

Teaching Tips: SEP1 - Introduction to Software Engineering Processes

1. The SEP1 module is appropriate for inclusion in a first year, beginning programming course. However, students should have written four or five programs first. In addition, they should have some knowledge about the nature and problems of building large software systems. If they have completed OSE1, this should be sufficient.
2. There is quite a bit of reading required for the SEP1 exercise (about fifty pages). Although little technical knowledge is required for the reading, most of the material is intended for the experienced software practitioner and students should be advised of this. You want to characterize this reading as a way for the novice to visit the "workplace" and learn a bit about the real world: issues, problems, debates, etc. Students should not worry about unfamiliar terms and phrases, but rather focus on the central issues and the "big picture".
3. The module contains a set of lecture slides (SEP1-lecture.ppt) and an exercise booklet (SEP1-exercise.doc). Here is a suggested order for use of the material:
 - a. Students read the following (about 40 minutes):
 - i) Brooks, F. P., The Mythical Man Month, Chapter 2: "The Mythical Man Month", pp. 13-26, Addison-Wesley, 1999.
 - ii) Fleming, R., "A Fresh Perspective on Old Problems", IEEE Software, pp 106-113, January 1999.
 - b. Instructor delivers a lecture/discussion using the lecture slides (about 60 minutes).
 - c. Students read the following (about 80 minutes):
 - i) Ferguson, P., Humphrey, W., Khajenoori, S., Macke, S., and Matvyra, A. "Introducing the Personal Software Process: Three Industry Case Studies," Computer, pp. 24-31, May 1997.
 - ii) Highsmith, J. and Cockburn, A., "Agile Development: The Business of Innovation", pp. 120-122, Computer, September 2001.
 - iii) Paulk, M., "Extreme Programming from a CMM Perspective", IEEE Software, pp. 19-26, November 2001.
 - iv) Webb, D. and Humphrey, W. S., "Using the TSP on the TaskView Project", CrossTalk, Journal of Defense Software Engineering, pp. 3-10, February 1999.
(<http://www.stsc.hill.af.mil/crosstalk/frames.asp?uri=1999/02/webb.asp>)
 - d. Students complete the exercise (about 120 minutes).

- e. Instructor leads class discussion of exercise (about 30 minutes).
4. The following questions/activities can be used for the class discussion of the exercise:
- a. Ask for answers to the exercise question " What does the term software process mean?" Then ask a follow up question: "Why is software process important?"
 - b. Ask the class about their opinion of paired programming.
 - c. Ask the class how a developer should handle the problem of a poor customer.
 - d. On the question about "design and document a process for some activity you have carried out be", ask a volunteer to present her/his process to the class. Ask other students to suggest changes to the process.
 - e. Ask the question "Is software process important to beginning programmers?" If so, which type of process would work best (PSP, XP, or some other).