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COURSE MATERIALS

- Hill, Terry Manufacturing Strategy Text and Cases (3rd edition) Richard D. Irwin 2000. Available at bookstores or at APICS (www.apcis.org or 800/444-2742; member discount)
- Scheinkopf, Lisa Thinking for a Change; Putting the TOC Thinking Processes to Use. The St. Lucie Press 1999. Available at bookstores or at APICS
- Readings Packet: Available later.

COURSE PERSPECTIVE

Developing an effective strategic linkage between the manufacturing and marketing functions is essential for most firms today. Without question, operations is being increasingly recognized as a vital strategic resource in global competition. Still, there are forces that limit managers' perspective. Strong functional cultures, company reward systems, educational backgrounds, and professional experience all conspire to divert managers' attention away from the broad view.

In manufacturing in particular, managers often find their focus inward, directed toward internal goals and strategies within the “four walls”. Yet a manager's success, as well as the company's, depend on understanding how manufacturing decisions and proposals affect the market, complement marketing strategies, and ultimately meet corporate objectives. Without effective tools in this area, neither the manufacturing nor marketing managers can leverage the power of manufacturing technologies in the market place.

Only in recent years have basic concepts and methods been developed that broaden the strategic debate to include both manufacturing and marketing perspectives. These involve segmenting and evaluating markets, understanding and measuring manufacturing capability in terms of market requirements, developing analyses and proposals that improve the firm's competitive position, and effectively communicating insights to other decision makers.

Since process design involves large capital expenditure and since infra-structural design is often imbedded within deep cultural attitudes, once made, these decisions cannot be easily reversed. Marketing strategies can change overnight; manufacturing strategies cannot. Thus, the effective manager must come to well understand the business implications of manufacturing system design.

Complementing the strategic understanding of operations will be the Theory of Constraints thinking processes. Developed by Eli Goldratt, the thinking processes are rigorous logical tools that are particularly effective in the strategic context. The tools permit the individual to identify the core conflict at the heart of a significant problem, confirm the conflict as the cause of observed
undesirable effects, and ultimately find multiple solutions that will resolve both the core conflicts and its effects. Together with a keen understanding of manufacturing system design, the individual successfully completing this course should have skilled insight into understanding how operational decisions more effectively support and influence business objectives.

**COURSE OBJECTIVES**

The objectives of this course are
- To understand reasons why firms fail to integrate marketing and manufacturing strategies
- To understand the business implications of process design, inventory positioning, and infrastructural decisions.
- To learn an approach that fosters functional integration and the active personal role in the strategic debate that it requires.
- To see and solve problems in new ways through critical thinking skills
- To enable the student to help the firms for which they will ultimately work gain a more sustainable competitive advantage

**COURSE CONDUCT**

Relevant techniques, concepts, and perspectives will be developed through readings and lecture/discussions. The primary learning tool, however, will be experience through application of these concepts and techniques to written case studies. Assignment questions for each case are provided, but will not necessarily be used in discussion. You should develop and be prepared to defend your position in each class discussion, regardless of the questions. Group study of cases is encouraged, but use of analyses from previous sessions of this course is not permitted.

You are to submit as analysis for each case in the form assigned on a rotating basis. The analyses will take one of three forms as described below. The outline format is described later.

1. Partial outline: identifies only the problem, issues, and their business importance.
2. Full outline: also identifies alternatives, draws conclusions, makes recommendations, and proposes action plan.

Partial outlines are graded as 10 points; full outlines, as 20 points. The written report is a special analysis of an existing manufacturing facility or business (requires instructor approval). It and the final examination are optional. Also, each student will select and review one assigned article and prepare a summary page of "take-aways" for class distribution. A 5-minute presentation of the summary (using a transparency) will be given by the student.

Grades will be developed from the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weightage</th>
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<tr>
<td>Case outlines</td>
<td>60%</td>
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<tr>
<td>TOC report</td>
<td>30%</td>
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<td>Class discussion</td>
<td>10%</td>
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<td>Final examination</td>
<td>Optional</td>
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<td>CPIM Strategic Management completion</td>
<td>Replaces one full outline</td>
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**INSTRUCTOR EXPECTATIONS**

