

Teaching Software Engineering Course Projects: A New Faculty Perspective

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A Look Back in History...

The UCR Student & TA Experience

Before – During – After

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Before –1

- The situation:
 - Used to programming + algorithms + mathematics
 - School courses are heavily programming-oriented, such as compiler optimization, distributed OS system, graphic courses, computing theory courses
- The view:
 - I had a vague idea of what SE is about: “Some soft stuff about the theory of developing a program”
 - I thought I knew this already; I don’t need this!
 - It is not “hard core” work, it is not the “real thing”

Before -2

- The question:
 - Neither I nor employer need it
 - What I really need to be really good at is Java, C++, coding in general
- The result: I took the course, but mainly because it is required course, and some company job postings mentioned it

During –1

- The situation:

- I did not pay enough attention to the course; most of time and energy goes to other “heavy” courses
- Most of the material are in “English text”, not “scientific enough”
- The material was very abstract, making it hard to understand the true meaning

- The view:

- Too much material to learn in just 10 weeks
- Professor make us work hard by learning software in a short time period; a lot of writing, little coding

During –2

- The question:
 - Why do I need to know this? I have been doing quite well with my courses without it
- The result:
 - A ha! There are so many things out there beyond just writing code!
 - Hey, there are ways to be more efficiently and more accurately solving existing problems
 - Perhaps this course is somehow useful, eh?

After –1

- The situation:
 - This is not an “easy” course as I thought in the beginning
 - The more time I spend on it, the more sense it makes – not a bad thing
- The view:
 - This is a quite useful and interesting course
 - If had I knew this earlier in my study, hmm...

After –2

- The question:
 - How can I know more?
- The result
 - “This is one of the most useful courses I have ever take at UCR”
 - Pursuing my professional career in this field

As a TA...

- I understood student frustration
- I still felt it hard to get them to appreciate the material during the lab and the course
- The tools were a lot to learn in a short time

Motivation

- I was a student in CS180 in Fall 2000
- I was the TA for CS180 in Winter 2001
- I might be the instructor in the future!

A New Faculty Perspective --1

- CEN 4010 Principles of Software Engineering
- Fall 2004, Spring 2005, Fall 2005
- Fall 2004 -- less than satisfactory
 - First time teaching
 - No mentor
 - Different institute, different style and expectation
- Spring 2005 -- every satisfactory
 - Decide to do my own way -- take ownership
 - Provide more direct guidance -- hands on approach
 - Course projects --- get students involved
- Fall 2005 -- “Third time is a charm”
 - How to make the teaching experience better

A New Faculty Perspective --2

- CEN 4910 Software Engineering Project
- Fall 2005
- Issues about course project
 - Motivation
 - elective course, among many other options
 - Monitor students' progress, and get feedback to them
 - Provides detailed documentation standards
 - Evaluation criteria
 - Different teams with different projects -- apple vs. oranges
 - Different team members with different contributions -- individual contribution
 - Training of using professional tools (if used)
 - Selecting Project Topics: Solve Actual problems
 - Social Security Number Encryption for FAU
 - Storm Damage Tracking Systems