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IS 541.01: Systems and Operations

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Recommended Citation

Cleveland, Gary, "IS 541.01: Systems and Operations" (2003). *University of Montana Course Syllabi*. 4601.
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IS 541
SYSTEMS & OPERATIONS
COURSE OUTLINE—Spring 2003 (Tentative)

Content

IS 541 is a survey course, which bridges the gap between the *design* and the *utilization* of information systems. Information systems connect the enterprise (private or public, profit or nonprofit) to its contemporary environment, and generate essential information for use within and among its functional areas. The course stresses the following points:

1. the absolute necessity for computers and information systems in today's world
2. the design of information systems to meet the tactical and strategic needs of the enterprise
3. the implementation and use of information systems within the enterprise's operations function

The global economy is changing at an alarming rate. For example, nearly everyday, the efficiency of production tools increases, computer power soars, new sources of energy emerge, and unexpected demographic pressures evolve. Change is everywhere. The enterprise's informed managers must keep up with all these changes and devise appropriate strategies to take advantage of them. Thus, the need for information and information systems is vital. This is especially true in the operations function. Operations is the core of the organization because it produces the goods or services that ultimately generate revenue.

To be competitive, Operations must constantly strive to produce the enterprise's products faster, cheaper, and better. To accomplish this, Operations must implement and use very sophisticated information systems, which process vast amounts of data and distribute the resulting information throughout the organization. Operations managers use daily, repetitive information to analyze costs, schedule production, control inventory, enhance quality, improve productivity, and prepare status reports. They use long-range, predictive information, i.e., demand forecasts, to assess the customers' changing expectations, exceed competitors' potential to satisfy those expectations, and execute the business strategy. Frequently, the business strategy calls for capacity expansion, new product introductions, and/or reengineering processes. Without formal information systems, the magnitude and complexity of the operations managers' responsibilities would overwhelm them.

Required Material

1. Hoffer, George, and Valacich. *Modern Systems Analysis & Design* (3rd Ed.), Addison-Wesley, 2002.
2. Krajewski and Ritzman. *Operations Management: Strategy and Analysis* (6th Ed.), Addison and Wesley, 2002.
3. Emmons, Flowers, Khot, and Mathur. *STORM 4.0 for Windows*, Lakeshore Communications, 2001.

Grading

Discussion Group Participation	10%
Test 1	20%
Test 2	20%
Final Exam	20%
Case Study	<u>30%</u>
	100%

Process

IS 541 was designed in-house for The University of Montana's off campus MBA foundation program. It is accessible throughout the Internet. It is delivered on Blackboard 5, a comprehensive software platform developed by Blackboard Inc. Enrollment is restricted to 25 students.

Each Friday morning students will receive instructions on-line. The instructions will augment the syllabus. They include but are not limited to the following:

1. Administrative details
2. Supplemental materials (e.g., outlines, readings, and notes)
3. Team assignments (viz., names, telephone numbers, and e-mail addresses)
4. Homework assignments (viz., problems and discussion questions)
5. Due dates and event dates

During the semester, three discussion groups will be conducted on-line. They will be scheduled for weekday evenings. The purpose is to:

1. Organize teams and discuss team progress
2. Answer questions before each test or exam
3. Run a threaded question, to which each student must contribute

The instructor will start a discussion group and remain on-line for the first 60 minutes. Then the instructor will pose the threaded question. The duration of the threaded question depends on students' response times. The threaded question will be graded. The score for each question will be added to a test or the final exam.

On Wednesday at 6:00 p.m., the instructor will announce on-line the problems and/or questions for each test and the final exam. Students must submit their answers by the following day at 1:30 p.m. The questions will be selected from the assignments posted on the preceding Friday mornings. Thus, the instructor expects that you will already have answered them. Please submit your answers by FAX.

Four teams of three or more students each will be organized to work on the case study. Team members may converse within their teams by using face-to-face contact, electronic conferencing, and/or e-mail. Thus, team members may and probably will be dispersed geographically.

