

## **BADM 532 - Sustainable Product and Market Development for Subsistence Marketplaces**

**Fall 2010**  
**Mondays 5:00-8:00 pm**

Madhu Viswanathan

<http://www.business.illinois.edu/subsistence/teaching/spmdsm.html>

### **Overview**

BADM 532 and 533 is a two-course sequence including an international immersion experience, however, each course may be taken separately as well, subject to space availability. This course is targeted at MBAs, Graduate Students in Engineering and Industrial Design, graduate students in other areas (including but not restricted to Psychology, Sociology, and Anthropology), and outstanding senior undergraduates in Business, Industrial Design, and other areas.

An application available should be completed ideally before April 15 and decisions to admit to the program will be made on a continuous basis, and on a first-come first-served basis after April 15 and until the beginning of the Fall semester.

**The field trip is optional and involves the student bearing a sizable percentage of the expenses. Orientation sessions in Spring of the preceding year will be held to explain procedures.**

**Course Description**  
Sustainable Product and Market Development for Subsistence Marketplaces - Students in business, engineering, industrial design and other areas will spend five weeks of virtual immersion in subsistence contexts, including analysis of life circumstances in subsistence through interviews, simulation, and videos, and development of conceptual models of poverty, needs, products, and market interactions. Next, the course will focus on emersion of principles for business and engineering using a rich set of cases and a wide range of guest speakers. Student groups will formed to balance technical and business skills and match interests with our company sponsors. Groups will generate and evaluate a long list of possible ideas, and design market research to be conducted during an optional international field trip over part of the winter break. Students have the option to enroll in a spring course which will focus on taking the product idea to a prototype and a business plan.

This course is differentiated from other courses offered at the university in the extent of experiential learning and in its highly cross-functional nature. It is differentiated from cross-functional experiential new product development courses offered elsewhere in the nation by focusing on products for low-literate, low income individuals in subsistence marketplaces, such as in transitional economies, like India and China.

### **Background**

Recent work has begun to provide broad insight into the role and nature of innovation targeted at the 4 billion living in poverty in the global marketplace, also referred to as the bottom of the pyramid. These subsistence marketplaces have been described in terms of their size and accessibility, with brand conscious, connected customers willing to

accept new technology. The literature has emphasized the market development imperative in terms of creation of the capacity to consume, the need for new goods and services, dignity and choice for the poor, and the importance of developing trust between buyer and seller. Several principles of innovation have been discussed including finding sustainable solutions, understanding functionality, innovating with process and deskilling work, educating low-literate consumers, designing for hostile infrastructure, and designing innovative distribution chains. Issues of importance to business research and education about the nature of product and market development for these distinctly different marketplaces will be addressed through our Laboratory Course on Sustainable Product and Market Development for Subsistence Marketplaces.

New product development lab courses are not new; however, what is new here is a course that focuses on developing products and services to serve the needs of those living in subsistence marketplaces. Overlaying the content in a typical new product develop lab course will be a separate module that develops contextual understanding of subsistence marketplaces. This type of immersion in the unique context will set the stage for new product development.

The course spans issues from business to engineering. It covers, at one end, the bottom-up understanding of buyers, sellers, and marketplaces beyond literacy and resource barriers. At the other end, it covers the technologies that could be used to develop innovative products. In between, the course includes issues in product and market development as well as the nature of research methods to employ.

The course will address a number of issues, a few of which are listed as exemplars.

- What are the characteristics of successful and unsuccessful products for subsistence marketplaces?
- How should products be designed for such marketplaces?
- What is the nature of distribution channels for successful versus unsuccessful products?
- How should market research be conducted throughout the new product development process? How should research be designed to obtain feedback about concepts, prototypes, and distribution channels from low-literate, low-income consumers and distribution channel members?
- How do buyers and sellers make decisions and participate in subsistence marketplaces?

### **Unique Learning Opportunities**

The unique and pioneering nature of this course lends itself to some learning opportunities for students over and above the content described above.

