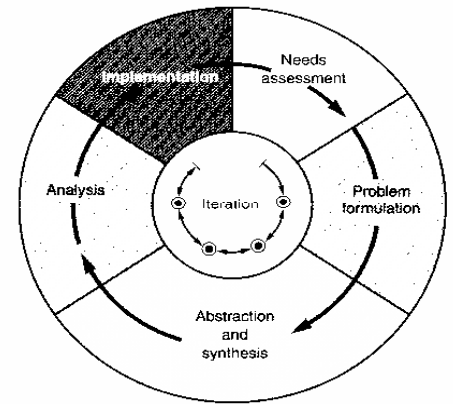


Overview of Engineering Design II -

By the end of this class you should be able to:

- Discuss the relationship between Voland's process and other design processes
- Discuss the importance of iteration in the design process
- Briefly describe key trends in Engineering Design

Voland's Engineering Design Process



Handout: compare processes

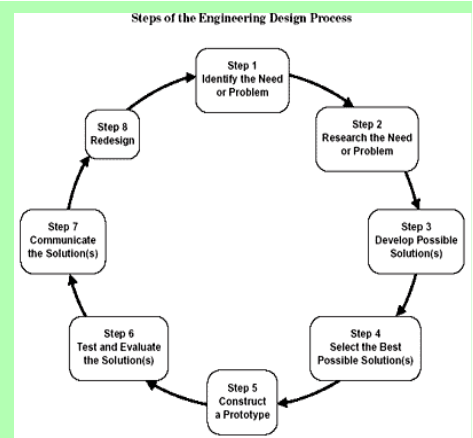
- in groups compare processes
- Basic process
 - Needs
 - Develop alternatives
 - Select an alternative
 - Implement
 - Iterate
- Real life a bit more complex - important check list

Three Engineering Design Processes

- | | | |
|------------------------------|--|--|
| 1. Needs Assessment | 1. Identify and define the problem | 1. Identify the need or problem |
| 2. Problem Formulation | 2. Assemble a design team | 2. Research the need or problem |
| 3. Abstraction and Synthesis | 3. Identify constraints and criteria for success | 3. Develop possible solution(s) |
| 4. Analysis | 4. Search for solutions | 4. Select the best possible solution(s) |
| 5. Implementation | 5. Analyze each potential solution | 5. Construct a prototype Test and evaluate the solution(s) |
| | 6. Choose the "best" solution | 6. Communicate the solution(s) |
| | 7. Document the solution | 7. Redesign |
| | 8. Communicate the solution to management | |
| | 9. Construct the solution | |
| | 10. Verify and evaluate the performance | |

- | | | |
|------------------------------|--|--|
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Massachusetts DOE Process



Trends in Engineering Design

- In pairs
- Match cards listing the name of a design trend with a related example or key individual.
- See card summary on web

Upcoming

- Read: Voland sections 1.1-1.4, 1.6, 1.7
For Friday - be sure you have read through case studies 1.1 & 1.2 at the end of Chapter 1.
- Paper Airplane Simulator
 - In groups find parameters to yield the best flight from the paper airplane simulator. Keep track of your process.
 - Complete assignment and simulator links on the class website (www.engr.ipfw.edu/~moor/199)
 - "Flight" competition: Wednesday, January 23rd
- Main Project

Main Project Schedule

| | |
|--|--|
| Friday, January 25 th In class | Resumes due |
| Saturday, Feb. 2nd, 10 - 12:30, Science Central | Project Orientation and Introduction |
| w/o February 11 th . In class | Education Side w/ Jeff Nowak |
| Saturday, Feb. 9 th 9 - 11:50 am IPFW | Electricity 101 class |
| Saturday, March 8 th , 9 - 11:50 (?), IPFW | project work day |
| Wednesday, Apr 2 nd , 5 - 8 pm, IPFW | Design Review and Formal Presentations |
| Apr 12 th 8:30 - 1 pm Science Central | Final event/Program |