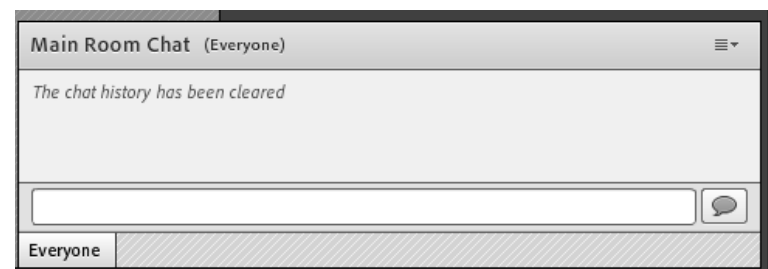
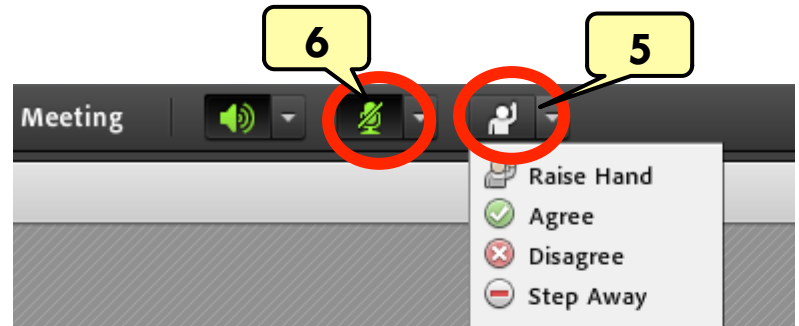
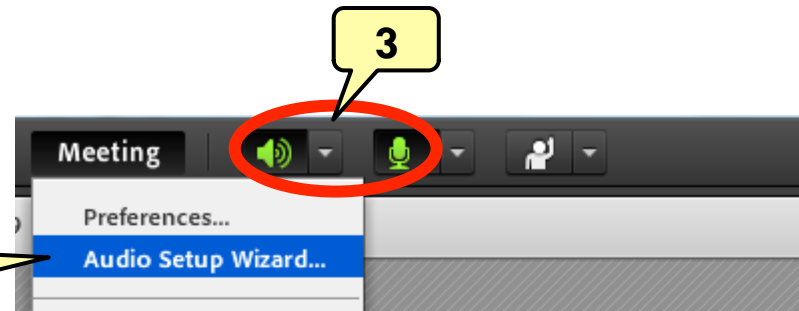


# Welcome! As you enter the room, please...

- ❑ Plug in your headset (if available).
- ❑ Enable your speakers and mic (the icons on the top bar should be green).
- ❑ Run the audio setup wizard (see the “Meeting” menu on the left of the screen).
- ❑ “Raise your hand” by clicking the icon to let the hosts know you are ready to test your mic.
- ❑ After testing your mic, mute yourself by clicking the mic icon (to avoid background noise).

Feel free to use the chat at any time!





Start Recording!

# ECE Virtual Community of Practice



## Session 5

Focus on Deliverables

November 26, 2013

# Tentative Agenda



- Logging in, welcome, session goals (10 minutes)
- Overview of presentation structure (5 minutes)
- Mini presentations (70 minutes)
- Discussion of Spring VCP plans?
- Plans for Session 6 (5 minutes)

# Rules of Engagement



Create your own bubble of solitude:

- Close your office door
- Use a “Do Not Disturb” sign
- Turn off e-mail
- Silence or forward phone
- Avoid any other potential distractions

# ECE VCP Session 4 Goals



- Continue building our Community of Practice (CP)
  - ▣ As a whole (ECE VCP)
  - ▣ Within each of the 4 working groups
- Share preliminary plans for Spring 2014 class
  - ▣ Identify participants implementing similar techniques
  - ▣ Obtain feedback from the group

# Assignment for Session 5



- ▣ Complete the VCP mid-term survey.
- ▣ Start developing your deliverable, i.e., your implementation plan for your Spring 2014 class.
  - Draft a memo answering the following:
    - What will you do?
    - What will your students do?
    - What will your students learn?
    - Why did you choose this technique?
    - What challenges do you anticipate?
  - Prepare a 3-minute (informal) presentation describing your Spring 2014 plan.

