Wat
@garybernhardt
Announcements

• Writing assignment (peer review) posted tomorrow
• I will post another class participation opportunity to Piazza, Due Monday Night
• Grading meetings Monday and Tuesday. Time slots will be posted on Piazza
• [http://web.engr.oregonstate.edu/~hiltonm/classes/cs361/assignment1.html](http://web.engr.oregonstate.edu/~hiltonm/classes/cs361/assignment1.html)
Project Management
Done by “Managers”

Typical Tasks
- Project Management
- Scheduling
- Risk Management
- Measurement
Managers can Control

- Resources
- Time
- Product
- Risk
Managers can Control

- Resources ?
- Time ???
- Product
- Risk ??
**Management Terms - WBS: Work Breakdown Schedule**

<table>
<thead>
<tr>
<th>Task Mode</th>
<th>WBS</th>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Finish</th>
<th>Predecessor</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Landscape Job at New Home</td>
<td>40 days?</td>
<td>Mon 4/7/14</td>
<td>Mon 6/2/14</td>
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<tr>
<td>1.1</td>
<td></td>
<td>Design home landscape</td>
<td>5 days</td>
<td>Mon 4/7/14</td>
<td>Fri 4/11/14</td>
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<tr>
<td>1.2</td>
<td></td>
<td>Put in Lawn landscape</td>
<td>2 days</td>
<td>Mon 4/14/14</td>
<td>Tue 4/15/14</td>
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<tr>
<td>1.2.1</td>
<td></td>
<td>Acquire lawn materials</td>
<td>2 days</td>
<td>Mon 4/14/14</td>
<td>Tue 4/15/14</td>
<td>2</td>
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<tr>
<td>1.3</td>
<td></td>
<td>Install sprinklers</td>
<td>7 days</td>
<td>Wed 4/16/14</td>
<td>Thu 4/24/14</td>
<td>4</td>
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<tr>
<td>1.3.1</td>
<td></td>
<td>Identify locations</td>
<td>1 day</td>
<td>Wed 4/16/14</td>
<td>Wed 4/16/14</td>
<td>4</td>
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<tr>
<td>1.3.2</td>
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<td>Dig trenches</td>
<td>2 days</td>
<td>Thu 4/17/14</td>
<td>Fri 4/18/14</td>
<td>6</td>
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<tr>
<td>1.3.3</td>
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<td>Install Pipe &amp; HW</td>
<td>3 days</td>
<td>Mon 4/21/14</td>
<td>Wed 4/23/14</td>
<td>7</td>
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<tr>
<td>1.3.4</td>
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<td>Cover sprinkler lines</td>
<td>1 day</td>
<td>Thu 4/24/14</td>
<td>Thu 4/24/14</td>
<td>8</td>
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<tr>
<td>1.3.5</td>
<td></td>
<td>Sprinklers complete</td>
<td>0 days</td>
<td>Thu 4/24/14</td>
<td>Thu 4/24/14</td>
<td>9</td>
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<tr>
<td>1.4</td>
<td></td>
<td>Plant Grass &amp; Shrubs</td>
<td>15 days?</td>
<td>Fri 4/25/14</td>
<td>Thu 5/15/14</td>
<td></td>
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<tr>
<td>1.4.1</td>
<td></td>
<td>Remove construction debris</td>
<td>4 days</td>
<td>Fri 4/25/14</td>
<td>Wed 4/30/14</td>
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<td>1.4.2</td>
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<td>Prepare soil</td>
<td>4 days</td>
<td>Thu 5/1/14</td>
<td>Tue 5/6/14</td>
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<tr>
<td>1.4.3</td>
<td></td>
<td>Plant shrubs</td>
<td>6 days</td>
<td>Wed 5/7/14</td>
<td>Wed 5/14/14</td>
<td>13</td>
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<tr>
<td>1.4.4</td>
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<td>Plant lawn seed</td>
<td>1 day?</td>
<td>Thu 5/15/14</td>
<td>Thu 5/15/14</td>
<td>14</td>
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<tr>
<td>1.4.5</td>
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<td>Lawn &amp; shrubs complete</td>
<td>0 days</td>
<td>Thu 5/15/14</td>
<td>Thu 5/15/14</td>
<td>15</td>
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<td></td>
<td>Build Fence</td>
<td>11 days?</td>
<td>Fri 5/16/14</td>
<td>Mon 6/2/14</td>
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<tr>
<td>1.5.1</td>
<td></td>
<td>Acquire fence materials</td>
<td>1 day?</td>
<td>Fri 5/16/14</td>
<td>Fri 5/16/14</td>
<td>16</td>
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<tr>
<td>1.5.2</td>
<td></td>
<td>Install fence</td>
<td>10 days?</td>
<td>Mon 5/19/14</td>
<td>Mon 6/2/14</td>
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<tr>
<td>1.5.2.1</td>
<td></td>
<td>Mark fence line</td>
<td>1 day?</td>
<td>Mon 5/19/14</td>
<td>Mon 5/19/14</td>
<td>18</td>
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<tr>
<td>1.5.2.2</td>
<td></td>
<td>Install posts</td>
<td>5 days</td>
<td>Mon 5/20/14</td>
<td>Mon 5/26/14</td>
<td>20</td>
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<tr>
<td>1.5.2.3</td>
<td></td>
<td>Install fence &amp; gates</td>
<td>1 day?</td>
<td>Tue 5/27/14</td>
<td>Tue 5/27/14</td>
<td>21</td>
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<tr>
<td>1.5.2.4</td>
<td></td>
<td>Paint/stain fence &amp; gates</td>
<td>3 days</td>
<td>Wed 5/28/14</td>
<td>Fri 5/30/14</td>
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<tr>
<td>1.5.2.5</td>
<td></td>
<td>Fence complete</td>
<td>0 days</td>
<td>Mon 6/2/14</td>
<td>Mon 6/2/14</td>
<td>23</td>
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<tr>
<td>1.6</td>
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<td>Landscape complete</td>
<td>0 days</td>
<td>Mon 6/2/14</td>
<td>Mon 6/2/14</td>
<td>24</td>
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</tbody>
</table>
Microsoft Project
Management Buzzwords

