



**I. COURSE DESCRIPTION:**

In this course we will follow a structured, methodical approach to systems analysis and design. The student will gain a thorough understanding of the System Development Life Cycle (SDLC) through the preparation of deliverables (documents, discussions, coding) at each stage. We will also compare and contrast some of the newer development methodologies such as the modified SDLC, Rapid Application Design (RAD), Object Oriented Analysis and Design (OOA&D), and others.

The most important component of system development 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.

Students will work individually, and within a team environment, to develop their analytic/system design skills and prepare a complete system proposal.

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

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

**1. Discuss the elements of Systems Analysis and Design****Potential Elements of the Performance:**

- Describe the Impact of Information Technology
- Describe Components that make up an information system
- Describe the impact of Internet technologies
- Explain the breakdown of users and their needs
- Describe tools used for systems development
- Describe methods used for systems development.
- Describe Guidelines for Systems Development
- Describe what is required to be a Systems Analyst.

**2. Analyzing a basic business case.****Potential Elements of the Performance:**

- Describe and review Strategic Planning
- Describe factors that affect the Systems Project.
- Describe how to evaluate system requests
- Describe the different types of feasibility studies
- Identify factors that affect Priorities

- Explain how to perform the Preliminary Investigation.
3. Describe the various tools and techniques that relate to Managing The Systems Project

Potential Elements of the Performance:

- Identify the tasks for Project Planning
  - Describe tools for Project Scheduling
  - Describe and use Gantt/Pert Charts
  - Describe Risk Management
  - Explain monitoring and control techniques
  - Understand how to use Project Management Software
  - Explain the key factors to project success
4. Describe the Systems Analysis Phase – Requirements Modeling

Potential Elements of the Performance:

- The systems analysis phase overview
  - Explain Joint Applications Development
  - Explain Rapid Applications Development
  - Explain Agile methods of development
  - Describe Modeling tools such as Data Flow Diagrams
  - Produce a checklist for your project
  - Explain the Fact finding and Interview process
5. Describe the Data and Process Modeling Phase

Potential Elements of the Performance:

- Explain how to use DFD's ( Data Flow Diagrams)
  - Explain the different types of DFD symbols
  - Explain how to use the Data Dictionary
  - Describe Process Description tools
  - Explain the difference between Logical and Physical Models
6. Understand fundamental concepts of Object Modeling

Potential Elements of the Performance:

- Describe Object-Oriented Analysis
- Understand terms and concepts
- Describe objects, attributes, methods, messages, classes
- Understand how to complete a simple diagram

## 7 Understand how to Develop Strategies

### Potential Elements of the Performance:

- Explain the Impact of the Internet
- Outsourcing
- Explain Software Development Options
- Explain how to Analyze Cost and Benefits
- Explain the Acquisition Process
- Describe the System Design Guidelines
- Explain and show examples of Prototyping

## 8

### Potential Elements of the Performance:

- Describe Human Interaction and User Involvement
- Explain how to Create Input Designs
- Describe Some Data Design Concepts
- DBMS components
- Web-Based Database Design
- Explain Entity-Relationship diagrams
- Explain Normalization with examples

## 9

### Potential Elements of the Performance

- Define a System Architecture
- Explain how to create a checklist
- Planning the Architecture
- Client/Server /Internet/Wireless Networks based architectures
- Processing Methods
- Explain the Acquisition Process
- Completing the Systems Design

## 10 Manage and Support System

### Potential Elements of the Performance:

- Describe Testing The System
- Provide the proper reports and documentation
- Getting Management Approval
- Installation and Evaluation
- Operation and Test Environments
- Training

- Changeover Options
- Explain User Support and Training
- Maintenance Tasks and Performance Management
- Security Issues
- Backup and Recovery

### III. TOPICS:

1. Introduction to Systems Analysis & Design
2. Analyzing a basic business case
3. Tools and Techniques to manage the project
4. The Systems Analysis Phase
5. Data Modeling Phase
6. Basic Concepts of Object Modeling
7. Developing Strategies
8. The User Interface and Data Design
9. Understanding System Architectures
10. Manage and Support systems Implementation

### IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Systems Analysis and Design 9<sup>th</sup> edition  
 Shelly-Rosenblatt ( Shelly Cashman Series)  
**ISBN-10: 0538481617 ISBN-13: 9780538481618**

- a) Instructor's handouts, guidance, and material as it relates to the individual topics
- b) Additional reference material will be provided to students, placed in the library for the student use, or referenced from the Internet

### V. EVALUATION PROCESS/GRADING SYSTEM:

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

1 Written Tests @ 30% each	30%
Practical Lab Assignments (8)	40%
Final Projects (2) @ 15	30%
Total	100%

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	
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.	

## VI. SPECIAL NOTES:

### Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session. It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not be granted admission to the room.>

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 professor. Students are required to be in class on time and attendance will be taken within the first five minutes of class. A missed class will result in a penalty in your marks unless you have discussed your absence with the professor as described above. The penalty depends on course hours and will be applied as follows:

<b>Course Hours</b>	<b>Deduction</b>
5 hrs/week (75 hrs)	1% per hour
4 hrs/week (60 hrs)	1.5% per hour
3 hrs/week (45 hrs)	2% per hour
2 hrs/week (30 hrs)	3% per hour

## VII. COURSE OUTLINE ADDENDUM:

1. 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.
2. 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.
3. Prior Learning Assessment:  
Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

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

4. Accessibility Services:  
If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Accessibility Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.
5. Communication:  
The College considers ***Desire2Learn (D2L)*** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of this Learning Management System (LMS) communication tool.

6. Plagiarism:  
Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. 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.
  
7. Tuition Default:  
Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) as of the first week of November will be removed from placement and clinical activities due to liability issues. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.
  
8. Student Portal:  
The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.
  
9. Electronic Devices in the Classroom: Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.