# Presentation Structure



- Each participant will have up to 3 minutes to present.
  - Jill will keep strict time so everyone has a chance to present.
  - If time allows, we'll take questions/comments.
  
- During the presentations, think about the following questions and make notes. (This will be the basis for your homework!)
  - Which participants plan to implement techniques similar to mine?
  - Which participants will be teaching courses similar to mine?
  - Which participants plan to implement techniques that I have used before? What advice/insight can I give them?



# Presentation Order (Somewhat Random)



- ▣ Alisa Gilmore
- ▣ Nathalia Peixoto
- ▣ Nuri Emanetoglu
- ▣ Faramarz Mossayebi
- ▣ Liz Brauer
- ▣ Tim Kane
- ▣ Nisha Kondrath
- ▣ Matthew Watkins
- ▣ Aurenice Oliveira
- ▣ Sandra Soto-Caban
- ▣ Puteri Megat Hamari
- ▣ Mary Knox
- ▣ Shiny Abraham
- ▣ Nur Sisworahardjo
- ▣ Harry Powell
- ▣ Danai Chasaki
- ▣ Raghu Mudumbai
- ▣ Kennedy Aganah

# Plans for Control Systems Engineering

Alisa N. Gilmore

ASEE ECE VCP

Homework for Session 5

November 25, 2013

# What will I do?

- Create a new set of learning outcomes based on Bloom's Taxonomy.
- Create a sequence of look-ahead reading assignments before each meeting time.
- Create a small problem set to provide direct practice on specific outcomes covered in lecture and assigned after each meeting time.
- Incorporate a new type of homework structure using informal groups to validate answers during class time of the individual assignment homework.
- Homework would not be turned in but would be the foundation for clarifying understanding during lecture time.
- Allow time for informal groups to meet together to discuss and review problem sets and ask questions and fill out a sheet on unclear points.
- Review their sheets and address muddy points at next class before quiz.

# What will students do?

## Before Class:

- Complete look-ahead reading assignment on next topic. Answer concept questions.
- Work a problem set individually from today's topic.
- Review Problem set discussed during today's group session to prepare for quiz next time.

## During Class (75 min, 2x week):

- Clear up muddy points from last class's group session (10-15 min)
- Quiz - work one problem, answer a concept question (10-15 min)
- Discuss in informal groups - the previously assigned problem set. (15 min)
- Listen to Lecture (30 min)
  - New material concepts verified/discussed in lecture.
  - Problems/concepts presented more in-depth in lecture with examples.

# 7+4+4 min circuit-work

Nathalia Peixoto



innovative | diverse | entrepreneurial | accessible

- Objective: test if student-to-student (“forced”) interaction yields better grades in traditional quizzes.
- Plan: quantitatively compare groups through assessment during the following lecture (quiz).
- Control group: no change. Lecture-style delivery, discuss circuits as in the 7+4+4 experiment.

- **7+4+4 circuit-work experiment:**

15 min introduction (mini-lecture);

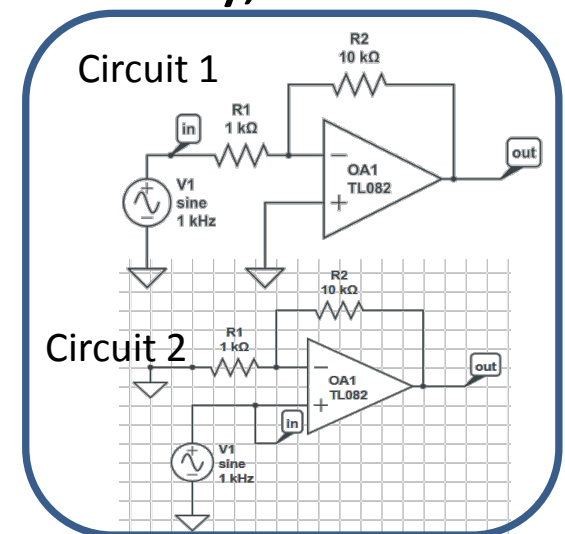
7 min: each person works through one circuit;

