Personal SE Project Management Process
Lecture/Week 1

CS599: PPMP + Project
Personal [SE] Project Management Process
+ Software Engineering Project

Assignments – Turn in NOW!!!

Goals of Presentation

Some Administrivia
Discuss Chapters 1 & 2 and First Exercise
Lecture (Watts Humphrey's material)

Assignment & Exercise Details
• Reading
• Standards
• Spreadsheet 2S
Some Administrivia

PPMP/PSP Process Data Assignments
• May be reviewed before or after class with TA
• Don’t hand in until complete and correct
• Submit after correction and copying is appropriate
  – Email spreadsheets and anything in electronic form to TA
  – FAX or drop-off of handwritten material (DO NOT rely on courier!)

Assistance
• Estimating/Planning – Checking with classmates is OK, but
  – note that it was done and LOG the time spent
  – if estimates change, report both original & changed estimate; both forms, clearly labeled, is fine
• Planning, Design or Code Review by colleagues OK: BUT log/report their review time and defects found

Grading
• Emphasis is on getting the work right, even if late: i.e., High Quality Work!
• Emphasis is not on absolute performance, but on
  – improvement
  – the extent to which data is analyzed & changes behavior
• Grading steps per Watts Humphrey
  – All forms present and in proper order
  – Each form’s data complete and readable
  – Data items on each form are self-consistent
  – Data dependencies among forms are self-consistent
  – Data are properly used
• Topics to be checked with each process version – identified as Exit Criteria
Discussion on Reading: Chapters 1 & 2

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Discussion on First Exercise

Process
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Program/Deliverables
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Process(es) Improvement Proposals

Agenda

Discuss Chapters 1 & 2 and First Exercise

⇒ Watts Humphrey's Lecture ⇐

Assignment & Exercise Details
Agenda

Discuss Chapters 1 & 2 and First Exercise

Watts Humphrey's Material

⇒ Assignment & Exercise Details ⇐

Assignment & Exercise Details

Read Chapters 3 & 4
• Diversion to Appendix A3
• Diversion to Appendix A4

Read Chapter 6, Section 6.6 and 6.7

Report R1 – LOC Counting Standards: pg. 767
• 3GL Templates provided
• Two 3GL examples provided, BUT
  – Difficulty with delineation of 'statement' in Pascal Vs C++
  – What else gets counted
    o "Test conditions"
    o "Elseif" in Pascal?
  – "Keywords"
  – Not clear and No example provided to aide understanding
Report R2 – Coding Standard pg. 769

- Only a C++ "go by" example provided
- My [UCSD] Pascal is available

**Process Exercise: Kit 2S**

- PSP0.1 description – pgs. 612..617
- PSP0.1 Process Scripts – Tables C21..C24, pgs. 662..665
- PSP0.1 Project Plan Summary – Table C25, pg. 666
- PSP0.1 Project Plan Summary Instructions – Table C26, pg. 667
- PIP forms & instructions – pgs. 668..669
- Spreadsheet 2S - See below

**Assignment Kit # 2S**

<table>
<thead>
<tr>
<th>Assignment Kit 2 Contents</th>
<th>Inst.</th>
<th>Order to submit assignment</th>
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</thead>
<tbody>
<tr>
<td>PPMP0.1 Process Scripts</td>
<td>n/a</td>
<td>PPMP0.1 Project Plan Summary</td>
</tr>
<tr>
<td>PPMP0.1 Script</td>
<td>n/a</td>
<td>PIP form, including lessons learned</td>
</tr>
<tr>
<td>PPMP0.1 Planning Script</td>
<td>n/a</td>
<td>Time Recording Log</td>
</tr>
<tr>
<td>PPMP0.1 Development Script</td>
<td>n/a</td>
<td>Defect Recording Log</td>
</tr>
<tr>
<td>PPMP0.1 Postmortem Script</td>
<td>n/a</td>
<td>Spreadsheet source listing</td>
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<tr>
<td>Forms, Templates, and Standards</td>
<td>n/a</td>
<td>Report R1</td>
</tr>
<tr>
<td><strong>PPMP0.1 Project Plan Summary</strong></td>
<td>C26</td>
<td>Report R2</td>
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<tr>
<td><strong>C27 Process Improvement Proposal (PIP)</strong></td>
<td>C28</td>
<td>Other requested materials</td>
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<td>C29 Coding Standard</td>
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<td>C16 Time Recording Log</td>
<td>C17</td>
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<tr>
<td>C18 Defect Recording Log</td>
<td>C19</td>
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<tr>
<td>C20 Defect Type Standard</td>
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Before writing program 2s or the R1 and R2 reports, read the process and exercise specifications in Appendices C and D.
**PPMP0.1 & PSP0.1 Project Plan Summary**

<table>
<thead>
<tr>
<th>Student</th>
<th>Date</th>
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<tr>
<th>Spreadsheet</th>
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<th>Instructor</th>
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**Spreadsheet Size (LOC) Plan Actual To Date**