My expectation is that you will be present, well prepared, and capable of proposing and defending a point of view in all of the classes.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1</td>
<td>1/10</td>
<td>Ch 1: Introduction</td>
<td>Case: Great Nuclear Fizzle at Old B&amp;W</td>
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<td>Art'l: <em>The Idiot Factor: Who's Minding the Corporate Store</em></td>
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<td>2</td>
<td>1/17</td>
<td>Ch 2: Principles</td>
<td>(No class Monday – MLK Day)</td>
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<td>Art'l: *The Hidden Traps in Decision Making</td>
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<td>1/24</td>
<td>Case: HQ Injection</td>
<td>Ch 3: <em>Order Winners</em></td>
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<td>Art'l: <em>Marketing Strategy – An Overview</em></td>
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<td>1/31</td>
<td>Case: Millstone</td>
<td>Ch 4: <em>Methodology</em></td>
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<td>Art'l: <em>Competing through Manufacturing</em></td>
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<td>5</td>
<td>2/7</td>
<td>Case: Case 4</td>
<td>Ch 5: <em>Process Choice</em></td>
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<td>2/14</td>
<td>Case: Case 5</td>
<td>Ch 6: <em>Product Profiling</em></td>
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<td>Art'l: <em>Challenge of Manufacturing Advantage</em></td>
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<td>2/21</td>
<td>Case: Case 6</td>
<td>Ch 7,8: <em>Focused Manufacturing</em></td>
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<td>Art'l: <em>Beyond World Class</em></td>
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<td>8</td>
<td>2/28</td>
<td>Case: Case 7</td>
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<td></td>
<td>3/14</td>
<td>Theory Of Constraints (TOC) Introduction</td>
<td>Problem statement due Friday 9 am</td>
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<td>3/21</td>
<td>TOC Evaporating Cloud Construction</td>
<td>Generic Cloud due Friday 9 am</td>
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<td>3/28</td>
<td>TOC Generic Cloud Construction</td>
<td>TOC CRT Construction (continued)</td>
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<td>TOC CRT Construction</td>
<td>TOC Evaporating Cloud Injections</td>
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<td>12</td>
<td>4/4</td>
<td>TOC FRT Construction</td>
<td>Art'l: <em>Lasting Improvements in Manufacturing Performance</em></td>
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<td>Art'l: <em>Delivering Desired Outcomes Efficiently</em></td>
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<td>Art'l: <em>What is Strategy</em></td>
<td>CRT due Friday 9 am</td>
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<td>Date</td>
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<td>13</td>
<td>4/11 Ch 9: <strong>Make or Buy</strong> Ch 10: <strong>Infrastructure; Planning and Control Systems</strong> <em>Injections due Friday 9 am</em></td>
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<td>14</td>
<td>4/18 Case: Honeywell Pace (non-text case) Ch 11: <strong>Accounting/Finance</strong> <em>Final TOC project due Thursday 9 am</em></td>
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<td>15</td>
<td>4/25 (Mon only) Review</td>
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<td>TBA</td>
<td>Final Exam - In-class case (optional)</td>
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* Article is basis for instructor lecture; not for student summary


8. "How to Compare Six Sigma, Lean and the Theory of Constraints," Dave Nave, Quality Progress, March 2002, pp. 73-78


FULL [PARTIAL] OUTLINE FOR [CASE NAME]

This outline is a sample “full” outline. Outlines must be submitted before case discussion. Length with 12-point font is 2 pages maximum (plus exhibits if used) and should follow this format both to facilitate instructor evaluation and to foster class discussion. Outline may be submitted on paper, by Fax, or by email. If emailed, indicate the case name on the message subject line.

BUSINESS PROBLEM

This statement is what your report is about. It defines the business problem you believe needs to be analyzed (e.g., situation improved, decision taken), not your view of root cause. It may be stated as long and short-term problems, if appropriate. (See the problem note following this outline.)

Long-Term – Students need a business presentation process for continued career use.
Short-term – Students do not know how to meet case reporting requirements.

ISSUES

Each issue is an identified factor where a conclusion drawn supports your recommendation discussion or plan of action. Identify each issue, define it if necessary, and state the conclusion or inference. Support it with the minimal discussion required to make the point. Do not repeat case facts except to make a point. Do note the two important words of persuasion: IF, THEN.

1. **Formal presentation** – I need to test my logic if I am to learn. An informal presentation will not do so and written text can be obscure. *A formal outline is a good logic presentation.*

2. **Requirements** – Case reports are required in outline style. So even though I prefer a narrative, I must honor requirements. *Only outline formats meet class requirements.*

3. **Resources** – There is much work and time is limited resource. Outlines are quicker to write than the verbiage of a full report. *Outlines are more effective use of my resources.*

4. **Class notes** - I need notes for class discussion. If my case report is brief and easy to read, I can use it for class reference and avoid duplicate work. *An outline is a better class note.*

5. **Presentation Style** - A good style includes problem definition, issues discussion/conclusions, proposed alternatives, recommendation, and plan of action. *These style items are useful.*

6. **Exhibits** - Data analysis is almost always essential to good conclusions in strategy. Analysis is most effective if separate from the text. *Data analysis should be included as an exhibit.*

7. **Other sources** - Using another’s outline will be quick and support a minimal grade. However, it will not be my best argument or be ethical, and will not develop my own career skills. I may engage in discussion with others to test myself, but *I will do my own analysis.*
Alternatives identify the primary management direction that must be set and the real choice facing management. Together with the problem definition, alternatives define the business decision focus. Many decisions may be required; however, alternatives highlight the pivotal choice and the analysis theme. Lesser or subordinate decisions can be included within the plan of action. Use only credible alternatives that are defendable possibilities. Arguments to accept or reject an alternative are effective if they reference issues fully discussed earlier. (Issue numbers below illustrate this point.)

They key question is how I conduct and report my case analysis. There are three major choices:

1. **Use informal notes** – Preparation will be faster (3), but I will not test the quality of my logic and analysis like a more formal presentation (1) nor does it meet class requirements (2).