4+4 min: show each other (in a team), discuss differences;

15 min: one member reports back to class;

7 min: individual work; 4+4 min show each other;

15 min: “take home message”.



lecture	individual work	work in pairs	group work	individual work	work in pairs	take home
15	7	8	15	7	8	15

# Active Learning & ECE 343 -- Nuri Emanetoglu

## □ Planned modifications to ECE 343

- ▣ Rearrange lab sequence to implement project based learning
- ▣ Integrate real-time polling (TopHat or PollEverywhere) and group discussions to lecture

## □ Challenges

- ▣ Make sure lab sequence coherent, and students can progress to next assignment every two weeks
- ▣ How much content should be in lecture, and how much should students discover themselves in labs?
- ▣ Pacing of the lectures to accommodate group discussion and real-time polling

# Faramarz Mossayebi



## Personal Response System = "clicker"

High tech:



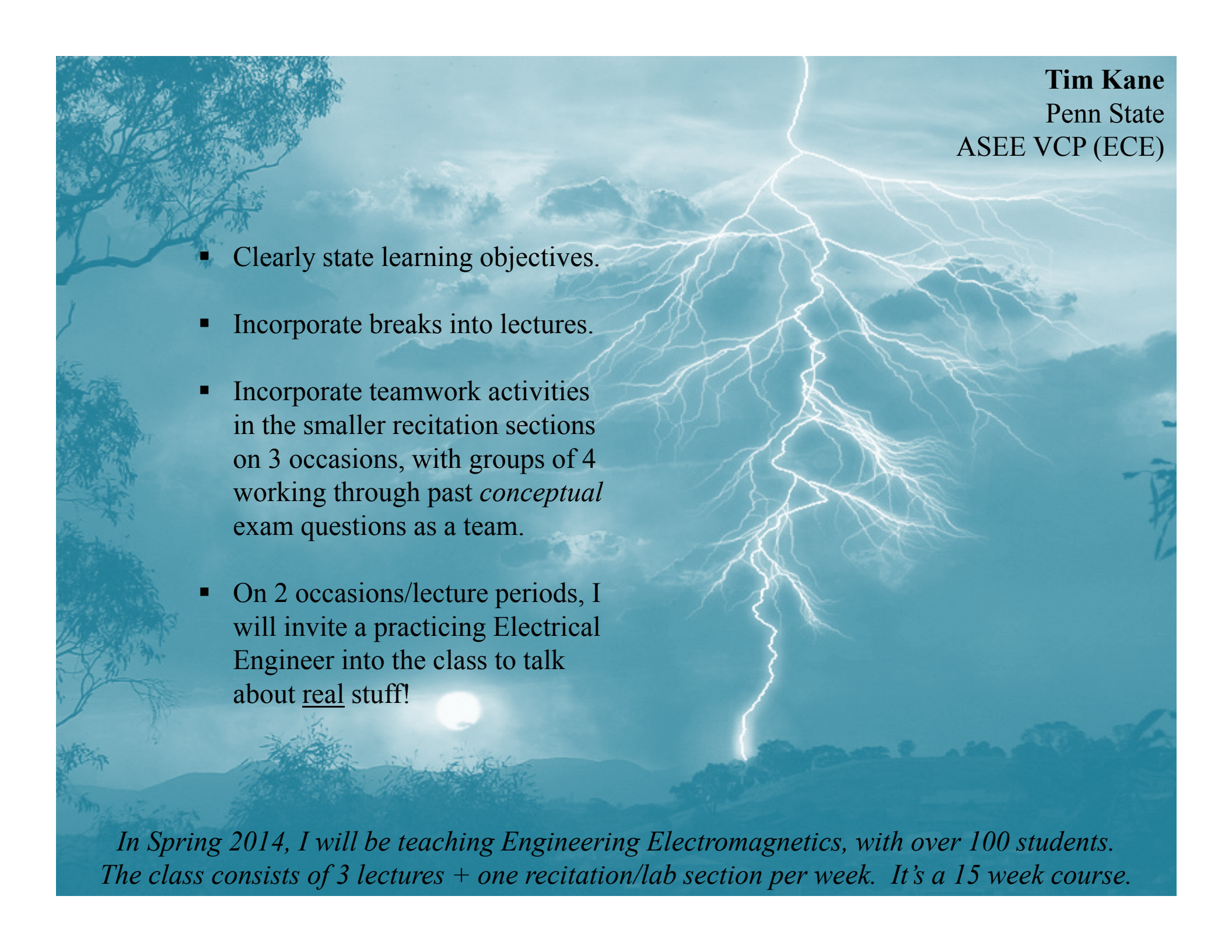
Low tech:



