ENG ME 584 Manufacturing Strategy

2008-2009 Catalog Data:

ENG ME 584 Manufacturing Strategy Prereq: ENG EK 409 or equivalent. Strategic decision-making for technical people in manufacturing. Develops understanding of financial, organizational, and operational concepts used in the industrial firm. Provides practice in applying these concepts through analysis and discussion of case situations. Topics include communications and interpersonal skills; manufacturing operations; process alternatives and implications; support functions; interfaces with marketing, engineering, and finance; technology strategy; planning; and competitive assessment. Taught principally by in-class discussion, plus guest lectures and a plant tour. (Formerly-MN 580.) 4 cr.

Class/Lab Schedule: 4 lecture hours per week

Status in the Curriculum: Elective

Textbook(s) and/or Other Required Material: Case reading packet consisting of case studies and articles from the contemporary press selected to illustrate the application of manufacturing strategy in various industries and settings. Packet content changes $\sim 15\%$ with each offering.

Coordinator: William Hauser, Adjunct Assistant Professor, Mechanical Engineering

Prerequisites by topic:

1. An understanding of manufacturing costing principles and operating statements as taught in EK 409, Engineering Economy

Goals:

Develop approaches for analyzing manufacturing problems in a real-world business environment. Provide practice in formulating and presenting convincing arguments for a course of action when information is incomplete or ambiguous and reasonable people may arrive at different recommendations. Explore how manufacturing strategy plays out in a variety of product, organizational, and national settings. Explore the interaction of technical, financial, and organizational constraints on manufacturing strategy.

Course Learning Outcomes:

As an outcome of completing this course, students will:

- i. Gain an increased understanding of how financial, technical, and competitive concerns interact in a variety of industries and organizational settings.
- ii. Gain an increased understanding of the importance of perspectives other than the purely technical in manufacturing organizations.
- iii. Gain experience and confidence in oral defense of technical and business proposals.
- iv. Gain facility in producing concise, fact-filled, and clear reports.

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Course:	i, i v	iii, iv	i	ii, iii, iv	i,i V	i	i,ii , iii, iv	ii, iii	i	i, ii	iii, iv			
Emphasis:	4	3	3	5	5	3	5	5	3	5	2	1	1	1

Topics (time equally spread across topics):

- 1. Introduction to case analysis
- 2. Cost concepts in manufacturing
- 3. Capital expenditure justification: time value of money, capacity expansion
- 4. Process design and human motivation: the theories of Maslow, McGregor, and Herzberg
- 5. Introduction of new technology and its effect on worker skill requirements
- 6. Match of process to product and scale of production: projects, job shops, batch processes, line flows, and continuous
- 7. Lean Manufacturing, Just In Time Delivery, Just In Time Manufacture
- 8. Definition of quality and leadership of quality-improvement projects
- 9. Supply chain strategies: collaborative manufacturing, global supply chains, and virtual integration

Contribution of Course to Meeting the Professional Component:

Engineering topics: 100%

Status of Continuous Improvement Review of this Course:

Prepared by: William Hauser Date: April 3, 2009