CS599 Software Process Modeling

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Outline

• Class Overview, Schedule and Logistics
• Basic Terminology
• Software Process Modeling Overview
• Model Building Demonstration
• Potential Conferences
• Homework
Logistics

• Ordering class software and documentation
  – Please contact High Performance Systems directly. Order the "Ithink Analyst" product at a student discount of about $100. You can choose the PC or Macintosh platform as you wish. Do not order the more commonly used education package called "Stella" because it comes with physics/chemistry/biology applications instead of business applications.

  – Their phone # is 800/332-1202. Contact Jeff Hawkins at ext. 144 or Debra at ext. 165 to order. They are expecting you.

• Class times
Terminology

- System
  - open, closed
- Software process
- Model
  - static, dynamic
- Simulation
- System dynamics
A Software Process

<table>
<thead>
<tr>
<th>LCO</th>
<th>LCA</th>
<th>IOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inception</td>
<td>Elaboration</td>
<td>Construction</td>
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</tbody>
</table>

**Process Activities**
- Requirements Capture
- Analysis & Design
- Implementation
- Test

**Supporting Activities**
- Management
- Environment
- Deployment

Iterations:
- Preliminary Iteration(s)
- Iter. #1
- Iter. #2
- Iter. #n
- Iter. #n+1
- Iter. #n+2
- Iter. #m
- Iter. #m+1
# Process Modeling Characterization Matrix and Examples

<table>
<thead>
<tr>
<th>Scope / Purpose</th>
<th>Portion of lifecycle</th>
<th>Development project</th>
<th>Multiple, concurrent projects</th>
<th>Long-term product evolution</th>
<th>Long-term organization</th>
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</thead>
<tbody>
<tr>
<td>Strategic management</td>
<td></td>
<td></td>
<td>product-line reuse strategy</td>
<td></td>
<td>projected headcount, business growth</td>
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<tr>
<td>Planning</td>
<td>stage-based cost/schedule estimation</td>
<td>project cost/schedule/quality estimation</td>
<td>reuse costs</td>
<td></td>
<td>projected workload</td>
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<tr>
<td>Control and operational management</td>
<td>stage tracking earned value tracking</td>
<td>product-line change control</td>
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<tr>
<td>Process improvement and technology adoption</td>
<td>RAD process tradeoffs peer review optimization phase defect levels</td>
<td>peer review effects on project RAD process tradeoffs</td>
<td>inter-project reuse processes</td>
<td>product-line reuse strategies</td>
<td></td>
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<tr>
<td>Understanding</td>
<td>process concurrence</td>
<td>rework levels resource sharing tradeoffs cycle times</td>
<td>maintenance size and effort trends</td>
<td>organizational behavior</td>
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<tr>
<td>Training and learning</td>
<td>managerial metrics training</td>
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*cs599 8/31/99*
Modeling Demonstration
Potential Conferences

- ICSE
- ProSim
- SEPG Conference
- STC
- International Software Process Workshop
- System Dynamics Conference
- Many other software conferences and workshops
Homework

• Reading:
  – *Introduction to Systems Thinking and Ithink*
    Chapters 1-2
  – *Software Process Dynamics* handouts:
    • Preface
    • Sections 1 - 1.2.1.2

• Problem due next week:
  – model your degree progress using a time rate of credit hours or classes completed
  – use actual data for courses completed in the past
  – also show your planned completions from this point
  – graph your results