One class meeting in Spring 14:

- Develop several multiple choice questions with distractors
- Think-pair-share
  - Poll students for individual response
  - Share with partner
  - Poll after discussion
  - Note approximate results in each case





**Tim Kane**  
Penn State  
ASEE VCP (ECE)

- Clearly state learning objectives.
- Incorporate breaks into lectures.
- Incorporate teamwork activities in the smaller recitation sections on 3 occasions, with groups of 4 working through past *conceptual* exam questions as a team.
- On 2 occasions/lecture periods, I will invite a practicing Electrical Engineer into the class to talk about real stuff!

*In Spring 2014, I will be teaching Engineering Electromagnetics, with over 100 students. The class consists of 3 lectures + one recitation/lab section per week. It's a 15 week course.*

# Nisha Kondrath



# Watkins – Intro to Digital Logic

- Technique: Problem/Project-Based Learning
- Implementation
  - Students given modestly large and real-world-esque problem at beginning of course
    - Analysis and design components
    - Implementation in schematic and Verilog
  - Students will determine what they know and what they need to know
  - Small on-demand lectures/classes will teach students about requested topics

# Aurenice Oliveira



# Think-Pair-Share

- Students will be presented with a problem and will have 1 minute to think about how to solve it.
- Then, they will group in pairs to discuss the solution to the problem.
- Once they have a solution, teams will share their work with the rest of the group.
- 5 minutes/problem, 2 or 3 problems/class
- Challenges
  - Students not prepared for the class and not able to fully participate in the activities.
  - Students that don't want to work in pairs.
  - How to structure individual lectures.
  - Time constraints – time necessary to cover the material in the syllabus.

# Puteri Megat Hamari



# Think-pair-share/clicker

- overall goal
  - ▶ incorporate at least one think-pair-share or clicker exercise into lecture each week
- implementation
  - ▶ during the last 5-15 minutes of lecture introduce the problem
  - ▶ for simple questions: poll students before and after the think-pair-share (emphasizing that the students learned from their peers)
  - ▶ for more challenging questions: students work with each another for a few minutes, then as a class we discuss the steps necessary to achieve the solution

# Deliverables for Spring 2014- Linear Networks and Circuits –Shiny Abraham

## ▣ Technique: **Cooperative and Collaborative Learning**

▣ Motivation: I believe that working in a team enhances a student's academic and social experience. As a teacher, this would give me an opportunity to observe students while they take the center-stage and venture beyond their comfort-zones in exploring challenging topics.

