Team-based development of educational technology

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**Tags:** agile development, software engineering, service learning, educational software, multimedia production, user experience, usability testing

**Educational Technology EDT 802**

## Description

The technology practicum focuses on the integrated, team-based development of educational technology. Student-teams partner with businesses, non-profits, schools, or universities to develop and deploy an educational technology solution. This course focuses on interdisciplinary, team approaches; students will fill two of the following roles during the course of the semester: instructional designer, technologist (coder/network admin), project manager, creative director.

This course is designed as a practicum for Masters students who are not enrolled in the New York State certification track and who choose not to take EDT 801 (the K-12 practicum). Students will gain real-world experience working as part of a multidiscplinary team developing interactive educational media. They will learn the tools and techniques of expert software development teams while building their professional portfolio.

The main goal of this course is for students to implement and extend their skills as part of a “professional” educational technology team. As a field-based course, they will work with real instructional designers, media producers, and software developers in the field.

Students will learn:

* technical project management of interdisciplinary teams
* software development methodologies, with a focus on lightweight/agile methodologies
* client interaction
* iterative software planning and development
* rapid prototyping
* usability testing and quality assurance
* distributed/collaborative tools for virtual software and media development (things like git, trak, irc or whatever else the kids are using at the time)

## REQUIRED TEXTS

Schwaber, Ken. 2004. Agile project management with Scrum. Microsoft Press. Redmond Wash.. ISBN 9780735619937.

## BIBLIOGRAPHY

Beck, Kent; Mike Beedle, A van Bennekum, A Cockburn, Ward Cunningham, Martin Fowler, James Grenning, et al. (2001). [“Manifesto for Agile Software Development”](http://agilemanifesto.org/).

Brooks, Frederick P.. 1995. The Mythical Man-Month: Essays on Software Engineering, 20th Anniversary Edition. Addison-Wesley Professional. ISBN 0201835959.

DeGrace, Peter. 1990. Wicked problems, righteous solutions. Prentice Hall. ISBN 978-0-135-90126-7.

Fowler, Martin. 1999. Refactoring: Improving the Design of Existing Code. Addison-Wesley Professional. ISBN 0201485672. (not in library)

Gagne, R. M. 2005. [Principles of instructional design](http://proquest.umi.com.libproxy.adelphi.edu:2048/pqdlink?did=785104901&Fmt=7&clientId=27928&RQT=309&VName=PQD). Performance Improvement, 44 (2)44–46.

Reigeluth, Charles. 1983. Instructional-design theories and models. Lawrence Erlbaum Associates. Hillsdale, N.J. ISBN 9780898592757.

Rosenberg, Scott. 2007. Dreaming in Code: Two Dozen Programmers, Three Years, 4,732 Bugs, and One Quest for Transcendent Software. Crown. ISBN 1400082463.

Takeuchi, H.. 1986. The new product development game. Harvard Business Review, 64 (1)137–146.

## Class sessions

*Most of the class sessions for the second half of the practicum will be organized like team project meetings. As a group, the team will review the current state of the project, and update goals and timelines. As needed, the meeting will be used for mini-lectures and workshops to meet the needs of the project, either presented by the students or the instructor.*

*The “topics” below are illustrative and will be altered to meet the needs of the project.*

### Introduction

Introduce students to the way the practicum works, the client site they will be working with, and the roles they will be performing.

### Agile software development

Readings due: Schwaber ch 1, 2

### Tools of team based development

### Milestones, sprints, time estimates

Readings due: Schwaber ch 4,6

### Wireframes & prototyping

### Testing & quality assurance

### Mid-point review

Students will review the progress so far, and reflect on feedback from the client/supervisors. Everyone switches to a new role.

Readings due: Schwaber ch 7

### Usability testing

### Project meeting

### Project meeting

### Project meeting

### Project meeting

### Project meeting

### Deployment

### Conclusions

Students reflect on the project, and evaluate their performance as a team, indicating what went well and what they would do different to improve the project.

## Assignments & Grading

**Weekly meetings (20%):** Student progress will be evaluated by weekly meetings with the instructor, where they are asked to reflect on their progress so far. Each week, they will write a short journal entry, summarizing their success and setbacks in the project.

**Self-reflection (30%):** At the end of the semester, each student will write a short reflective paper where they compare their stated goals for the project to the actual completed project.

**Field supervisor (50%):** The liaison from the field/client site will complete an evaluation survey for each student, at the midpoint and end of the term.