

IE301 Product Design and innovation

Exercise (4) [Concept development]

Concept Generation and Selection

- 1- *Generate 20 concepts for the sub-problem "prevent fraying of end of a rope" as part of a system for cutting lengths of nylon rope from a spool.*
- 2- *Prepare an external search plan for the problem of permanently applying serial numbers to plastic products.*
- 3- *Could you apply the five-step method to an everyday problem like choosing the food for a picnic?*
- 4- *Apply the five-step method to the problem of choosing packaging bag*
- 5- *Consider the task of generating new concepts for the problem of dealing with leaves on a lawn. How would the a plastic bag manufacturer's assumptions and problem decomposition differ from those of a manufacturer of lawn tools and equipment and from those of a company responsible for maintaining golf courses around the world? Should the context of the firm dictate the way concept generation is approached?*
- 6- *How can the concept selection methods be used to benchmark or evaluate existing products? Perform such an evaluation for five automobiles you might consider purchasing.*
- 7- *Propose a set of selection criteria for the choice of a battery technology for use in a portable computer.*
- 8- *Generate five concepts for pencil holder then perform concept screening and scoring.*
- 9- *Generate several concept, find selection criteria, and Perform concept screening and scoring for the following:*
 - a. *Sub-problem "holding laundry tightly" as part of laundry clip.*
 - b. *Sub-problem "holding pencil for moving person" as part pencil.*
 - c. *Sub-problem "holding keys" as part key clip.*
- 10- *Apply idea generators approach to develop an air cleaning device.*

Concept Testing

- 11- *What are some different ways you could communicate a concept for a new user interface for an automotive audio system? What are the strengths and weaknesses of each approach?*
- 12- *Roughly estimate N (the number of potential customers expected to make purchase during the time period) for the following products. List your assumptions.*
 - ❖ *A sleeping pillow for air travelers.*
 - ❖ *An electronic weather station (monitoring temperature, pressure, humidity, etc.) for homes.*
 - ❖ *A battery operated shaver for men*