- ❖ An opportunity to compare, contrast, and, therefore, sharpen Marketing skill sets for traditional marketplaces. To enroll in this course, it is not at all necessary that students have clear plans to work in subsistence marketplaces. On the contrary, experience in a radically different context, as different as can be, and comparison and contrast, can serve to sharpen existing knowledge. Lessons learnt for subsistence marketplaces can in turn be applied in other marketplaces.
- ❖ An opportunity to contribute to knowledge creation in this area. This is the first course of its kind we know of and there is no book out there. We expect project

reports from students to form the basis for future learning material to be disseminated widely through publications.

- ❖ An opportunity to broaden one's perspective across, cultural as well as literacy and resource barriers.

### **Place in the Curriculum**

The target students are Master's students in engineering, marketing and other areas of business (MBA's) and a few select areas in the college of liberal arts such as cross-cultural psychology, sociology and anthropology. In the MBA program, the courses will count toward concentrations in marketing, and in some other areas.

### **Important Administrative Issues**

A number of issues including intellectual property and to internal immersion costs and participation will be discussed in class and will require signed agreements. The actual cost of the field trip to be borne by students is also contingent on the number of participants. In providing financial support for the field trip, priority is given to graduate students. However, every effort is made to extend support to all students enrolled in the course. In the event of lack of resources or of sufficient demand, the field trip may be cancelled.

### **Readings**

Cases from the book, *Fortune at the Bottom of the Pyramid*, by C. K. Prahalad will be used.

Recommended books

- Fortune at the Bottom of the Pyramid - by C. K. Prahalad
- Enabling Consumer and Entrepreneurial Literacy in Subsistence Marketplaces – Madhu Viswanathan, S. Gajendiran, and R. Venkatesan
- Capitalism at the Crossroads – Stuart Hart

Articles on online reserve will be used

Detailed article reading list provided as appendix

### **Grading**

Group Project.....	50%
Class Participation & Assignments.....	50%

#### *Attendance & Participation*

50% of the grade for this class is for participation in in-class assignments and discussions, and tutorials. Therefore, attendance is very important and a necessary condition for participation. Students who do not attend class regularly cannot participate effectively and can easily lose one or more letter grades. In-class work will involve presentations and write-ups of cases and other assignments throughout the semester.

#### *Project*

The course emphasizes hands-on experience and applications. Therefore, a sizable portion of the grade is for a project where you will design a new product and develop a sustainable marketing plan. You will work in a group which will serve as a resource for completing several assignments and a final presentation and written report. Each

individual's contribution to his/her group will be assessed by peer evaluation. The peer evaluation form is attached to the end of this handout. A deduction in the points earned for group assignments will be made in proportion to the group peer evaluations. This often leads to reduction of an individual's overall grade by one or more letter grades. Free riding will be identified & penalized in this course.

### *Grading*

The two most important aspects for grading are in-class work and participation in the group project. Therefore, lower performance in class work (i.e., missing class-work for more than 1 class) or in participation in group work (as indicated by peer evaluation below 100%) can lead to reduction in overall grade by one or more letter grades.

**Fall Course Schedule**  
**Monday – 5:00 - 8:00 pm**

***Part 1 – Immersion***

The aim of this part of the course will be to provide an opportunity for students to immerse themselves in the context of subsistence marketplaces through cases and findings from research. Whereas the field trip will provide an opportunity for actual immersion, the first 5 weeks of the course will attempt to create a learning environment to simulate such immersion.

