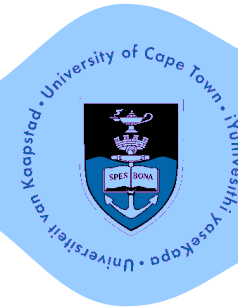
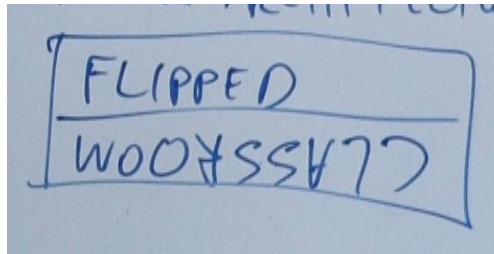


Flipping on the Cheap



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Principle of the Flipped Classroom



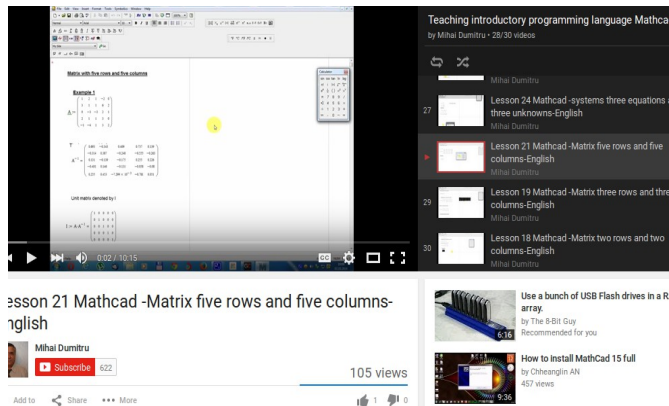
No dissemination funnel.

Basic content is better learnt individually.

Higher-level concepts can be learnt through discussion.



Typical Mechanics



Online pre-lecture 10min
video for content.

Discussion in class.



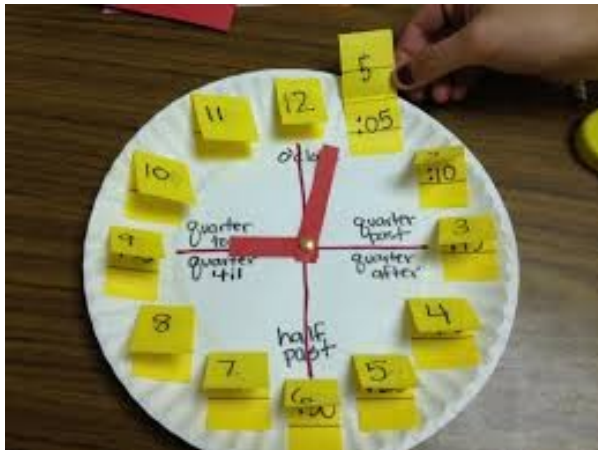
Why Cheap Solutions?

No funds for production.

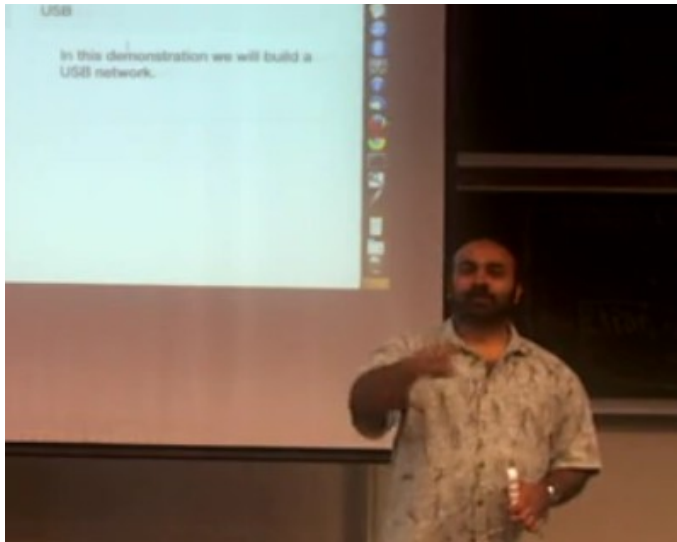
Low cost to students.

Test before commitment.

Need cheap scalability.



