SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Outline: OPERATING SYSTEMS
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Code No.:   EDP 234
_____

Program: BUSINESS PROGRAMMER
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Semester: THREE
_____

Date: SEPTEMBER, 1986
_____

Author: R. LAILEY
_____

New: ___X___   Revision: _____

APPROVED: _____   86-09-10
          Chairperson   Date

OPERATING SYSTEMS   EDP 234
_____   _____
       Course Name   Course Number

TIME: 3 hours per week

TEXT: "An Operating Systems Vade Mecum", by Raphael A. Finkel;
            Prentice-Hall

GENERAL CONTENT:

This course focuses on two specific aspects of operating systems. The
first is a step-by-step analysis of the complex issues, policies,
algorithms and mechanisms found in modern operating systems. The second is
a theoretical as well as practical look at a number of VAX VMS features.
Particular attention is paid to VMS features that may be utilized from VAX
COBOL.

STUDENT EVALUATION:

			OR			
- Tests (2 @ 30)	=	60%		Tests	=	30%
- Assignments	=	30%		Assignments	=	30%
- Quizzes/Participation	=	10%		Final Test	=	40%
		100%				100%

The final test will cover the entire semester and may be written only if
the student's grade, prior to the test, is greater than 45% and all
assignments have been completed successfully.

NOTE: Assignments not received by the due dates are subject to a zero
           grade.

GRADING:

A+	=	90%	-	100%
A	=	80%	-	89%
B	=	70%	-	79%
C	=	55%	-	69%
R	=	0%	-	54%

SECTION A

MODULE 1 - Chapter 1 - INTRODUCTION:

- The Resource Principle
- Historical Development
- The Beautification Principle
- Discussion of depth of material to be analyzed

MODULE 2 - Chapter 2 - TIME MANAGEMENT:

- Short, medium and long-term scheduling
- Scheduling terminology, policies
- Scheduling in perspective

MODULE 3 - Chapter 3 - SPACE MANAGEMENT:

- Space Management terminology and policies
- Fixed partition approach
- Single segment approach
- Segmentation
- Paging approach
- Paging policies
- Space management in perspective

MODULE 4 - Chapter 4 - NON-PREEMPTIVE RESOURCES:

- Non-sharable and non-preemptive resources
- Resource Allocation terminology, alternatives and policies
- Resource management in perspective

MODULE 5 - Chapter 5 - TRANSPUT:

- The beautification principle related to resource allocation and
  transput
- Hardware device terminology and characteristics
- CPU - Device interaction
- Software control of devices
- Data modification
- Process review of transput

MODULE 6 - Chapter 6 - FILE STRUCTURES

- Naming structure of files
- Access control
- Access methods
- File Recovery
- Transactions
- Physical Representation
- File management in perspective

MODULE 7 - Chapter 7 - THE USER INTERFACE:

- The Command Interpreter
- Interactive Programs
- Utility Programs

MODULE 8 - Chapter 8 - CONCURRENCY:

- Problem areas defined
- Mechanisms

MODULE 9 - Chapter 9 - CO-OPERATING PROCESSES

- Creating and naming processes
- Interprocess Communication
- Distributed Operating Systems

SECTION B

MODULE 1 - UNDERSTANDING SYSTEM ARCHITECTURE:

Notes
- VAX Processors
- Multiprocessing VAX SystemS
- VAX Process Structure
- Executing an Image on VMS
- System Component Hierarchy
  - Run-Time Library
  - Command Language Interpreter
  - Record Management Services
  - System Services

MODULE 2 - CALLING PROCEDURES:

Notes
- VAX/VMS Procedure Calling Standard
- Calling System-Supplied Procedures

MODULE 3 - SYNCHRONIZING PROCESSES:

Notes
- Scheduling events using the System Timer Queue
- Using event flags
- AST Description and Deliveries
- Synchronizing events using VMS Lock Manager
- Synchronization Techniques

MODULE 4 - ACCESSING DEVICES:

Notes
- VAX/VMS I/O System Overview
- Performing I/O Operations
- Determining, setting and controlling device characteristics

MODULE 5 - COMMUNICATING WITH OTHER PROCESSES:

Notes
- Communicating within a process
- Communicating between processes
- Interprocessor communications

MODULE 6 - CREATING AND MANAGING OTHER PROCESSES:

Notes
- Choosing a Processing Technique
- Creating, altering and managing processes

MODULE 7 - Building Human Interfaces:

Notes
- Using the Librarian to create a HELP facility
- Adding commands, qualifiers, and options to the command language
- Creating messages
- Using the Run-Time Library

MODULE 8 - CREATING, ACCESSING AND INDEXING FILES:

Notes
- Understanding RMS files
- Using RMS Utilities

MODULE 9 - MEASURING AND IMPROVING PERFORMANCE:

Notes
- Measuring the performance of an application

MODULE 10 - UNDERSTANDING DISK AND TAPE STRUCTURE:

Notes
- VAX Disk File Structure
- Displaying Disk File Information
- Recovering Files
- VAX/VMS Implementation of ANSI Magnetic Tape Standard
- Displaying Tape File Information