- Burndown
- Critical Path
- Milestones
- Slippage
- Mission Critical
- 10,000-foot view aka “Big Picture”
- Deliverable
- SME
- Silos
## Task Estimation

<table>
<thead>
<tr>
<th>Estimation approach</th>
<th>Category</th>
<th>Examples of support of implementation of estimation approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analogy-based estimation</td>
<td>Formal estimation model</td>
<td>ANGEL, Weighted Micro Function Points</td>
</tr>
<tr>
<td>WBS-based (bottom up) estimation</td>
<td>Expert estimation</td>
<td>Project management software, company specific activity templates</td>
</tr>
<tr>
<td>Parametric models</td>
<td>Formal estimation model</td>
<td>COCOMO, SLIM, SEER-SEM, TruePlanning for Software</td>
</tr>
<tr>
<td>Size-based estimation models[13]</td>
<td>Formal estimation model</td>
<td>Function Point Analysis,[14] Use Case Analysis, SSU (Software Size Unit), Story points-based estimation in Agile software development</td>
</tr>
<tr>
<td>Group estimation</td>
<td>Expert estimation</td>
<td>Planning poker, Wideband Delphi</td>
</tr>
<tr>
<td>Mechanical combination</td>
<td>Combination-based estimation</td>
<td>Average of an analogy-based and a Work breakdown structure-based effort estimate</td>
</tr>
<tr>
<td>Judgmental combination</td>
<td>Combination-based estimation</td>
<td>Expert judgment based on estimates from a parametric model and group estimation</td>
</tr>
</tbody>
</table>

#NoEstimates

WE'LL ASK FOR ESTIMATES

AND THEN TREAT THEM AS DEADLINES
Kent Beck

"Alternative to estimates: do the most important thing until either it ships or it is no longer the most important thing"
Software estimation is difficult. Many teams fail to accurately make estimates. Trying to meet unrealistic estimates can destroy a team's morale. Failing to meet an estimate hurts a team's credibility.
Estimates are so often wrong, let's not do them.

Find the most important thing and do it.

Many small course corrections are easier setting initial course correctly.

Embrace the “agility” of agile.
Risk Management
“...there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult ones.”

~Donald Rumsfeld
Risk Matrix

http://www.streetbuild.com/services/whs-risk-management/
We can Learn a lot from other forms of Engineering

- CRM – Crew Resource Management (FAA)
- CRM – Continuous Risk Management (NASA)
Crew Resource Management

- Get there right persons attention
- State your concern
- State the problem as you see it
- State a solution
- Obtain agreement
Continuous Risk Management

Continuous Risk Management

Risk Management Framework

Monitor → Identify → Analyze → Prioritize → Plan (Top) → Mitigate (Top) → Communicate
Identify

Identify Risks by Type:
Generic
Product Specific
People, Size, Process, Technology, Tools, Organizational, Material, Customer, Estimation, Sales, Support
Given that <condition> then there is a concern that (possibly) <transition> <consequence>.
Analyze

✖ For each risk identify, we must define a probability and an impact
✖ Probability: Categorical, 0–100%
✖ Impact: Categorical, Time, Money,
Prioritize

✖ Decide which risks to take actions on
✖ Some risks may be out of our control
✖ Some risks may not be worth preventing
Plan

Each risk that we identified as needing action, we should come up with a plan to mitigate

Possible Strategies:

Get more information
Develop Contingency Plan
Risk Reduction
Risk Acceptance
Mitigate

Example Mitigation Strategies
Risk Avoidance
Risk Protection
Monitor

- Ongoing activity
- Keep track of state of risk
- Some risks go away with time, others get worse
Everyone should be aware of the current risks being monitored. There are very few things worse then having a failure which was not anticipated.
Credits

Special thanks to all the people who made and released these awesome resources for free:

✖ Presentation template by SlidesCarnival
✖ Photographs by Unsplash