques to collectively develop a major software project. In all the tools and techniques, the most important component will always be communication. Therefore, communication is the key to success in software development and thus oral, written and interpersonal communication skills will be the main focus of this course.

II.   LEARNING OUTCOMES AND ELEMENTS OF PERFORMANCE:

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

1.   Describe why Systems Analysis/Software Engineering are so important and why there is a need for effective communication.

       Potential Elements of Performance:

       • Describe the historical evolution of Software Engineering
       • Describe the quality, effectiveness, productivity and political aspects of Software Projects
       • Define what a system is and what the different system categories are

2.   Work in teams to demonstrate the people aspects of Systems Development.

       Potential Elements of Performance:

       • Define and describe the categories of people involved in software development
       • Define and describe the categories of users as well as the different objectives they have
       • Describe the role of the system analyst in a system development project
       • Describe the role of management in a systems development project
       • Demonstrate teamwork skills and accept individual and group responsibilities

3.   Describe the various tools and techniques that relate to system

development methodologies.

Potential Elements of Performance:

- Describe the concept of a project life cycle
- Describe the characteristics of the classical project life cycle
- Describe the differences between radical and conservative life cycles
- Describe the prototyping approach
- Explain the changes that have taken place in structured analysis
- Describe why automated tools are important to the future of systems analysis

4.   Manage and effectively plan all aspects of the system development process.

Potential Elements of Performance:

- Demonstrate the concept of planning and its relevance
- Define and produce project goals and requirements
- Recognize the relationship of planning with respect to project size
- Produce and use project planning development processes including: Project Phases; Milestones, Documents, Reviews; Project Costing; Prototyping; Successive Versions
- Work within a project planning organizational structure that includes: Project Format; Project Team Structure; Project Quality Assurance; Project Verification and Validation
- Produce the project feasibility study (also known as the engineering study)

5.   Analyze and problem solve in a team environment by using various tools techniques, and documentation that relate to systems development methodologies.

Potential Elements of Performance:

These outcomes will represent the majority of the material covered in this course. There will be extensive use of teamwork, tools and techniques to properly analyze and design computer systems. The student will also be exposed to the software deliverables in this course. Subsequent courses will develop these skills in greater detail. Some of these tools and deliverables will be covered in greater detail than others.

- Produce effective system documentation to assist in the analysis by using the major modelling tools such as: Dataflow Diagrams,

Data Dictionary, Process Specifications, Entity Relationships,
Joint Application Design Sessions (JAD)

- Produce software deliverables at each stage of the SDLC such
as: Problem Statement, Feasibility Study, Project Plan,
Requirement Specs, Functional Specs, Managerial Presentations

III.   TOPICS:

1.   Introduction to Systems Analysis and Design

2.   People Aspects in Software

3.   Systems Development Life Cycle Methodology

4.   Project Planning and Management

5.   Teamwork, Modelling Tools and Software Deliverables

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:

**"SYSTEMS ANALYSIS AND DESIGN", Fifth Edition, Kendall &
Kendall, Prentice Hall, 2001; ISBN: 0-13-041571-5**

Materials:

a) at least 5 3.5" high density floppy disks
b) additional reference material will either be given to the students or
   placed in the library for the student's use
c) instructor's handouts, guidance, and material as it relates to the
   individual topics

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V. EVALUATION PROCESS/GRADING SYSTEM:

Theory Tests, Practical Tests and Quizzes   60%
Assignments and Lab Work   40%

The tentative breakdown is as follows:

2	Formal Theory Tests	@	15% each
1	Take Home Test	@	15%
1	Semester Project	@	15%
4	Assignments	@	5% each
2	Assignments	@	10% each

Some minor modifications to the above percentages may be necessary. The instructor reserves the right to adjust the mark up or down 5% based on attendance, participation and whether there is an improving trend.

As per School policy, the student must pass both the assignment portion and the testing portion of the valuation scheme.

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
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see *Policies & Procedures Manual – Deferred Grades and Make-up*).	

NR   Grade not reported to Registrar's office.
                This is used to facilitate transcript
                preparation when, for extenuating
                circumstances, it has been impossible for
                the faculty member to report grades.

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,
717, or 491 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.

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this course outline depending on the needs of the learner and the
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Substitute course information is available in the Registrar's office.

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Assignment Due Dates:
All assignments must be completed satisfactorily to complete this course. Late hand in penalties will be 5% per day. Assignments will not be accepted past one week late unless there are extenuating and legitimate circumstances.

Due to the heavy emphasis on group effort and team work, late hand ins will not be allowed for some assignments. Absenteeism and lack of group cohesiveness will disrupt all members of the group and will not be tolerated.

Mandatory work that is individual in nature will result in an Incomplete with the option of makeup work at the end of the semester.

Mandatory work that is critical to the rest of the team players will be absolutely required within the agreed upon time frame. Failing to comply may result in action taken.

Attendance:
A student who is absent for 3 or more times without any valid reason or effort to resolve the problem will result in action taken.

NOTE: If action is to be taken, it will range from marks being deducted up to and including removal from the course.

VII. PRIOR LEARNING ASSESSMENT:

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

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.