



**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. Introduction to 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. Describe the User Interface and Data Design

### 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 Understanding System Architectures

### 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:**

Textbook:

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%

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

The professor reserves the right to adjust the number of tests, practical tests and quizzes based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.

- Successful completion of this course is greatly improved with a disciplined approach and consistent attendance to both the lab and lecture / theory classes.
- Students must complete and pass both the test and assignment portion of the course in order to pass the entire courses.
- 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. It is not acceptable to miss classes and / or labs without a reasonable explanation.
- There will also be a lab exercise each and every week that will be due during that lab period. In the event that it cannot be completed during lab time, you will be allowed to complete it as a homework exercise and demonstrate it the following lab with no penalty.

**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 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

**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%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
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.

**VII. COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline.