

**ME417 Total Product Integration Engineering**  
**Mechanical Engineering Department, Design Group**  
**STANFORD UNIVERSITY**  
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<b>Units:</b>	Four
<b>Meeting time:</b>	Two meetings per week, Tues 4:15–5:30 & Fri 12:15-1:15, Thornton 210 (MML Conf Rm) <b>(First Meeting: Tue, September 22, 4:15-5:30)</b>
<b>Instructor:</b>	<i>Prof. Kurt Beiter</i> E-mail: kbeiter@stanford.edu
<b>Textbook:</b>	None, reading material to be distributed as course progresses
<b>Type of Instruction:</b>	One Lecture per week + One Seminar to be led by students. Team or individual project culminating in an in-depth case study or a new tool.
<b>Grading:</b>	Seminar Presentation: 40%    Project: 50%    Class Participation: 10%

**Course Summary:**

ME417 is an advanced version of ME317 and targets students aspiring to be product development executives as well as leaders in dfM research and education. Students will learn advanced methods and tools that supplement the material covered in ME317: quality design across global supply chain, robust product architecture for market variety and technology advances, product development risk management, etc.

**About the Project:**

Small teams or individuals will conduct a practical project that produces either an in-depth case study using advanced tools or a significant enhancement to the dfM methods and tools. Each team will lead one seminar discussion on the project topic as well as compiling a comprehensive report and presenting the result.

**Lecture Contents (Tentative)**

- The Stanford dfM Process and New Product Introduction
- Global Challenges in Automotive Powertrain Manufacturing
- Review and Enhancement of Stanford dfM Course Sequence
- Enhanced QFD: Stuart Pugh's Original Method
- New Technology Introduction Management
- Robust Vehicle Architecture Design
- Some Nagging Questions for DFM
- ME317 Roadmapping
- Why ME317?
- ME317 and Education Innovation

**COURSE SCHEDULE****Meeting #0 (9/22 Tues): Orientation, Deep Dive on Density Clouds** (Beiter on Travel, Fowler)

- Overview of ME417/Explain Syllabus
- Expectations/Contrast with ME317/What DID you learn in ME317?/Why are we here?
- Whiteboard discussion
- [Density Clouds: Visualizing Uncertainty for Product Development/Tufte \(What?\)](#)

**Meeting #1 (9/25 Fri): What makes a good project/1<sup>st</sup> student Seminar** (Beiter on Travel; Sam Brunhaver/Hai Nguyen)

- Show ME417 Projects from previous years; discuss project potential(s); Google Scholar;
  - [Student Seminar: KosNet \(Hai Nguyen\)](#)
- Assignment: Answer “why do you want to take ME417?”

**Meeting #2 (9/29 Tues): Deep Dive on Robust Vehicle Architecture Design** (Manohar; Beiter on Travel)

- PhD Seminar: Robust Vehicle Architecture Design/What I did this summer...(Karthik Manohar)
- Assignment: Rough Project Ideas

**Meeting #3 (10/2 Fri): Future of ME317** (Beiter)

- Assessing where we have been
- Where is DFM headed?

Assignment: TBD

**Meeting #4 (10/6 Tues): Some Nagging Questions for DFM** (Beiter)

- Point 1
- Point 2.

Assignment: TBD

**Meeting #5 (10/9 Fri): New Technology Introduction Management** (Wong)

Jenny Wong's dissertation topic

- \* Point 2

Assignment: TBD

**Meeting #6 (10/13 Tues): Student Seminar #1** (Nguyen)

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**Meeting #7 (10/16 Fri): Student Seminar #2** (Chow)

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**Meeting #8 (10/20 Tues): ME317 Roadmapping** (Beiter)

- \* Point 1
- \* Point 2

Assignment: TBD

**Meeting #9 (10/23 Fri): Student Seminar #3** (TBD)

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**Meeting #10 (10/27 Tues): Curriculum Planning: ME317A 2010**

- \* Philosophical (Could use Sam's survey information)
- Assignment: Suggestions for improving ME317A

**Meeting #11 (10/30 Fri): Curriculum Planning: ME317B 2010**

- \*
- Assignment: Suggestions for improving ME317B

**Meeting #12 (11/3 Tues): Project Update (Class)**

- \* Clarify project focus
  - \* How will your project be an asset to ME317 curriculum?
- Assignment: Ask serious questions

**Meeting #13 (11/6 Fri): Why ME317? (Beiter)**

- \*
  - \*
- Assignment: TBD

**Meeting #14 (11/10 Tues): Enhanced QFD: Clausing Video and Discussion (Wong)**

- \* QFD Static Projects vs. Dynamic Projects
  - \* Pugh Concept Selection: Original Version
- Assignment: Three takeaways from today's lecture

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**Meeting #15 (11/13 Fri): Group Session: "How do I want to be graded?"**

- \* What's important in/about your project?
  - \* Sign up for final presentation slots
- Assignment: Project List of Contents with Point Distribution

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**Meeting #16 (11/17 Tues): DFM & Education Innovation (Bozek)**

- \* Point 1
  - \* Point 2
- Assignment: TBD

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**Meeting #17 (11/20 Fri): Project Update—final stretch (Class)**

- \* Status update + feedback
- Assignment: "How can your classmates improve their project content/presentation?"

**(11/24 Tues and 11/27 Fri): Off (University cost cutting, Thanksgiving week)****Meeting #18 (12/1 Tues): Project Final Presentation #1 (20 minutes each inc. Q&A)**

- \* One half of class present their projects
- Assignment: Project final presentation with text in PPT notes pages

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**Meeting #19 (12/4 Fri): Project Final Presentation #2 (20 minutes each inc. Q&A)**

- \* One half of class present their projects
- Assignment: Project final presentation with text in PPT notes pages

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