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|-----------------|--|
| Week 1 (Aug 23) | Orientation/Introduction to the Course<br>Group Formation Exercises<br>Poverty Simulation, Cooperative Extension, University of Illinois   |
| Week 2 (Aug 30) | Understanding the Subsistence Context – Individuals, Groups, and Society<br>Analysis and Profile of Interviews and Videos<br>Developing Conceptual Models of Poverty<br>Speaker - Organizational sponsor |
| Week 3 (Sep 13) | Understanding the Subsistence Context – Local environments<br>Analysis and Profile of Interviews and Videos<br>Developing Conceptual Models of Ecology and Poverty<br>Speaker - Organizational sponsor   |
| Week 4 (Sep 20) | Understanding the Subsistence Context – Products and Markets<br>Analysis of Interviews and Videos<br>Developing Models of Needs, Products, and Markets<br>Speaker - Organizational sponsor               |
| Week 5 (Sep 27) | Understanding the Subsistence Context - Summary<br>Comparison and Contrast of Literacy and Poverty in the US versus India<br>Readings <sup>1</sup><br>Speaker - Organizational sponsor                   |

***Part 2 – Emersion***

The aim of this part of the course is to extract general principles on buyer and seller behavior, market research, and the marketing mix elements for subsistence marketplaces while contrasting them with traditional marketplaces.

- Week 6 (Oct 4)    Product Design Primer

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<sup>1</sup> Reading list attached.

Guest Speaker  
Reading  
*Group Projects – Idea Generation*

Week 7 (Oct 11) Technology  
Assignment - Case – ITC e-Choupal  
*Group Projects – Idea Generation*  
Reading  
*Group Projects – Idea Screening and Evaluation*

Week 8 (Oct 18) Products and Distribution  
Assignment - Case – Annapurna Salt  
Understanding the Subsistence Context - Implications for Market  
Research  
*Group Projects – Idea Screening and Evaluation*

Week 9 (Oct 25) Promotion and Pricing  
Assignment - Case - Lifebuoy Soap  
*Group Presentation of Idea Screening and Evaluation*  
*Group Projects – Concept Generation*

Week 10 (Nov 1) Marketing and Market Research  
Readings  
*Group Projects – Concept Generation*

Week 11 (Nov 8) Marketing and Market Research  
*Group Projects – Concept Generation and Evaluation*  
*Group Projects - Development of Market Research Instruments*  
Reading

Week 12 (Nov 15) Marketing and Market Research  
*Group Presentation of Market Research Plans*

Week 13 (Nov 29) Field Trip Planning and Orientation

Parts 1 and 2, immersion and emersion, will lay the foundation for students to embark on specific product and market development research projects.

**Optional Field Trip – 2-week trip (including travel) between December 26 – January 15 (approximately)**

***Trip Objectives and Plans***

Immersion in subsistence marketplaces through first hand observation of the influences of poverty, literacy, and culture

- Individual and group interactions in urban and rural settings
- Observations in urban and rural settings

Learning about a diverse set of organizations and their initiatives in subsistence marketplaces

- Field trips to observe profit and non-profit organizations

Market research for projects

- Individual and group interviews in rural and urban settings  
Discussions with company sponsors regarding projects

**Option of registering for Spring Course described subsequently**

## Assignments

### ***Immersion***

In this part of the course, there will be a number of individual assignments. Using materials such as poverty simulations and interviews, students will write first-person profiles of individuals in poverty, draw broader impressions about living in subsistence, and build conceptual models of poverty and related factors and behaviors. A broader appreciation of lives and living in subsistence will then be followed by a focus on the economic realm. Students will use interviews to derive the set of needs, products, and markets for individuals living in subsistence.

### ***Emersion***

In this part of the course, each group will be assigned to lead the discussion on two cases. Their responsibility will be to distribute broad discussion questions and lead the discussion. The other groups will submit write-ups. These write-ups will be due before class on the day of the case and with a maximum limit of 2 single spaced pages. The write-ups as well as the class discussion will assume thorough knowledge of the case and focus on analyzing the material and not on describing the facts available in the case. As is clear from the nature of the assignments, everyone is expected to have carefully read each case and analyzed and discussed it with their group members. Each group will appoint a leader for each write-up whose name will be listed in the assignment. Everyone in the group will have a turn at being the leader, who will be responsible for consolidating the discussion.

