SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Outline: SYSTEM ANALYSIS AND DESIGN

Code No.: EDP 108-4
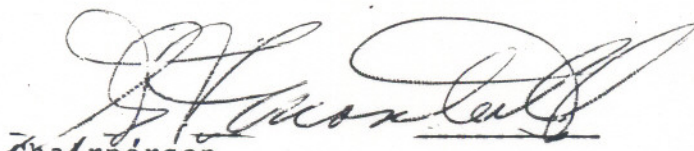
Program: BUSINESS PROGRAMMER

Semester: III

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APPROVED: _____   88-05-03
          Chairperson   Date

SYSTEMS ANALYSIS & DESIGN   EDP 108-4
_____   _____
          Course Name   Course Number

CURRICULUM OVERVIEW:

a) Course Name: Systems Analysis and Design
    Course #: EDP108
    Semester: III

b) Prerequistes: EDP100

c) Course Synopsis:

    The course is based on the theory that all "systems" follow the same
    organizational rules and are basically subject to the same methods of
    analysis. Once the student has mastered the technique of analysis in
    one subject area, the knowledge is easily applied to solve other
    system problems in other areas. The course will focus on converting
    manual operations into a computer based system. The majority of time
    will be spent on analyzing the traditional life cycle methodology to
    solving business problems and conclude with some present trends and
    future directions of the science of System Analysis and Design.

d) Textbook: Elements of Systems Analysis; by Marvin Gore & John Stubbe
               3rd edition

e) **MODULE DESCRIPTION:**

    Module 1: Will provide the background concepts in systems analysis,
               which focuses on the life cycle concept and managing the
               resource "information".

    OBJECTIVES:

    At the end of this module, students will be able to:

    1) Distinguish between systems analysis and the life-cycle
        methodology.

    2) Define a system, information, and business information system
        and give an example of each.

    3) Describe the characteristics of the four eras as they relate to
        the B.I.S.

4) Understand why difficulties have been encountered in developing computer-based systems in the past and what factors have lead to greater success.

5) Discuss the importance of usability as it applies to computer-based B.I.S.

6) Describe the life-cycle concept.

7) Name and describe each of the four phases of the life cycle of a B.I.S.

8) Define "systems analysis".

9) Understand top-down approach to system design and development.

10) Define "baseline documentation".

11) Understand "cumulative documentation".

12) Know who participates in the review of life-cycle activities.

13) Describe ways in which computer-oriented systems differ from manual systems.

14) Identify the principle functions performed by the systems group.

15) Understand the flow of authority and responsibility in an organization.

16) Distinguish between goals and objectives.

17) Distinguish between feedback and control.

18) Distinguish between top-down and bottom-up design.

19) Identify characteristics of M.I.S.

20) What is a Decision Support System

Module 2: Introduce the skills required in systems analysis, i.e. coding, forms design, written and verbal communications.

OBJECTIVES:

At the end of this module, students should be able to:

1) Know why codes are used in business.

2) Know what a code plan is.

3) Identify the five common types of codes.

4) Know why analysts should be familiar with self-checking codes.

5) Know the five parts of a form.

6) Distinguish between the types and styles of forms.

7) Discuss the cost of forms.

8) Understand the advantages of forms control.

9) Name and relate each of the four basic types of charts.

10) Understand the pseudo coding technique.

11) Know what correlations should be made between the project status and project cost reports.

12) Differentiate between C.P.N and Gantt Charts.

13) Know what the critical path is.

14) Understand flowcharting techniques.

15) Know what an information-oriented system flowchart is used for.

16) Know the purpose of a process oriented system flowchart.

17) Know what a data flow diagram is.

18) Relate the levels of system flowcharts to the phases of the life cycle of a computer-based information system.

19) Discuss different approaches to scheduling presentations.

20) Know the importance of feedback.

21) Distinguish between formal and informal presentations.

Module 3:   The Study Phase is introduced which is the first of a four cycle phase. This module prepares the student to perform activities necessary to identify a computer-based business information system problem and make recommendations for solutions.

OBJECTIVES:

At the end of this module, the student should be able to:

1) Define and explain the purpose of information service requests, initial investigation, project directive, feasibility analysis, system performance definition.

