



Engineering Systems Doctoral Seminar

ESD.84 – Fall 2002

Session 4

September 25, 2002

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Guests: Dan Whitney



Session 4: Overview

- Welcome and Overview and Introductions (5-10 min.)
- Generating Key Questions from Readings (10-15 min.)
- Views of Product Architecture – Dan Whitney (30-45 min.)
- Analysis of Uncertainty and Complexity as Core Concepts (15-20 min.)
- Break (15 min.)
- Segmented, Linear, Hierarchical Thinking and Systems Thinking – Ozlem Uzner (15-20 min.)
- Systems Thinking in Theory vs. Systems Thinking in Practice – Troy Downen (15-20 min.)
- Book Review of John Sterman's *Business Dynamics* by Troy Downen (5-7 min.)
- Integrative Discussion (20-30 min.)
- Next Steps (10-15 min.)



Uncertainty and Complexity

- Step 1:
 - Form two groups – half the class focusing on “uncertainty” and half focusing on “complexity”
- Step 2:
 - Brainstorm different metrics and methods for assessing the degree of “uncertainty” or the degree of “complexity” of engineering systems
- Step 3:
 - Assess the list – here are sample assessment questions:
 - Are the metrics and methods idiosyncratic to specific systems?
 - Are the metrics and methods easy or difficult to apply?
 - Where are these methods and metrics used and where could they be used?
- Step 4:
 - Be prepared to report out our findings for full group discussion