2. **Prepare a detailed individual analysis** - A thorough written analysis would ensure that my logic is tested (1), but often would be a poor use of time (3). Further, it would not provide an easy outline for class discussion (4).

3. **Prepare a brief outline** – *This alternative is recommended*. It ensures knowledge is gained by clearly identifying the process and logic (1). It uses my time effectively (3) and meets class requirements (2). Finally, it provides good class discussion notes (4).

**PLAN OF ACTION**

The action plan should flesh out the specific decisions or activities to be undertaken. This really identifies what the recommendation comprises. Generally it is helpful if unobvious or unrelated actions have been included in the issues discussion.

1. Develop a good analysis style in preparation for the outline (5).
   a. Define the business problem carefully.
   b. Propose tentative theme and alternatives identifying the key decision.
   c. Identify issues relevant to the theme and draw clear conclusions for each.
   d. Confirm issues provide needed pro and con arguments for proposed alternative.
   e. Support the recommended choice and define an action plan.

2. Review each outline carefully
   a. Business problem – am I solving the right problem?
   b. Alternatives theme – do I know towards what focus my issues are leading?
   c. Issues – does each convey a supporting if-then conclusion? Is each a relevant “because”, pro or con, supporting my recommended alternative choice or an action?

3. Engage in case discussion with others where helpful, but do not use another’s analysis (7).

4. Make thorough use of exhibits. Data analysis is an important part of any manager’s job and particularly strategy development. Results can be attached as an exhibit (6).

5. Write the outline and submit by the deadline. Bring a copy to class.

*Observe the style use of headings and underlined labels. They are a road map for the reader and aid the grader greatly. A "partial" outline, if assigned, will include only problem and issue sections. An outline is not a recipe. Use it as basis for analytical reporting, but not as a substitute for your own good judgment. Note that this outline does not exceed two pages, nor should yours.*
NOTE ON BUSINESS PROBLEM DEFINITION

There seems to be a natural inclination to start an analysis by announcing one’s view of the root cause of all difficulties. However, in these outlines I do not want to know your opinion on the cause before I know the specific difficulty you are addressing – the performance shortcoming or apparent failing you think is worth resolving. Therefore, use the “business problem” to define the purpose and scope of your analysis.

The business problem statement identifies the focus of your analysis. It should represent a justifiable problem for analysis (i.e., this is worth overcoming) as well as limit the scope (i.e., this is what we want to change, but not something else). What I look for is a simply a statement of why you are doing this strategic analysis. What business problem is the obvious and apparent reason that motivates you to look into a situation? It does not announce your conclusions, but rather defines your purpose. In the end, your analysis and recommendations will attempt to show how the business problem can be resolved, but of course, it can rarely be better than the business problem identified. Generally, a business problem for our purposes will be either a performance shortcoming, a question about direction, or an apparent lack of direction.

Accordingly, a problem statement can be defined as follow: A discrepancy between an existing state of affairs and a standard or desired state of affairs (e.g., past performance, planned performance, needed decision or articulated direction). In other words, what desired outcome is unsatisfied? Importantly, the identification of a problem has a element of priority in it – what is most important and demanding of management’s attention at this moment and in this context. It may be important to differentiate between long-term and short-term problems. Long-term suggests a more complex, difficult decision that has implications for other current and future decisions. Short-term either identifies an immediate problem that, while recognized, is subsumed within the long-term context (so you will focus your analysis on the long-term problem), or conversely, suggests that action is needed now and tends to establish the core of long-term direction (so you will focus your analysis short term). You may want to state both long and short-term aspects, but you will almost necessarily need to devote your analysis to only one, depending on the situation. Often if you address a problem long-term (strategically), the short-term problem will fall out as an appropriate implementation action. If the short-term problem is a core issue, the long-term strategy will fall out as an implied continued set of actions.

Contexts supporting a short-term problem (quick action) might include urgency, problem simplicity, few people involved, and concentrated power (no active conflict is present or persuasion required). Factors favoring longer-term approach might be complexity (strategic), dissimilar people involved, and diffuse power. In this class, we will be interested in the first only if it establishes direction for the second.

So out of each business case, what are you going to address. Be specific!

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1 Read more on problem solving in these two excellent books:
OUTLINE MECHANICS

Here are some helpful mechanics I would request you include in the outline style to help more effectively handle and evaluate your report:

1. **Outline Style** – Please closely follow the style. Hopefully it will not stifle your creativity or limit your communications unnecessarily, but it will be helpful to me and the class.
2. **Headings or Labels** – Please use them to identify the content and intent of each issue or alternative.
3. **Issue conclusions** -- Italicize your summary conclusion/observation/interpretation for each issue. It is helpful for my interpretation of your main points, particularly in the case I can’t tell.
4. **Page header** – Insert a header with your name displaying on all pages of your submission including exhibits or attachments. It will help us avoid losing something you submitted, particularly electronically.
5. **Page number** – Paginate every sheet you use, including exhibits.
6. **One electronic file** – If submitting a case electronically, include attachments as part of one document file when practicable. Dual files are too easily separated, though sometimes a larger analysis may not be easily inserted into a Word page. If so, you may submit the Word and Excel files as separate files.