The analysis of each case will focus on the following issues:

- Needs and Consumer Behavior
  - o Specific need being served
  - o Relevant consumer behaviors
  - o Product and market context
  - o Larger context of life circumstances
- Market Research
  - o Examples of methods used
  - o Suggestions for methodological improvements
- Management and Engineering Issues
  - o Technology
  - o Products
  - o Distribution
  - o Promotion
  - o Pricing
- Recommendations for Product and Market Development for Subsistence Marketplaces
  - o Specific lessons learnt for group project

## ***Group project***

### **Group Formation**

The aim of this stage is to enable interactions between students and allow for the formation of a group with balanced functional skills and interest in the project topic.

Week 1 - Group Formation Exercises

Week 4 - Group Formation

### Idea Generation

The aim of this stage is to generate a wide range of ideas, essentially erring on the side of inclusion. Brainstorming sessions and focused meetings to which students bring a set of ideas are suggested approaches. This stage can be facilitated by reviewing video and interview based material to consider needs and ways to address them, a market based approach. Alternatively, technologies can be considered that could lead to innovative product ideas. Groups will be asked to summarize their discussions to the rest of the class.

*Week 7 - Group Projects –Idea Generation*

*Week 8 - Group Projects – Idea Generation*

### Idea Screening and Evaluation

In this stage, the list of ideas are narrowed carefully to a smaller list. Each idea is carefully considered and the group decides on one at the end of this process. Groups will be asked to summarize their discussions to the rest of the class.

*Week 8 - Group Projects – Idea Generation, Screening and Evaluation*

*Week 9 - Group Projects – Idea Screening and Evaluation*

*Week 10 - Group Projects – Idea Screening and Evaluation*

### Development of Market Research Instruments

The aim of this stage is to develop qualitative and quantitative market research instruments that are ready for use during the field trip.

*Week 11 - Group Projects – Idea Screening and Evaluation and Development of Market Research Instruments*

*Week 12 - Group Projects – Idea Screening and Evaluation and Development of Market Research Instruments*

*Week 13 - Group Projects - Development of Market Research Instruments*

## **BADM 533 - Sustainable Product Design and Business Plan Development**

### **Spring Course Schedule Monday – 5:00-8:00 pm**

#### **Instructors**

John Clarke and Madhu Viswanathan

The aim of this part of the course is to develop an understanding of a systematic and structured approach for designing sustainable products and developing business plans that address the issues of economic, social and ecological sustainability. This project-based course will serve as a capstone experience in business and engineering that incorporates issues of sustainability at the intersection of these two areas. It will cover conceptual design, system (architectural) design, detailed design, cost modeling, and testing & prototyping methods. In addition, it includes writing project mission statements, business plans, and other related topics at the intersection of business, design, and engineering. The course will overlay traditional product design and business plan development with topics covering sustainable product design, sustainable supply chain management, and design and communication of sustainable value propositions.

The course is a project based experience that will draw from two sets of students. Students who enrolled in the course on sustainable product and market development for subsistence marketplaces in Fall can continue with this course, building on concepts developed in Fall and refined during the international immersion trip over winter break. Students interested in sustainable product design and business plan development may enroll for the spring course as a stand alone learning experience, including second year MBAs students and MS Tech students, subject to availability of space. (Some of these students would have been introduced to the topic through a first year MBA course entitled Sustainable Marketing Enterprises.) For such students, project topics will be chosen that provide opportunities with local entrepreneurs and larger companies. Thus, the course provides an opportunity for learning about sustainable product design and business plan development in resource-rich and resource-poor contexts.

This course together with other current offerings, aims to provide a set of learning experiences for graduate students in business and engineering that lead to integrative understanding of the central role of sustainability and the challenges and opportunities in this arena.