The Classroom



Computer Science 2

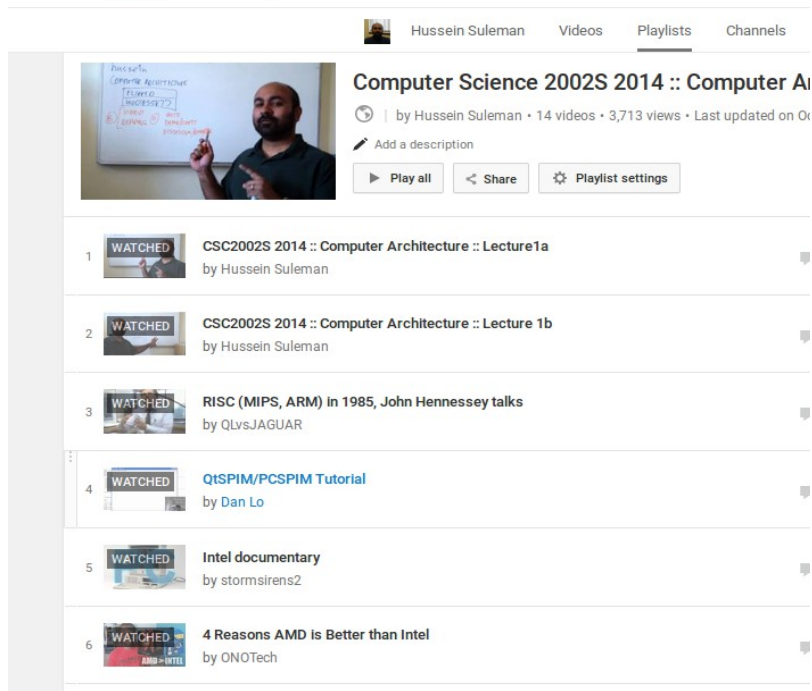
Computer Architecture

175 students

14 lectures



Videos and Readings



Mostly Youtube videos
Wikipedia+Free content

Why? subject matter
videos for excitement
readings for detail



	5	6	7	8	9	10	11	12	13	14	15	16
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Z	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>											

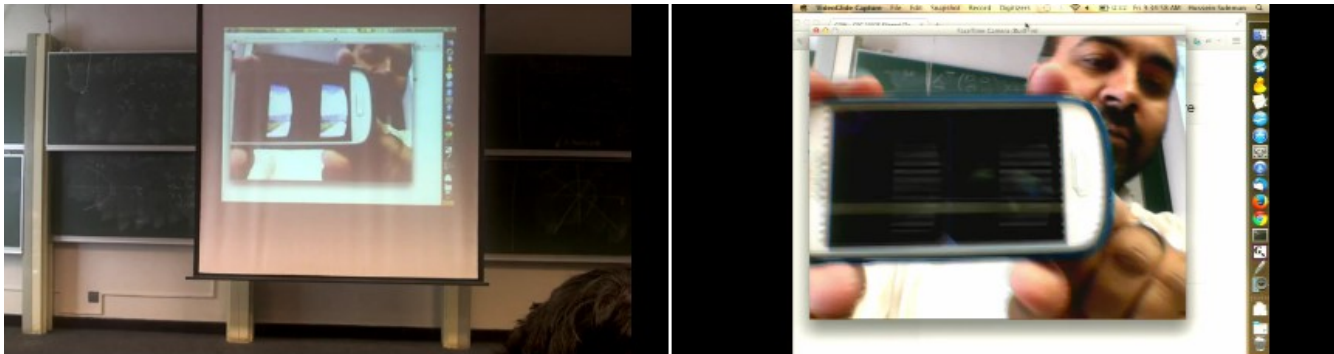
Done on paper.
Marked on computer.

Low-tech in class.

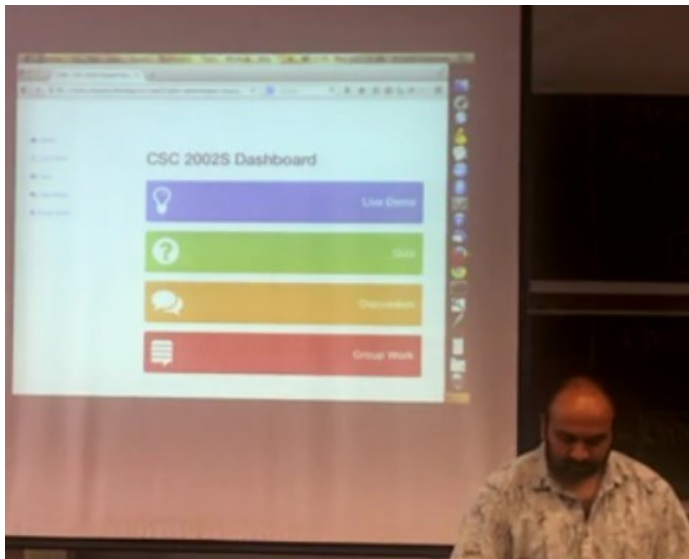
Demonstrations

Link back to
practical
aspects of
course.

Common tech (e.g., phones).
Virtual machines and
emulators.
Laptop+webcam.



Classroom Orchestration



Organize multiple aspects of the course.

Single tool to simplify and manage class activities.



Evaluation – Student Reaction

	Readings	Videos	Quizzes	Demos	Discussions
Positive	19	46	31	58	49
Neutral	25	21	30	15	22
Negative	32	9	15	3	5





Evaluation - Comments

- ❑ “the theory was too much and it is difficult to understand without having done the things practically”
- ❑ “some pre lecture readings took quite a long time to go through the day before a lecture”
- ❑ “needs to give better notes and not just wikipedia pages”
- ❑ “I feel like no effort was put in with making our readings wikipedia pages ... And the fact that it was wikipedia was slightly off putting ”





Evaluation - Orchestration

- Students did not notice the tool explicitly.
 - Although 87% thought the organization of the lectures was good-excellent.
- Lecturer was able to switch tasks without changing applications.





Observations

- Many students have preconceptions about:
 - the course and what it entails
 - how courses should be taught
 - what type of text should be used
- Many students do not and cannot read
 - cannot select and cannot understand
- Many students can only learn in one way
 - need to learn how to learn





Where to now?

- ❑ Same technique used in 2015
 - Similar results, more reading issues, class ended suddenly because of protests
- ❑ Need interventions for reading, note-taking, etc.
- ❑ Need to move students out of comfort zone earlier in degree.
- ❑ Need to train specific graduate attributes into a varied student audience.



questions, comments, ...



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