

## Lecture 17: Course Retrospective and the Path to Lifelong Learning (Part I)

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CSE403, Summer'05, Lecture 17

## Outline

- How this course differs from others
- What this course did not offer
- My version of the main take-away points

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## How Software Engineering Differs from Other Courses

- How is Software Engineering different from other courses and disciplines you have been exposed to?
  - (List the most important difference in your mind.)

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## How Software Engineers Differs ... – My View

- Holistic nature of the discipline
- Making high-level decisions – beyond the technical ones – but at least as important
- Few clear-cut answers; mostly good practices
- Larger teams
- Opportunity to propose and work on your own ideas
- Instructors in the coach role
- Mistakes along the way are encouraged, not penalized
- Plans (always) change
- Content topics: software design, testing, project management, etc.

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## What Software Engineering Encompasses (revisited)

- In contrast to many CS disciplines you have been exposed to, this one involves aspects of:
  - Computer science** (incl. algorithms, data structures, programming languages, tools)
  - Business and management** (incl. project management, scheduling, prioritization)
  - Economics/marketing** (incl. what makes a product sell, niche markets, monopolies)
  - Communication** (incl. managing relations with stakeholders – customers, management, developers, testers, sales)
  - Law** (incl. patents, licenses, copyrights, reverse engineering)
  - Sociology** (incl. modern trends in societies, localization, ethics)
  - Political science** (incl. topics at the intersection of law, economics, and global societal trends; (public) safety)
  - Psychology** (incl. personalities, styles, usability, what makes things fun)
  - Art** (incl. GUI design, what makes things appealing)
  - ... more?!
- Hence, the flavor of the discipline is necessarily “softer” and there are fewer clearly right/wrong answers.

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## What I Think You Have Gotten out of the Course

- Get exposure to some of the best software development practices in use today
- Learn how to more effectively collaborate with others toward a common goal
- Understand how software is produced – from conception to shipping and subsequent maintenance
- Have experience working in a larger team toward a common goal
- Be able to lead an intelligent conversation with expert practitioners in the field of software engineering
- Understand the issues and tradeoffs involved in making decisions as software engineers and project managers

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## How This Course Differs from the "Real World" of Software

- What aspects of "real world" software development has this course *not* exposed you to?
  - (List the main thing that comes to mind.)

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## How This Course Differs from the "Real World" of Software

- Aspects of "real world" software development that this course has *not* exposed you to
  - Changing requirements
  - Real outside customers
  - Working full-time on a major software project
  - Working on an existing project with its constraints (i.e., not starting from scratch)
  - People leaving and joining the team partway into a project
  - Monetary compensation

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## Effect of the Above Distinctions on Success in the "Real World"

- Solid, tried-out processes become even more important when more unknowns enter the picture.
  - Otherwise, there is a real chance of chaos.

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## The Main Take-Away Points in a Nutshell – My View

- It is all about *risk management*.
  - Requirements gathering, designing, prototyping, incremental releases, testing, code reviewing, refactoring, scheduling, prioritizing, etc.
- The notion that you provide *value* to your customers
- In all interactions, ask yourself who your audience is and what their expectations are.
- Solid management and communication are crucial to success.
  - It sounds easy until one experiences it first-hand.
  - Software development is an inherently human activity.
- Frequent, incremental releases are invaluable.

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## One-minute Feedback

- What one or two ideas discussed today captured your attention and thinking the most?
  
- List any ideas / concepts that you would like to hear more about. Be specific.

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