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|-----------------|---|
| Week 1 (Jan 24) | Introduction to the course<br>Semester Overview<br>Debrief of International Immersion for students from Fall course<br>Brainstorming of project ideas |
| Week 2 (Jan 31) | Guest Speaker<br>Project Team Presentations of possible ideas – (5 min per team up to 15 min discussion)  |

- Week 3 (Feb 7) Overview of product development  
 Concept generation and selection  
 Overview of Market research for concept testing  
 Student presentation of 3-5 Concepts  
 Reading
- Week 4 (Feb 14) Customer needs and engineering specs  
 Student presentation of criteria and narrower set of concepts  
 Assignment to develop detailed design/specs  
 Reading
- Week 5 (Feb 21) Conceptual Design, Prototyping and Testing  
 Readings  
 Student presentation of chosen concept and results from concept testing
- Week 6 (Feb 28) Sustainable product design (Design for replacement, Design for longevity  
 Dematerialization)  
 Overview of product testing  
 Reading
- Week 7 (Mar 7) Product testing  
 Reading
- Week 8 (Mar 14) Midterm Presentations  
 Faculty Consulting & Team Meeting  
 Detailed Design Due – PowerPoint presentation and a written report
- Week 9 (Mar 21) Spring Break
- Week 10 (Mar 28) Financial Modeling and Sustainable Business Plans  
 Reading
- Week 11 (Apr 4) Designing Sustainable Supply Chains  
 Reading
- Week 12 (Apr 11) Designing and Communicating Sustainable Value Propositions  
 Sustainable Business Plan Development  
 Financial Modeling and Manufacturing Plan Due  
 Reading
- Week 13 (Apr 18) Faculty Consulting Sessions
- Week 14 (Apr 25) Final Business Proposal Presentation walk through

Week 15 (May 2) Final Business Proposal Presentations  
(Last Class Session)  
Written Detailed Business Plan, Prototype, and Engineering Plan  
due May 8 by noon  
Peer evaluations due May 8

Several guest speakers have been invited to present.

### **Text and Readings**

Chapters from the Ulrich and Eppinger text on product design will be used as readings along with articles available on online reserve.

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### **Case Studies**

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The analysis of each case will focus on the following issues:

- Needs Assessment
  - o Specific need being served
  - o Relevant consumer behaviors
- Technology Appropriateness
  - o Why is the technology appropriate & how does it work
  - o Suggestions for improvements
- Engineering Issues
  - o Product Design: comment on design and its innovation
  - o Industrial Design: comment on design and its innovation
  - o Manufacturing Technology: explain and comment
- Recommendations for Design & Development for Subsistence
  - o Specific lessons learnt for group project

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## **Group Projects deliverables and deadlines**

### Mission Statements, Business Plan & Project Schedule

At this stage, the project team delivers its missions statement and preliminary business plan. This includes figuring out the purpose of their existence as a start-up company, identifying major stakeholders, target markets, and milestones.

### Conceptual Design

The aim of this stage is to develop sketches of the one or two most promising alternative solution concepts.

### Detailed Design

In this stage, your conceptual design is to be detailed by providing detailed drawings, engineering specifications, material selection, and preliminary cost analysis.

### Financial Modeling and Manufacturing Plans

### Development of Prototype and Business Plan

## Appendix

### Relevant Readings on Subsistence Marketplaces

#### *Understanding Low-Literate Consumer Behavior – Weeks 1-5*

Viswanathan, Madhubalan, Jose Antonio Rosa, and James Harris (2005), "Decision-Making and Coping by Functionally Illiterate Consumers and Some Implications for Marketing Management," *Journal of Marketing*, 69(1), 15-31.

Viswanathan, Madhubalan, S. Gajendiran, and R. Venkatesan (2008), *Enabling Consumer and Entrepreneurial Literacy in Subsistence Marketplaces*, Dordrecht: Springer.

Gau, Roland, and Madhubalan Viswanathan (2008), "The Retail Shopping Experience for Low-Literate Consumers," *Journal of Research for Consumers, Issue 15, Consumer Empowerment Special Issue*.

