

Flip Class Learning 2018

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THE TOWN

(OUTCOME PERFORMANCE CRITERIA FOR ALL CLASS)

- 1: Demonstrate an ability to perform civil engineering process design, component and system design to meet defined constraints.
- 2: Demonstrate ability as a member of a team to lead, interact, communicate in a professional manner with other members on the team and contribute discipline-specific input to a multi-disciplinary project.
- 3: Demonstrate an ability to identify, formulate and solve engineering problems, including design, in the following civil engineering areas: Environmental, Geotechnical, Structural, Transportation and Water Resources.
- 4: Demonstrate an ability to identify and apply codes, standards and regulations.
- 5: Demonstrate an ability to give an oral, individual or group, presentation that is organized and uses effective visuals.

Commented [RM1]: These are very, very broad learning objectives. For your lesson plan you should concentrate on one specific topic or content area within your class and then lay out basic and advanced learning objectives linked to that one content area.

THE HOUSE (LEARNING OUTCOMES) (All Class)

- a) Design and analyze individual components and elements for reinforced concrete structural system utilizing the ACI 318-14, IBC-2015 and ASCE 7-10 standards/codes. (Outcomes 1, 3, 4)
- b) Work as a member of a design team, participate in the writing of a design and planning reports with Engineering CAD Drawings and gives an effective oral presentation. (Outcome 2, 4 & 5)

What do students do before class? Need to lay out the pre-class activities separate from the in-class and post class.

What is the timeframe and resources needed for this lesson plan?

Provide some background to the lesson and introduce the lesson?

Evaluation and Connections section?

THE BRICK (One Class)

Specifically the student will be able:

Explain the concept of R.C. Design reinforced concrete beam for bending utilizing current standards/codes. (Related to Outcomes 1, 3 and 4)

<p>INSTRUCTOR (PREP WORK) (BASIC LO) Provide student with example on shear and bending moment on canvas with instruction to read section 3.1-3.5 from textbook Provide student with problem to draw bending moment diagram and find max moment on Canvas.</p>	<p>STUDENT (DO OUTSIDE CLASS) Read example provided Read assigned sections from book Solve assigned problem for bending moment</p>
<p>ACTIVE LEARNING (50 minutes class) (ADVANCE LO)</p>	
<p>INSTRUCTOR (DESCRIPTION & TIME REQ) Use Clicker for address the preparation work Time: 5 minutes</p>	<p>INSTRUCTOR (MATERIALS REQUIRED) Prepare Materials for Clicker</p>
<p>INSTRUCTOR (DESCRIPTION & TIME REQ) Derive Equations for the design concept studied by the students. Time: 20 minutes Time 5 minutes Q & A</p>	<p>INSTRUCTOR (MATERIALS REQUIRED) Provide typed handouts summarizing the equations. Can be uploaded on CANVAS</p>
<p>INSTRUCTOR (DESCRIPTION & TIME REQ) Solve example on the design problem studied by students (section 3.1-3.5) book Time: 10 minutes Time 5 minutes Q & A</p>	<p>INSTRUCTOR (MATERIALS REQUIRED) Provide example on CANVAS</p>
<p>INSTRUCTOR (DESCRIPTION & TIME REQ) (POST LEARNING) Assign new instruction for next outside class work. Time: 5 minutes</p>	<p>INSTRUCTOR (MATERIALS REQUIRED) Post on CANVAS the new instruction to prepare for next class. Additional assignment given.</p>

Commented [RM2]: Clarify what is the Basic LO?

Commented [RM3]: Need to link activities to the learning objectives?

Commented [RM4]: Need to link activities to the learning objectives.

TEXTBOOKS

M.N. Hassoun, A.A. Al-Manaseer
 Structural Concrete - Theory and Design, John Wiley and Sons, 6th edition,
 ISBN 978-1-118-76781-8, 2015.

ACI 318-14, IBC 2015 - Building Code, ASCE 7-10.