Engineers do it First
(open source engineering)

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Introduction

My Goals for this presentation
Join Me

Google key words: wikibooks general engineering
wikiversity general engineering
Disruptive Change: Do It Yourself University

1. Colleges are too expensive

2. Job Finds You
   Portfolio’s

3. Free Education
   Stanford Classes
   www.ai-course.com

Consequence:

Face to Face has to be about projects, not content.
What is the Engineering Narrative?

Science Narrative
Discover, publish, apply for grants

Technology Narrative
Experience creates Expertise

Current Engineering Narratives are not working

This makes teaching introduction to Engineering Difficult … Why?
Engineers Do it First Narrative
Play → Do it First → Design → Solve Problems

Evolution of “Do it First”

A E4 Harvey Mudd College
F NSF Coalitions
F FE Crash Course
D CDIO
D Engineering Projects in Community Service
D Project Lead the Way
C Johns Hopkins What is Engineering
C Transferable Integrated Design Engineering Education
B Portfolios
B Wikia

Primary Goal: Project Joy
Choose among old and new,
Projects are never finished,
Perhaps may be impossible.
Grade form and celebrate success
Content driven by project
No Scaffolding.

Open Ended Projects
create new instructions, polish old instructions
Freshman problems

I know nothing.

My problem or the world‘s

It can’t be done

It is broken

Feeling Success

Slackers
Find cave dwellers
Make them “easy to work with”
Repeat what they do
Polish documentation
Shrink to Sound byte
Present

Benefits .. Maturity Diversity
Grading

Engineers do it First ...
  documentation (repeatability)
  push success

Point system
  2000 A, 1600 B, 1200 C, 800 D

Weekly .. 140 points for A
  Notebook 50
  Electronic 50
  Presentation 40
  Club 5

Four project cycles
The Classroom

Class Activities
Presentations
Notebook Grading

Team Activities
Reviewing work done
Negotiating new individual tasks

Individual Activities
Materials and tools
Finding starting points

Week End .. on Line in Wikiversity
Electronic
External Assessment Problem

Current

- PLTW advisory panels
- JHU verbal interviews
- SRI engineering coalition failure

EDPPSR Portfolios
Assess students
Assume a statistical portfolio consensus

Engineers assess projects.

Proposed external assessment rubric:
- Repeatability
- Clarity
- Integrity
What is Next?

Build External Assessment Community
Google key words: wikibooks general engineering
wikiversity general engineering

Possible Internal Grading expansion:
Design (notebook), Team Decision Documentation (electronic)

Wiki Engineering Badges of Respect
boy scouts, masons, military have ranks, so does Kahn Academy and wikia. Need engineering badges that build up to FE and PE.

A Motie from “A Mote in God's Eye”
By Larry Niven and Jerry Pournelle