#### *Understanding Subsistence Marketplaces – Weeks 1-5*

Viswanathan, Madhubalan (2007), "Understanding Product and Market Interactions in Subsistence Marketplaces: A Study in South India," in *Product and Market Development for Subsistence Marketplaces: Consumption and Entrepreneurship Beyond Literacy and Resource Barriers*, Editors, Jose Rosa and Madhu Viswanathan, Advances in International Management Series, Joseph Cheng and Michael Hitt, Series Editors, 21-57, Elsevier.

Viswanathan, Madhubalan, Jose Antonio Rosa, and Julie Ruth, "Exchanges in Marketing Systems: The Case of Subsistence Consumer Merchants in Chennai, India," *Journal of Marketing*, 74 (May), 1-18.

Viswanathan, Madhubalan, Srinivas Sridharan, Robin Ritchie, Srinivas Venugopal, and kiju Jung "Marketing Interactions in Subsistence Marketplaces: A Bottom-Up Approach to Developing Public Policy".

#### *Research Methods in Subsistence Marketplaces*

Viswanathan, Madhubalan, Roland Gau, and Avinish Chaturvedi (2008), "Research Methods for Subsistence Marketplaces," in *Sustainability Challenges and Solutions at the Base-of-the-Pyramid: Business, Technology and the Poor*, Editors Prabhu Khandachar and Minna Halme, Greenleaf Publishing, Sheffield, UK, 242-260.

#### *Product Development for Subsistence Marketplaces*

Donaldson, Krista (2006), "Product Design in Less Industrialized Economies: Constraints and Opportunities in Kenya," *Research in Engineering Design* 17(3), 135-155.

Green, M., Linsey, J., Seepersad, C., Wood, K., and Jensen, D. (2006), "Frontier

Design: A Product Usage Context Method," *Proceedings of the ASME Design Engineering Technical Conference*, Philadelphia, PA: Paper Number: DETC/DFM 2006-99608.

Viswanathan, Madhubalan, and Srinivas Sridharan, "Product Development for the BoP: Insights on Concept and Prototype Development from University-Based Student Projects in India," *Journal of Product Innovation Management*, *Forthcoming*.

Viswanathan, Madhubalan, Ali Yassine, and John Clarke, "Sustainable Product and Market Development for Subsistence Marketplaces: Creating Educational Initiatives in Radically Challenging Contexts," *Journal of Product Innovation Management*, *Forthcoming*.

#### *Marketing and Management for Subsistence Marketplaces*

Sridharan, Srinivas, and Madhubalan Viswanathan (2008), "Marketing in Subsistence Marketplaces: Consumption and Entrepreneurship in a South Indian Context," *Journal of Consumer Marketing*, *Special Issue on Base of the Pyramid Research*.

Viswanathan, Madhubalan, Srinivas Sridharan, and Robin Ritchie (2008), "Marketing in Subsistence Marketplaces," in *Alleviating Poverty Through Business Strategy*, Editor, Charles Wankel, Palgrave Macmillan, 209-231.

Viswanathan, Madhubalan, Anju Seth, Roland Gau, and Avinish Chaturvedi (2009), "Internalizing Social Good Into Business Processes in Subsistence Marketplaces: The Sustainable Market Orientation" *Journal of Macromarketing*, 29, 406 - 425.

Viswanathan, Madhubalan, and Srinivas Sridharan (2009), "From Subsistence Marketplaces to Sustainable Marketplaces: A Bottom-Up Perspective of the Role of Business in Poverty Alleviation," *Ivey Business Journal*, *March/April*.

Viswanathan, Madhubalan, Srinivas Sridharan, Roland Gau, and Robin Ritchie (2009) "Designing Marketplace Literacy Education in Resource-Constrained Contexts: Implications for Public Policy and Marketing," *Journal of Public Policy and Marketing*, 28 (1), 85–94.

