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Office hours: to be announced

Course website: www.business.mcmaster.ca/courses/q722/ (Password will be announced in class.)

Course Description:

“Manufacturing” is a summary term that refers to a company’s collection of domestic and foreign factories and suppliers. These factories and suppliers can be owned by the company or by its partners or by both, and they are organized into a manufacturing network that is often international.

“Manufacturing strategy” can be thought of as a pattern that underlies the sequence of decisions made by manufacturing over a long period of time. When a manufacturing strategy exists, decisions follow a neat, logical pattern. When no strategy exists, the pattern is erratic and unpredictable. The essence of manufacturing strategy is to state explicitly how manufacturing decisions will be made so that manufacturing, marketing, and finance will be aligned making it possible for a company to achieve competitive advantage over its competitors.

In this course students learn from a textbook, cases, lectures, and videos how:

- To align manufacturing with marketing and finance in order to support company strategy and achieve competitive advantage.
- To select the best manufacturing strategy for a factory.
- To select the best manufacturing strategy for an international network of factories.
- To select the best manufacturing programs (e.g. benchmarking; improvement programs such as just-in-time, quality management, cycle time reduction, agile manufacturing, kaizen, and reengineering; focusing manufacturing; soft technologies such as six sigma, concurrent engineering, and supply chain management; and hard technologies such as CNC and enterprise resource planning systems).
- To use analytical methods to determine manufacturing’s operational and strategic contributions.

Books: - Miltenburg, J., *Manufacturing Strategy*, Second Edition, Productivity Press, New York, 2005.

<u>Evaluation:</u>	Seven cases	56	
	Presentation	14	
	Two in-class tests (15 marks each)	<u>30</u>	100%
	There is no final exam.		

Cases: Students work individually on seven cases. They read each case before class, and prepare and hand a two-page report at the beginning of class. Reports will not be accepted if the student is not present for the case discussion. Reports answer the questions for the case. Students are graded on the quality of their report (content and writing) and the quality of their in-class discussion. Each student will receive a grade of 0-2 (poor), 3-4 (below average), 5-6 (average), or 7-8 (above average) for their report and class discussion. With respect to the discussion, comments that demonstrate genuine understanding of the facts of the case, careful analysis of the data in the case, and well thought-out insights using the strategy concepts in the lectures and textbook receive the highest marks. Reports are formatted as follows: text is typed, calculations are hand-written in ink, 12-pitch font, 1½ line spacing, 1-inch margins, title page, two single-side pages. Only the two pages will be graded. Students should prepare extra pages, appendices, etc. to help them organize their thoughts and for the class discussion, but these pages should not be handed in and if they are they will not be read or graded.

Presentation: Students will work in groups of two to research and report in class on some aspect of manufacturing strategy at a real company. (Use the cases and examples in the lectures for ideas.) Students will give a PowerPoint presentation (not exceeding 10 minutes and 8 slides) in class during weeks 10 to 12. The PowerPoint file will be put on the course website. Students must prepare and hand out to the class a one-page summary of their presentation.

In-class tests: There will be two 30-minute tests. In the first test students will be asked to draw the ‘manufacturing strategy summary worksheet’ and the ‘network manufacturing strategy worksheet’. In the second test students will be asked to draw the ‘factory manufacturing strategy worksheet’ and the ‘requirements-capability profile worksheet’. Each test is graded out of 20 and one mark is deducted for each mistake no matter how small.

Missing class: A student who misses a test or case for medical or other important reason must present written documentation verifying the reason to the instructor. For the missed test, if the instructor approves the reason the test will be written before the next possible class. For the missed case, the weight of all other elements will be increased to compensate for the missed case. If the instructor does not approve the reason, then the student will receive a grade of zero for the missed test or case.

Course website: The course website will prompt students for a password. The instructor will announce the password in class. All cases, lectures (in PowerPoint), Excel files, etc. are on the website. Students should download and print as necessary the appropriate files for each week's work.

Schedule

Week 1: Introduction (ch. 1)

In-class cases: Regal Marine, Babcock and Wilcox

Week 2. Manufacturing strategy in an international network of factories (Ch. 8, 10, 11)

Topics: networks, outputs, levers. In-class cases: Arcelor/Dofasco

Week 3. Manufacturing strategy in an international network of factories (Ch. 12)

Topics: capability, factory-types. In-class cases: NCR Waterloo

Major case 1: Komatsu

Week 4. Manufacturing focus (Ch. 15)

In-class cases: Duralier Group

Major case 2: Obermeyer

Week 5. Test 1: Network manufacturing strategy worksheet, manufacturing strategy summary worksheet

Major case 3: Lincoln Electric-Venturing Abroad

Week 6. Manufacturing strategy in a factory (Ch. 4, 5, 6, 7)

Topics: outputs, production systems, levers, capability, competitive analysis

In-class cases: PS video, Whirlpool

Week 7. Improvement programs (Ch. 14, 15)

Topics: Improvement programs, experience, product life cycle

Major case 4: Hoffman Tobacco

Week 8: Just-In-Time (Ch. 22)

In-class cases: HP stockless production

Major case 5: Rumack Pharmaceuticals

Week 9. Test 2: Factory manufacturing strategy worksheet, factory manufacturing strategy profile

Topics: just-in-time (continued) In-class cases: EMTI

Week 10. Batch flow production system, Operator-paced line flow production system (Ch. 19, 21)

Major case 6a: Sedalia A

Week 11. Integrating manufacturing strategy with business strategy (ch. 13)

Major case 6b: Sedalia Revisited (This case will be put on the website after case Sedalia A is completed.)

Week 12. Supplier management

Major case 7: Supplier Management Case

Notes: The underlined text refers to cases and tests that students must prepare before class and complete in class.
Major cases (i.e. text and questions to be answered) are on the website.

Other Notes on the Major Cases

Download the case from the course website. The case follows the concepts from the previous week's reading and lecture. Read the questions at the end of the case. They will direct your analysis of the case. Write a report (see instructions on format and length on p. 1 of the course outline) that summarizes the facts of the case and addresses some (but all) significant issues in the questions. Be prepared to discuss in class your answers to all the questions.

Some cases contain a significant amount of numerical data. The data in these cases is reproduced in Excel files that can be downloaded from the course website. You should analyze this data in Excel and use the results to support your answers.

Overview of Case Content

Case	Network Strategy	Factory Strategy	Other concepts
Regal Marine		Craft production	Focus
Babcock and Wilcox		Mass production, craft production	Product life cycle
Arcelor/Dofasco	International network		Focus
Dutalier	International network		Focus
<i>1. Komatsu, NCR</i>	Global networks		Focus
<i>2. Obermeyer</i>	International network		Design and production
<i>3. Lincoln Electric</i>	Multinational network	Operator-paced line flow	
Whirlpool	Domestic Export network	Equipment-paced line flow	
<i>4. Hoffman Tobacco</i>		Batch flow, line flow	
<i>5. Rumack Pharma.</i>		Linked batch flow	
HP, EMTI		JIT production system, JIT techniques	
<i>6a. Sedalia A</i>		Operator paced line flow	New factory
<i>6b. Sedalia Revisited</i>		Equipment paced line flow, improvement	
<i>7. Supplier Management</i>			Supplier development

Note: The cases in italics font are the major cases that students must hand in and discuss in class.