<table>
<thead>
<tr>
<th>Base (B)</th>
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<tbody>
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<td>(Measured)</td>
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<th>Deleted (D)</th>
<th>(Counted)</th>
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<tr>
<th>Modified (M)</th>
<th>(Counted)</th>
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<tr>
<th>Added (A)</th>
<th>(T-B+D-R)</th>
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<th>Reused (R)</th>
<th>(Counted)</th>
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<tr>
<th>Total New &amp; Changed (N)</th>
<th>(A+M)</th>
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<tr>
<th>Total LOC (T)</th>
<th>(Measured)</th>
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<tr>
<th>Total New Reused</th>
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**Personal SE Project Management Process**

**PPMP & PSP0.1 Project Plan Summary (cont.)**

<table>
<thead>
<tr>
<th>Time in Phase (min.)</th>
<th>Plan</th>
<th>Actual</th>
<th>To Date</th>
<th>To Date %</th>
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<td>Postmortem</td>
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### Defects Injected

<table>
<thead>
<tr>
<th>Process</th>
<th>Actual</th>
<th>To Date</th>
<th>To Date %</th>
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<td>Planning</td>
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<td>Calculate/Compile</td>
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<td>Test</td>
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<td>Total Development</td>
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</tbody>
</table>

### Defects Removed

<table>
<thead>
<tr>
<th>Process</th>
<th>Actual</th>
<th>To Date</th>
<th>To Date %</th>
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</thead>
<tbody>
<tr>
<td>Planning</td>
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<td>Calculate/Compile</td>
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<td>Test</td>
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<td>Total Development</td>
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<td>After Development</td>
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### Process Improvement Proposal (PIP)

**Student** ___________________________ **Date** ______

**Instructor** ________________________ **Program #** ______

**Process** ___________________________ **Elements** __________________________________

**PIP Number** ________________________ __________

**Problem Description:**

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**PROPOSAL**

**PIP #**    **Proposal Description**

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**Notes and Comments:**

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The purpose of earned value is to
• Establish a value for each task
• Permit progress tracking against the plan
• Facilitate tracking even with plan changes

The principles behind earned value are
• Provides a common value for each task
• Value is the % of total project hours task is planned to take
• No value is given for partial task completion
• Major plan changes require re-planning (new plans)
• Minor plan changes: adjusted earned values

Task Planning Template

<table>
<thead>
<tr>
<th>Task #</th>
<th>Name</th>
<th>Hrs. Planned</th>
<th>Cum. Hours</th>
<th>Cum. Planned</th>
<th>Date Monday</th>
<th>Earned Value</th>
<th>Cum. Earned Value</th>
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<tbody>
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</table>
Task & Schedule Planning Process

Task Order

• Driven by the development strategy
  – conceptual approach
  – completion criteria for each task
  – task interdependencies considered
  – cost and cycle time priorities also considered

• Determine planned task order
  – initial task order provides basis for planning
  – task order will change with new knowledge
Task & Schedule Planning Process (cont.)

Produce the Schedule

- Estimate the hours for each task
  - what portion of total hours have such tasks historically taken?
  - will anything unusual affect this project?
  - spread the task time for the entire project
  - ensure tasks are not omitted

- Spread the task hours over the calendar
  - identify key project checkpoints

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<table>
<thead>
<tr>
<th>Task</th>
<th>Hours</th>
<th>Cum. Hrs</th>
<th>Day</th>
<th>Hours</th>
<th>Cum. Hrs</th>
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<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
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<tr>
<td>Dsgn Whole</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>8</td>
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<tr>
<td>Code 1st</td>
<td>4</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>13</td>
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<tr>
<td>Compile 1st</td>
<td>7</td>
<td>18</td>
<td>4</td>
<td>5</td>
<td>18</td>
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<tr>
<td>Test 1st</td>
<td>3</td>
<td>21</td>
<td>5</td>
<td>4</td>
<td>22</td>
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<tr>
<td>Code rest</td>
<td>5</td>
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</tr>
<tr>
<td>Compile rest</td>
<td>6</td>
<td>32</td>
<td>7</td>
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<tr>
<td>Test all</td>
<td>3</td>
<td>35</td>
<td>8</td>
<td>5</td>
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<tr>
<td>Post Mrtm</td>
<td>2</td>
<td>37</td>
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</tbody>
</table>
Task & Schedule Planning Process Details

Consider the data on the previous page.

Task Planning Template

- **Start filling out**
  - list tasks in their expected order of completion
  - enter hours each task is expected to take
  - add the hours in the cumulative hours column

- **Start to prepare the schedule planning template**

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## Task Planning Template

<table>
<thead>
<tr>
<th>Task</th>
<th>Plan</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>Name</td>
<td>Hrs. Planned Value</td>
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Task & Schd. Planning Process Details (cont.)

