

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: SYSTEMS ANALYSIS AND DESIGN

Code No.: CET 311

Program: COMPUTER ENGINEERING TECHNOLOGY

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Approved:

L.P. Crockett
Chairperson

Date:

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CET311 - SYSTEMS ANALYSIS AND DESIGN

GENERAL OBJECTIVES

Many software systems are still being produced that are unreliable, over budget, poorly documented and not well suited to the user. A well engineered software system must be reliable, understandable, and maintainable.

A disciplined software development approach is absolutely critical to minimize the common problems with software. Most organizations follow a structured and disciplined approach to software development. They use different tools, techniques and methodologies and levels of sophistication but for the most part follow the System Development Life Cycle (SDLC).

In this course we will follow a systematic approach to systems analysis and design. The student will gain a thorough understanding of the SDLC through the preparation of deliverables (documents, discussions, coding) at each stage.

Communication is the key to success in software development and therefore documentation, oral, written and interpersonal communication skills will be the main focus of this course.

TEXTBOOK:

1. "Modern Structured Analysis" by Edward Yourdon
2. "TOOLS AND TECHNIQUES FOR STRUCTURED SYSTEMS ANALYSIS AND DESIGN" by WILLIAM S. DAVIS.
3. HAND OUT MATERIAL BY INSTRUCTOR

ASSESSMENT:

Tests and Quizzes	60%
Assignments and Lab Work	40%

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, leadership, creativity and whether there is an improving trend.

- * All Assignments must be completed satisfactorily to complete the 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.

SPECIFIC OBJECTIVES

BLOCK_1 INTRODUCTION TO SYSTEMS ANALYSIS AND DESIGN

At the end of this block, the student shall be able to:

1. Describe the historical evolution of Systems Analysis and Design.
2. Describe what systems analysis is.
3. Describe what systems design is.
4. Describe the quality, effectiveness, productivity and political aspects of Software Projects.
5. Define what a system is and what the different system categories are.

BLOCK_2 PEOPLE ASPECTS IN SOFTWARE DEVELOPMENT

At the end of this block, the student shall be able to:

1. Define and describe the categories of people involved in software development.
2. Define and describe the three main categories of users as well as the different objectives they have.
3. Describe the role of a systems analyst in a systems development project.
4. Describe managements role in a systems development project.
5. Describe the roles of others in a software project.

BLOCK_3 THE SYSTEMS DEVELOPMENT LIFE CYCLE METHODOLOGY

At the end of this block, the student shall be able to:

1. Describe the concept of a project life cycle.
2. Describe the characteristics of the classical project life cycle.
3. Define and describe the different components of the systems development life cycle.
4. Describe the differences between radical and conservative life cycles.
5. Describe the prototyping approach.
6. Explain the changes that have taken place in structured analysis.
7. Describe why automated tools are important to the future of systems analysis.

BLOCK 4 PLANNING A SOFTWARE PROJECT (PROJECT MANAGEMENT)

At the end of this block, the student shall be able to:

1. Understand the concept of planning and its relevance.
2. Define project goals and requirements.
3. Discuss the relationship of planning with respect to project size.
4. Discuss the project planning development process including:
 - a) Project Phases
 - b) Milestones, Documents, Reviews
 - c) The cost aspects of each phase of the project
 - d) Prototyping
 - e) Successive versions
5. Discuss the project planning organizational structures including:
 - a) Project Format
 - b) Project team structure
 - c) Project quality assurance
 - d) Project verification and validation
6. Produce the project feasibility study. (also known as engineering study)

BLOCK 5 MODELING TOOLS AND SOFTWARE DELIVERABLES

At the end of this block, the student shall be able to:

1. Define, describe and use the major modeling tools such as:
 - a) Dataflow Diagrams
 - b) Data Dictionary
 - c) Process Specifications
 - d) Entity-Relationship Diagrams
 - e) State-Transition Diagrams
 - f) Context Diagrams
 - g) Joint Application Design Sessions (JAD)
2. Produce software deliverables at each stage of the Software Development Lifecycle such as:
 - a) Problem Statement
 - b) Feasibility Study
 - c) Project Plan
 - d) Requirement Specification Document
 - e) Functional Specification Document
 - f) Computer System Design Document
 - g) Managerial overview Presentations

GRADING SCHEME

1. TESTS

Written tests will be conducted as deemed necessary; generally at the end of each block of work. They will be announced about one week in advance. Quizzes may be conducted without advance warning.

2. ASSIGNMENTS

Assignments not completed by the assigned due-date will be penalized by 5% per day late. All assignments must be completed satisfactorily to complete the course.

3. GRADING SCHEME

A+	90	-	100%	Outstanding achievement
A	80	-	89%	Excellent achievement
B	70	-	79%	Average Achievement
C	55	-	69%	Satisfactory Achievement

U Incomplete: Course work not complete at Mid-term. Only used at mid-term.

R Repeat

X A temporary grade that is limited to instances where special circumstances have prevented the student from completing objectives by the end of the semester. An X grade must be authorized by the Chairman. It reverts to an R if not upgraded in an agreed-upon time, less than 120 days.

4. UPGRADING OF INCOMPLETE

When a student's course work is incomplete or final grade is below 55%, there is the possibility of upgrading to a pass when the student's performance warrants it. Attendance and assignment completion will have a bearing on whether upgrading will be allowed. A failing grade on all tests will remove the option of any upgrading and an R grade will result. The highest grade on re-written tests or assignments will be 56%.

Where a student's overall performance has been consistently unsatisfactory, an R grade may be assigned without the option of make-up work.

The method of upgrading is at the discretion of the teacher and may consist of one or more of the following options: assigned make-up work, re-doing assignments, re-writing of tests, or writing a comprehensive supplemental examination.