Class Number: EMgt 5613
Class Title: Value Analysis
Instructor: Dr. Hongy Lin
Lesson Title: Syllabus
Course Objectives

• Introduce fundamentals of Value Analysis
• The focus of this course is to learn and master Function Analysis technique and other VA tools such as VOC, creative concept generation, decision making, life cycle cost, DFM, prototyping, etc..
• Identify opportunities to apply VA concepts to a system or organization, for example in non-manufacturing areas such as design, service, product development and product re-engineering, etc…
Course Objectives

• The benefits at the successful completion of this course include:
  – A firm understanding of the VA/VE philosophy and concepts.
  – Application of FAST technique to create function diagram
  – Understanding of 6 phases of VA job plan that ensure the success in increasing value.
  – Familiar with VA tools
Lecture Coverage

• Introduction to Value Analysis, Lean and Six Sigma
• VA/VE job plan
• Project selection
• Information phase
  – Understand Needs and requirement
• Function analysis phase
  – Function analysis
  – FAST diagramming
  – Function worth and conjoint analysis
• Speculation phase
  – Concept generation
  – Creativity
• Evaluation phase
  – Decision making and concept selection
  – Product architecture
  – Life cycle cost
  – Design for manufacturing
  – Design and process FMEA
• Presentation and program planning phase
  – Project planning
  – Project risk management
  – Decision flow and vertical value stream analysis
  – Value stream mapping
• Implementation phase
  – Team structure and process
Grading Policy (1)

- Mid-term (Function Analysis) Project counts 30 pts
  - Date: 7\textsuperscript{th} or 8\textsuperscript{th} week
- Final (Value Analysis) project counts 30 pts
  - Date: week before final exam
- Final exam : 40 pts. (you can use all resources available to you)
  - Date: Extra credits may be available for certain optional assignments announced during class
Grading Policy (2)

<table>
<thead>
<tr>
<th>Final grade for undergraduate students:</th>
<th>A ≥90, 80≤B&lt;90, 70≤ C&lt;80, 60≤D&lt;70, F&lt;60</th>
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<tr>
<td>Final grade for graduate students:</td>
<td>A ≥90, 80≤B&lt;90, 70≤ C&lt;80, F&lt;70</td>
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Mid-term Project (Function Analysis)

Project content requirements:
1. Choose a product having 5-15 parts
2. Identify Use and value of the product (3 different brands)
3. Conduct Function Analysis of the product (List of function and test why-how logic, etc.)
4. Create FAST Tree
5. Create FAST diagram
6. Make presentation
Final Project (Value Analysis)

Project content requirements:
1. Choose a product has 5-10 parts – can be same as function analysis project
2. List customer needs
3. Perform AHP to determine relative importance
4. Create QFD chart
5. Create FAST diagram
6. Determine each function worth and cost (value matrix)
7. Identify functions/components which are to improved
8. Create Improvement plan using A3
9. Make presentation
Project Guide

• Product selection: 5-15 parts such as flash light, ballpoint pen.
  – Easy to decompose or disassemble
  – Do not choose product with too many components or features.
  – Go internet search for small gifts, appliance, tools, etc.

• Find products by different makers in the market, disassemble them and compare the difference.
References

• **FAST Creativity & Innovation**  
Rapidly Improving Processes, Product Development and Solving Complex Problems  
By Charles Bytheway  
Publisher: J. Ross Publishing  
January 2007

• **Techniques of Value Analysis and Engineering.**  
By Lawrence Miles  
Publisher: Mcgraw-Hill  
June 1972

• **Value analysis tear-down: a new process for product development and innovation**  
By Yoshihiko Sato, J. Jerry Kaufman  
Publisher: Industrial Press, Inc  
Dec 2004
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• Course Information
  - Blackboard – http://blackboard.mst.edu/webapps/login/