2) Know what a candidate system is and how it is related to the feasibility analysis.

3) Know the purpose of the study phase report.

4) Know why the initial investigation benefits the user.

5) Describe several ways in which a Business system information problem might be identified.

6) Distinguish between the terms information service request, modified information service request, project directive.

7) Know what the elements of project control are that aid in the management of an initial investigation.

8) Know why the analyst performs background analysis.

9) Conduct a personal interview.

10) Know the importance of identifying the principal user.

11) Know what are the steps tht result in the definition of system performance.

12) Know why the analyst must make a tentative selection of output media.

13) Know what are the two specific purposes of the feasibility analysis.

14) Know the four basic functions to be performed by any system candidate.

15) Know why it is necessary to perform a preliminary evaluation of system candidates.

16) Know what the purposes are of a candidate system matrix, candidate evaluation matrix, weighted candidate evaluation matrix.

17) Know the purpose and content of the study phase report.

18) Discuss the importance of the performance specifications.

19) Know what the purpose of the study phase review is for.

Module 4: The Design Phase teaches the student to perform tasks such as system design, output design, input design, file design and DBMSs.

OBJECTIVES:

At the end of this module, the student should be able to:

1) Define the design phase.

2) Know what is meant by the allocation of functions.

3) Know the purpose of the design phase report.

4) Know why it is important to plan controls as early as possible in system design.

5) Know what a workload sample is and how it is obtained.

6) Define interface management.

7) Define a structured walk-through.

8) Know the purpose of a print chart.

9) Know the conditions for preprinted specialty forms.

10) Describe the input design process.

11) Know the objectives of file design.

12) Know the difference between packed decimal and zoned decimal storage.

13) Explain the relationship between a logical record and a physical record.

14) Explain file organization.

15) Explain the purpose of the design phase report and specifications.

Module 5:   The Development Phase, the student is introduced to two
            principle topics, the implementation and computer program
            development.

OBJECTIVES:

At the end of this module, students should be able to:

1)   Define the development phase.

2)   Know what occurs during implementation.

3)   Know what system specifications are used for.

4)   Distinguish between implementation, conversion, and changeover.

5)   Discuss the importance of testing prior to changeover.

6)   Describe and distinguish between the general changeover methods.

7)   Describe the five steps in computer program development.

8)   Define an algorithm.

9)   Know the responsibility fo the analyst in program development.

10) Know the purpose of the development phaes report and review.

Module 6:   The Operation Phase introduces the student to the operating
            environment of a computer-based business information system.
            This includes the changeover from the manual to the computer
            system, as well as performance evaluations. Present trends,
            future direction of systems analysis and design.

OBJECTIVES:

1)   Define the operation phase.

2)   Know why it is usually the longest of all phases.

3)   Give examples of events that could cause extensive changes in an
     operational business information system.

4)   Define the "changeover crisis".

5)   Discuss the interaction between standards, timeliness, and user
     satisfaction.

6) Distinguish between through-put time, turnaround time, and response time.

7) Discuss why periodic reviews are necessary.

8) Understand the purpose of the performance review board.

Course Role Within the Program:

The course will prepare the student to design and implement large computer-based systems in a team environment. The student will utilize these skills of analyzing, designing, and implementing systems through-out all courses they are taking.

Student Evaluation:

a) The student's final grade will be determined from the following components:

TEST	3 @ 20%	= 60%
PROJECT		
PROJECT DIRECTIVE		= 3%
SYSTEM FLOWCHART		= 5%
DATA FLOW DIAGRAM		= 8%
GANTT CHART		= 2%
PERT CHART		= 2%
OUTPUT SPEC'S		= 5%
INPUT SPEC'S		= 5%
PSEUDO CODE		= 5%
PARTICIPATION/ATTITUDE		= 5%
		100%

b) Grading

A+	=	90 - 100%
A	=	80 - 89%
B	=	70 - 79
C	=	60 - 69
R	=	0 - 54

NOTE: Students are expected to attend class regularly and to participate in class discussions. Late assignments are subject to a zero grade unless the student has PRIOR permission to hand the assignment in at a later date from the instructor.