Feedback – Phase 0
Project Phases

Deliverables
- Concept
- Customer & Technology Basis
- Project Plan
- Concept Design
- Engineering Basis
- Plan update
- Proof of Concept Prototype
- Path Forward Plan

Assess Customer Wants/Metrics/Specifications

Confirm Requirements
Propose Concept
Design Concept
Prove Concept

- Create/Design Concept; Analyze; Test
- Benchmark Technology

Development
## MEEG 304 Performance Guidelines

### Phase 0 - Design Requirements

<table>
<thead>
<tr>
<th>Senior Design (for reference)</th>
<th>MEEG 304</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>% of grade</td>
</tr>
<tr>
<td>Synthesizing a Valid Concept</td>
<td></td>
</tr>
<tr>
<td>Customer goals and wants were affirmed, and a set of metrics including target values were developed. Project scope was defined and general concept directions were developed.</td>
<td>40</td>
</tr>
<tr>
<td><strong>Develop the relevant criteria for the design: establish a system level framework for the subsystem design; and define a set of performance/cost metrics. Explain tradeoffs.</strong></td>
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<tr>
<td>Resource use effectiveness</td>
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<td>The phase was executed in a 'cost and time effective' manner: 1) needed resources were identified, engaged, and managed effectively; and 2) milestones were met and deliverables were accomplished on time. A path forward plan was created to deliver project results to the sponsoring business; and as appropriate, define next step developments needed for commercial application.</td>
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<tr>
<td><strong>Describe the plan that was followed.</strong></td>
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<td>Interpersonal interaction and communication</td>
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<td>The effectiveness of the project was enhanced by the team’s: 1) ability to engage and integrate constituents of the extended team into the project through continuous communication processes; 2) teamwork; 3) professional behavior and appearance; and 4) clear and persuasive articulation of project status, validated results, and benefit/risk consequences for the sponsor's business.</td>
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<td><strong>Function as a cohesive team; Deliver Weekly Updates, Meeting Agendas, Minutes, Team Norms, &amp; Peer Evals.</strong></td>
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<td><strong>Deliver persuasive draft Proposal with explanations of UDesign, schedule, &amp; sketches.</strong></td>
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Note: UDesign and/or Engr Des by Dym and Little
What is a “Concept”?

- A completely satisfactory solution to the problem
- How many do you need?
- Are some better than others?
How can we propose valid Concepts?

Only if we explain the requirements a “concept” must meet
How can we compare Concepts?

- Only if we explain & validate the requirements a "concept" must meet
- Requirements = Target Values
Later, how can we prove the design meets requirements?

- Have measurable Target Values
- Do analysis/tests to prove it
If benchmarking and customer dialog continue, does that really mean the wants, metrics, & target values change as we go?

Of Course!

(e.g., Reuse jar and lid)
Feedback - Content

- Wants = “should”; constraints = “must”
  - Safety = Constraint
  - Performance = Want
  - Cost = Want

- Metrics = ways to measure “wants/ constraints”

- How does benchmarking lead to Metrics & Target Values?

- Summarize why wants, metrics, target values chosen & how they drive the design!!

- Show logic & assumptions/Explain “Decisions”

- See MS Project tutorial for making Gantt Chart for scheduling, explain task order (more later)
Feedback - Form

- Always deliver your best effort
- Always spell-check, make user-friendly
- Always read out loud to catch errors!
- READ DIRECTIONS for format
- Context – Background, Key Issues?
- “Sloppy” (or “Tarzan Talk”) means unreadable 🙁
- Embed important Figs & use Fig. #’s (Avoid Page-Flipping by Reader)
- Use photos/graphs whenever possible
- Check “Agendas” vs. “Minutes”
Design Issues

- Do market research & strategy
  - What’s wrong with current products? Is it really $?
  - Can a new product be viable? More ergonomic?
- Use real people for customer reps
  - Get sanity checks often
- Derive KEY Wants, & explain (Open vacuum sealed jars)
- Benchmarking
  - Derive Lessons Learned from benchmarking
  - Analyze benchmarks for metrics & target values
  - Categories: WWW, Books, People, Products, etc.
- Metrics & Target Values
  - Derive KEY Metrics from KEY Wants, & explain
  - Make metrics graphs for target values & tradeoffs
  - Which metrics DRIVE the design? Are they measurable?
  - Which metrics DRIVE which subsystems?
- Concepts
  - Select a best Benchmark Competitor Concept
  - Derive Candidate Concepts from key Metrics, explain benefits/tradeoffs
Writing Issues

- Make it professional! Use 3rd person for Reports
- Five pages needs to be self contained, without requiring reader to refer to appendix.

Include:
- Title Page & Page #’s
- Use many Graphics and some Tables
- Figure #’s & Names & Callouts in text
- List of References (Author-Date)
- One Integrated PDF or Word Doc
- Don’t include process level documents

Reports don’t actually do anything! Don’t say this report will demonstrate, show, … etc.
Management Issues

- Assign 1 person as overall Editor
  - Read the entire report out loud
- Assign 1 person for Quality Control
  - Be sure all required elements are included
- Find a Manufacturing Consultant
  - Drives all concepts
  - Start with Steve Beard
  - See Books on reserve
MyCourses Issues

- Use correct levels
- Use required doc names so I can find and download documents (especially Power Point Presentations)
Peer Evals

- Follow Directions!
- Well done is 85. You must Justify ratings over or under 85. See rating equivalents on input sheet. It would be very difficult too justify a 100!
- On Time! No evaluation results in a 55 for you and 85 for team members.
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1. Concept
2. Customer & Technology Basis
3. Project Plan

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### Phase 1 - Concept Selection

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<td>A concept was selected and proposed that:</td>
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<td>- Is aligned with project goals and specific wants.</td>
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<td>- Is shown to be the best option among alternatives based on trade-off analysis of key metrics derived from customer wants.</td>
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<td>- Incorporates available technology at an appropriate level.</td>
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<td><strong>Select best concept direction among various alternatives, explain tradeoffs, and validate based on: 1) UDesign method of assessing and integrating customers, wants, &amp; constraints; 2) adding value to sponsor's business; and 3) technical feasibility established in the context of applicable technology benchmarks.</strong></td>
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<td><strong>Identify &amp; justify subsystems for further design development.</strong></td>
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