Course Overview

The purpose of this course is to introduce the highest-leverage metrics of the Personal Software Process (PSP), specifically the ones associated with improving time estimation and reducing defects.

The central subject of this course is process, not product. The programs that you will do are a means of teaching process, not an end product in themselves. The amount of process activity is clearly excessive for these simple problems. We suggest you read through all the programming problem specifications at the beginning of the course. This will give you an idea of where the programs are going. Then, when you feel that the process burden is too great, imagine doing a series of 300 line modules using the PSP. We think that you will find that you feel differently, see the point very quickly, and find yourself unconsciously applying parts of the PSP to your own work before the course is done.

This course is intended for practicing software engineers and their managers. The measures introduced can serve as the basis for software development process improvement in the organization as well as help individuals. Students who go on to take a more comprehensive course in the PSP will be able to concentrate more completely on advanced metrics.

Course Objectives

Successful completion of this course will provide you with the knowledge and skills to:
- Reduce overall defect rates.
- Spend more time at the front end of the development cycle.
- Eliminate, or nearly eliminate, compile and test defects.
- More accurately estimate the time it takes to build software.

Organization

The course consists of a series of lectures conducted by faculty and staff from the School of Computer Science at Carnegie Mellon University. The lectures, captured on DVDs, lead the way through a series of assignments and chatroom discussions.

Your best approach to successfully complete the course is to follow three simple steps.
1. Do the assigned readings.
2. Watch the lecture.
3. Complete the assignments.

All course materials, with the exception of the text and DVDs, will be available on the Carnegie Mellon Blackboard Systems. Email with specific information about the course Blackboard site will be sent to you prior to the start of class.
Feedback and Support

Office hours and computer conferences will take place in the Virtual Classroom on the course Blackboard site. Your instructor for the course will conduct course discussions in the Virtual Classroom every week, specific time to be determined. Should your instructor decide to use another chat tool, they will notify you at the beginning of the course. Other times, your instructor will be available by email. In addition, you should feel free to post questions and comments on the course electronic bulletin board at anytime to discuss the readings, the course, and issues related to software engineering with members of your class.

Readings

You are required to complete a series of readings related to each lecture. These weekly readings are used to stimulate discussion and as a way to expose you to course topics not covered directly in the lectures. For most lectures, you are assigned a few readings to complete before watching the lecture.

The textbook for this course is *PSP: A Self-Improvement Process for Software Engineers* by Watts S. Humphrey.

Evaluation

When grading your homework assignments, your instructor will

- Check that the data presented is within “reasonable” bounds for the current assignment. Reasonable bounds are dependent upon each case, the assignment, and the tools you used to develop the assignment.
- Identify any spikes or unusual patterns in the data which may be an indication of incorrect application of the process, a simple typo, or incorrectly stated assumptions.
- Collate data submitted by multiple students in order to come up with a common set of numbers that reflect the data for the entire class.

A passing grade indicates that you have successfully demonstrated an understanding of the lecture material. If you display difficulty comprehending the material you will receive email from your instructor that details what areas in the homework assignments you need to review and requests that you submit the assignment again.

Schedule

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Topic</th>
<th>Readings</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to the PSP</td>
<td>Ch. 1 &amp; 2</td>
<td>Use PSP0, Program 1B</td>
</tr>
<tr>
<td>2</td>
<td>The Planning Process</td>
<td>Ch. 3 &amp; 4</td>
<td>Use PSP0.1, Program 2A, Reports R1, R2</td>
</tr>
<tr>
<td>3</td>
<td>Current Software Size Estimation Methods</td>
<td>Ch. 5</td>
<td>Use PSP0.1, Program 2B, Report R3</td>
</tr>
<tr>
<td>4</td>
<td>The PROBE Size Estimation Method</td>
<td>Ch. 6</td>
<td>Use PSP1.0, Program 3B</td>
</tr>
<tr>
<td>5</td>
<td>Design and Code Reviews</td>
<td>Ch. 9; skim Ch. 10-12</td>
<td>Use PSP1.0.1, Program 4B</td>
</tr>
<tr>
<td>6</td>
<td>Software Quality Management</td>
<td>Ch. 8</td>
<td>Use PSP1.0.1, Program 5B</td>
</tr>
<tr>
<td>7</td>
<td>Process Definition</td>
<td>Ch. 13 (pp. 287-299)</td>
<td>Use PSP1.0.1, Program 6B</td>
</tr>
</tbody>
</table>
### Bibliography


### Supplemental References


[Humphrey ] Humphrey, Watts S. “Personal Commitment to Software Quality.”