## ▣ Strategies:

- Update my course syllabus to reflect the revised Blooms taxonomy.
- Incorporate more cooperative and collaborative learning techniques in my course.
- Assign both in-class and out-of-class team exercises.
- Use pre-lecture videos and quizzes to guide students, and to ensure active participation.
- Use CATME to form student teams.
- Dedicate a lecture/lab class to teach teamwork skills and expectations.
- Use available self-assessment and peer-assessment techniques.



# Nur Sisworahardjo



# Innovations : University of Virginia

## Electronics 1 – Harry Powell

- Large Class (> 100 Students)
  - Introductory Electronics (diodes, bjt, mosfet, opamp, etc.)
  - 2 1.5 hr lectures per week
  - 5 lab sections per week – 20-24 students each
  
- Lab Sections
  - Concept of rotating responsibilities on weekly basis
  - Administrative challenges using CATME for student lab teams
  
- Lecture Sessions
  - Content to include introductory Signals and Systems Concepts
    - Frequency Response
    - Harmonics
    - Distortion – relevant to amplifier models
  - Go to interactive format in class
    - In class design exercises
    - In class electronic quizzes
    - Administrative challenges

# Danai Chasaki



# Raghu Mudumbai

ASEE VCP, Nov 25 HW

Raghu Mudumbai, University of Iowa

Teaching technique for Spring 2014, Circuits

This is a required class for all engineering majors (not just ECE) at Iowa. In fact, the Spring version of this class is dominated by non-ECE majors, because the recommended sequence for ECE majors involves taking this class in the Fall. Thus this class will have mostly, Civil, Chemical, Biomedical and Mechanical/Industrial students with a smaller number of ECE students who happened to go out of sequence. For non-ECE majors, this class is not a pre-req to anything else in their curriculum.

A key challenge will be to make Circuits interesting, relevant and useful to this group of students.

1. *What will you do?*

Part of one lecture every week to be dedicated to an active learning method. My class uses a textbook published by Wiley that supports something called Wiley-Plus, wherein online tests can be administered to students each of whom will get a slightly different variant of the problem (e.g. different numerical circuit parameters).

The class is scheduled to meet for three 50 min lectures every MWF. My plan is to assign required reading (possibly augmented with video, multimedia learning resources) every weekend and a related quiz on Wiley-Plus. This will ensure students will come into the Monday lecture (hopefully) having done some additional reading after the Friday lecture.

2. *What will your students do?*

Group problem solving in class every Monday.

3. *What will your students learn?*

Additional material from the lectures.

4. *Why did you choose this technique?*

I have yet to flesh out the details of how this will work. I am working within some very strong constraints, dictated by the very large size of the class, the expected diverse disciplinary background of the students, lack of any flexibility on topics, syllabus, text etc. I expect that I will be refining this as I go along.

# Group-Based Learning

- What I you do?
  - ▣ I would be incorporating group-based activities to get students develop teamwork skills. I will do this by making 5-10mins discussions a regular part of the class.
- What will my students do?
  - ▣ Regular 5-10 minutes group discussions (use **CATME Team-Maker** to make teams). Students will assigned specific tasks. Their roles will be changed with time.
- What will the students learn?
  - ▣ Learn to teamwork skills and reporting. Assignments will help them learn the course material in a gradual manner.
- Why did I choose this technique?
  - ▣ Group-based activities are livelier than traditional lectures.
- What challenges do I anticipate?
  - ▣ Making groups work effectively will be a challenge at first, time constraints

# Plan and Homework for Session 6

- Create a document answering the questions below, which you were asked to think about during the presentations. Upload your document to the portal.
  - Which participants plan to implement techniques similar to mine?
  - Which participants will be teaching courses similar to mine?
  - Which participants plan to implement techniques that I have used before? What advice/insight can I give them?
  
- Next week's focus: Creating a Positive and Inclusive Learning Environment
  - Read Chapter 6 of How Learning Works, "Why do student development and course climate matter for student learning?" (posted on the portal)
  - On the blog, describe something you already do to create an inclusive learning environment and something you could add/change.
  
- All homework due by Monday, December 2, at 12 pm EST.