

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: SYSTEMS ANALYSIS AND DESIGN
CODE NO. : CSD202 **SEMESTER:** III
PROGRAM: COMPUTER STUDIES (CET/CPA)
AUTHOR: Marcel VanLandeghem
DATE: Sep 2009 **PREVIOUS OUTLINE DATED:** Sep 2008
APPROVED: "B. Punch"

CHAIR **DATE**
TOTAL CREDITS: 5
PREREQUISITE(S): N / A
HOURS/WEEK: 4

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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 DesignPotential 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 ProjectPotential 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 ModelingPotential 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 PhasePotential 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 ModelingPotential 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 StrategiesPotential 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 the Systems Implementation

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 and 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 8th edition
Shelly-Rosenblatt (Shelly Cashman Series)
ISBN: 10: 0-324-59766-5

- 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:

Tests	50%
Practical Assignments	60%
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:

Course Hours	Deduction
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:

Grade	<u>Definition</u>	<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:

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.

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.

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.

Disability 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 Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** 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 the **Learning Management System** communication tool.

The professor reserves the right to use other tools and / or techniques that may be more applicable. These other tools and / or techniques for effective communication will be discussed, identified and presented throughout the delivery of the course content

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. 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.

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>.

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.

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. *<Optional: It is the departmental policy that once the classroom door has enclosed, the learning process has begun. Late arrivers will not be granted admission to the room.>*

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 *<choose November, March, or June>* will be removed from placement and clinical activities. 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.

Special Notes:

In order to pass this course the student must obtain an overall test/quiz average of 50% or better.

Assignments must be submitted by the due date according to the specifications of the instructor. Late assignments will normally be given a mark of zero. Late assignments will only be marked at the discretion of the instructor in cases where

there were extenuating circumstances. Ask for permission from your instructor to hand assignments in late before the due date

Upgrading Of Incompletes:

When a student's course work is incomplete or final grade is below 50%, there is the possibility of upgrading to a pass when a student meets all of the following criteria:

1. The student's attendance has been good.
2. An overall average of at least 45% has been achieved by semester's end.
3. The student has made reasonable efforts to participate in class and maintain the recommended schedule for assigned activities.

The nature of the upgrading requirements will be determined by the instructor and may involve re-testing and/or additional lab assignments