The case study is divided into three installments. Each installment will be completed and submitted by the due date, which will be announced on-line. Due to the sheer bulk of the computer output, each installment must be sent through the regular mail.

The case study, Esko Bike Company, is a real world exercise in Material Requirements Planning (MRP). MRP is a highly sophisticated information system. It is used by the operations function to plan production output and control inventory. Each group will use the STORM software to set up appropriate data files, prepare material and capacity plans, and update those plans as they roll forward through time. The final installment will be accompanied by a cover letter. The letter must explain the data files and how they were adjusted to correct for the irregularities found in the explosion reports. It must be typed, single-spaced, and no more than four pages in length, excluding executive summary and any appendixes.

The purpose for installments 1 and 2 is to judge your progress. They will not be graded. If you are having trouble, the instructor will offer advice to keep you on track. Installment 3 will be graded on the basis of accuracy and thoroughness. The installments become increasingly more complex. Don't fall behind!

MODULE	DISCUSSION TOPIC	CHAPTER
1.	The systems Development Environment... Identifying and Selecting Systems Development Projects...	Ch 1 (H/G/V) Ch 5 (H/G/V)
2.	Initiating and Planning Systems Development Projects...	Ch 6 (H/G/V)
3.	Determining System Requirements...	Ch 7 (H/G/V)
4.	Material Requirements Planning: Concepts and Systems Structure...	Ch 15 (K/R)
5.	Structuring Systems Requirements: Process Modeling...	Ch 8 (H/G/V)
6.	Structuring Systems Requirements: Logic Modeling...	Ch 9 (H/G/V)
7.	Structuring Systems Requirements: Data Modeling...	Ch 10 (H/G/V)
8.	Selecting the Best Alternative Design Strategy...	Ch 11 (H/G/V)
9.	Material Requirements Planning: Case Study... STORM Data Files...	Attachment Module 16 (STORM)
10.	DELETED	
11.	DELETED	
12.	TEST NUMBER ONE... Installment One (Case Study) Due...	Classes 1 -11, except 4 & 9 Case Study
13.	Operations Management as a competitive weapon... Manufacturing v. Service Organizations Decision Making in the Operations Function...	Ch 1 (K/R) Supplement A (K/R)
14.	Facilities Layout: Concepts, Practice and Layout Comparisons...	Ch 10 (K/R)
15.	Facilities Layout: Systematic Layout Planning and Line Balancing...	Ch 10 (K/R)
16.	Forecasting: Concepts and Practice... Computer Models...	Ch 12 (K/R) Module 12 (STORM)
17.	Forecasting: Moving Average and Exponential Smoothing...	Ch 12 (K/R)
18.	Forecasting: Exp. Smoothing and Forecast Errors...	Ch 12 (K/R)
19.	Inventory Management: Concepts, Practice, and Q-System...	Ch 13 (K/R)

MODULE	DISCUSSION TOPIC	CHAPTER
20.	Inventory Management: P-System, Inventory Strategy, and ABC Analysis...	Ch 13 (K/R)
21.	TEST NUMBER TWO... Installment Two (Case Study) Due	Classes 13-20
22.	Material Requirements Planning: Aggregate Planning... Master Production Schedule...	Ch15 (K/R) Supplement G (K/R)
23.	Material Requirements Planning: Generating MPS Time Phased Records...	Supplement G (K/R)
24.	Material Requirements Planning: Generating MRP Time Phased Records... Case Study Review...	Lecture Material Attachment
25.	Total Quality Management (TQM): Philosophy and Practice...	Ch 6 (K/R)
26.	Total Quality Management (TQM): Implementation, Quality Awards, ISO 9000, Process Capability...	Ch 6 (K/R)
27.	DELETED	
28.	Quality Assurance: Statistical Process Control... Computer Models... Installment Three (Case Study) Due	Ch 7 (K/R) Module 21 (STORM)
	FINAL EXAM...	Classes 4, 9, 22-28