Weidner, Kelly, Jose Antonio Rosa, and Madhubalan Viswanathan (2010). "Marketing to Subsistence Consumers: Lessons From Practice," *Journal of Business Research*, 63(6), 559-569.

Viswanathan, Madhubalan (2010), "A Micro-Level Approach to Understanding BoP Markets," *Next Generation Business Strategies for the Base of the Pyramid: New Approaches for Building Mutual Value*, Editors, Ted London and Stuart Hart, FT Press.

#### **Relevant Readings on Product Development**

Ulrich, Karl T. & Steven D. Eppinger. "Ch. 4: Identifying customer needs." *Product Design and Development* (4th ed.). McGraw-Hill, 2008. 53-70.

Ulrich, Karl T. & Steven D. Eppinger. "Ch. 5: Product Specifications." *Product Design and Development (4th ed.)*. McGraw-Hill, 2008. 71-96.

Ulrich, Karl T. & Steven D. Eppinger. "Ch. 6: Concept Generation." *Product Design and Development (4th ed.)*. McGraw-Hill, 2008. 97-122.

Ulrich, Karl T. & Steven D. Eppinger. "Ch. 7: Concept Selection." *Product Design and Development (4th ed.)*. McGraw-Hill, 2008. 123-141.

Urban, Glen L. and John R. Hauser. "Ch. 5: Idea Generation." *Design and Marketing of New Products*. Prentice Hall, 1993. 117-161.

Urban, Glen L. and John R. Hauser. "Ch. 7: Customer Measurement-A Review." *Design and Marketing of New Products*. Prentice Hall, 1993. 176-199.

Urban, Glen L. and John R. Hauser. "Ch. 8: Perceptual Mapping: Identification of Strategic Benefits." *Design and Marketing of New Products*. Prentice Hall, 1993. 201-220.

Urban, Glen L. and John R. Hauser. "Ch. 9: Customer needs and perceptual mapping: Methods and Procedures." *Design and Marketing of New Products*. Prentice Hall, 1993. 222-251.

Urban, Glen L. and John R. Hauser. "Ch.6: An Overview of the Design Process." *Design and Marketing of New Products*. Prentice Hall, 1993. 164-174.

Ulrich, Karl T. & Steven D. Eppinger. "Ch. 11: Design for Manufacturing." *Product Design and Development*. McGraw-Hill, 2008. 209-243.

Ulrich, Karl T. & Steven D. Eppinger. "Ch. 12: Prototyping." *Product Design and Development (4th ed.)*. McGraw-Hill, 2008. 245-265.

### **Relevant Readings on Marketing and Management for Non-Business Students**

Boone, Louis E. & David L. Kurtz. "Ch. 13: Marketing Channels and Supply Chain Management." *Contemporary Marketing*. Thomson South-Western, 2006. 416-440.

Boone, Louis E. & David L. Kurtz. "Ch. 15: Integrated Marketing Communications." *Contemporary Marketing*. Thomson South-Western, 2006. 482-512.

Kotler, Philip. "Ch. 1: Marketing in the Twenty-First Century (excerpt)." *Framework for Marketing Management*. Prentice Hall, 2001. 1-16.

Kotler, Philip. "Ch. 5: How and Why Consumers Buy (excerpt)." *Framework for Marketing Management*. Prentice Hall, 2001. 88-102.

Winer, Russell S.. "Ch. 11: Pricing." *Marketing Management*. Prentice Hall, 2000. 293-324.

Winer, Russell S.. "Ch. 4: Marketing Research." *Marketing Management*. Prentice Hall, 2000. 75-104.

Winer, Russell S.. "Ch. 5: Consumer Behavior and Analysis." *Marketing Management*. Prentice Hall, 2000. 107-139.

Winer, Russell S.. "Ch. 8: Communications and Advertising Strategy." *Marketing Management*. Prentice Hall, 2000. 193-230.