Schedule Planning Template

- list the calendar dates in the left column
- use days or weeks, depending on project scale
  - for days, list every date
  - for weeks, use a standard day, say Monday
- list the planned direct project hours to be available that week
- add the hours in the cumulative hours column

Complete the task and schedule templates together

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Schedule Planning Template

<table>
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</table>
Task & Schd. Planning Process Details (cont.)

Completing the Plan: For each task

• find the cumulative hours to complete that task on the task template

• find the week/day on the schedule template when those hours have first been exceeded

• enter the week/day’s date in the Date column for that task on the task template

Now have task schedule, but ...

Still need to establish planned value

On the task template
• total the project hours
• calculate the % each task is of the total hours
• enter this % as the planned value (PV) for that task
• calculate the cumulative PV for each task

On the schedule template
• enter the cumulative planned value for the tasks to be completed each week/day
**Earned Value Plan Tracking**

As each task is completed, it earns the planned value
- enter this earned value (EV) for that task
- enter the date/time of task completion
- add the EV to date in the cumulative EV column

In the schedule template, enter the cumulative EV for each week as it is completed

Track earned value versus planned value by week/day

---

**Spreadsheet Exercise #2 – Schedule Planning**

**Spreadsheet 2S Requirements**
- Develop spreadsheet(s) to assist in generating, tracking and re-planning of schedules using the earned value approach described in DSE sections 6.6 and 6.7.
- Include support for both Task Planning Templates and Schedule Planning Templates.

**Spreadsheet 2S Testing**
- Thoroughly test the spreadsheet(s).
  - As one test, use the data previously shown.
  - As a second test, apply the spreadsheets to a daily
Earned Value Plan Tracking & Control

As each task is completed, it earns the planned value
• enter this earned value (EV) for that task
• enter the date of task completion
• add the EV to date in the cumulative EV column

In the schedule template, enter the cumulative EV for each week/day as it is completed

Track earned value versus planned value by week/day

Earned Value Plan Tracking & Control (cont.)

Projecting Project Completion
• Assume project will continue to earn value at past:
  e.g. if EV is 48.6 after 5 days, rate = 9.72
• Extrapolate to project completion by linearly extending the EV line until it reaches 100%.
• This is the likely project completion date unless
  – the rate of progress can be accelerated
  – the work for the remaining tasks can be reduced below the original plan
Earned Value Plan Tracking & Control (cont.)

Changing the Plan

• For small plan changes, the earned value amounts can be adjusted as follows
  – assume the change is a task addition
  – estimate the hours for the new task
  – determine the new task PV%
  – add this amount to the project total
  – proportionally reduce the value of every task by the ratio 100/(100 + new task PV)

• Plan still tracked against original planned value schedule
  – Adding a task: value of all completed & planned tasks reduced
  – Deleting a task: value of completed & planned tasks increased

Major plan changes: Produce a new plan
Assignment & Exercise Details (cont.)

Exercise Deliverables

- PPMP0.1 Project Plan Summary
- PIP forms, including a brief statement of lessons learned
- Time Recording Log
- Defect Recording Log
- Source Spreadsheet Listing
- Other Requested Material
  - Exercise (Report) R1
  - Exercise (Report) R2

Specific Items to be Checked per form or Process

Defect Recording Log (DRL)

- Data entered in EVERY blank for every defect, except for FixDefect and date.
  (Date is entered once per day or per page.)
- Each defect is injected before or in the same phase where removed.
- Most (?) defects are found in later phases than where injected.
- EVERY defect has a FixTime > 0.
Specific Items to be Checked per form or Process (DRL)

- ALL defects "injected in compile", except type 30 or type 100, have a defect number in the FixDefect space.
- ALL defects "injected in test", except types 30, 90 or 100, have a defect number in the FixDefect space UNLESS they are defects in the test case or procedure.
- There is an explanatory comment for every defect.
- Comment clearly explains (how to validate?) the defect.

Watch for skipped parts or incomplete entries.
Good defect data are required later in the course.

PSP0.1 Exercise Reports – Exit Criteria

0. The following five items (Sfa: per paragraphs one and three of C2.5)
   - Complete process data
   - Accurate and self-consistent data
   - Process Report in proper order and format
   - Neat and legible; need not be typed
   - NO cover sheets, binders, or written reports other than those requested

1. PSP0.1 Project Plan Summary (Sfa: Table C25, page 666).
2. Time Recording Log (Sfa: per Table C17, page 658).
3. Defect Recording Log (Sfa: per Tables C19 and C20, pages 660-661).

Assignment 2 Details

PSP0.1 Exercise Reports – Exit Criteria (cont.)

4. Source Spreadsheet Listing
5. Other requested material

   – Exercise Report RS1 for Excel (Sfa: "using the format in Tables 4.1, 4.2, and 4.3")
   – Exercise Report RS2 for Excel (Sfa: "Use the coding standard in Table C29 ... as a guide")