

Promoting Deeper Understanding With Working Models

Low-cost Manufacturing-Simple and inexpensive to construct-made of off the shelf materials-miniaturized-see through and costs less than a textbook.

Examples of Survey Questions

Due to the use of hand held plastic model exercises I'm confident I could understand the most complex model-related material presented by the instructor in this course.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Since I used the hand held plastic model exercises I'm confident I could learn the basic concepts related to the models taught in this course.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Using hand held plastic model exercises made me to ask myself questions to ensure I understand the material I have been studying for this class.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

The use of hand held plastic model exercises inspired me to go back and try to figure out some concept(s) I became confused about while reading for this class.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Thanks to using the hand held plastic model exercises I'm confident I could do an excellent job on the related assignments and tests in this course.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree



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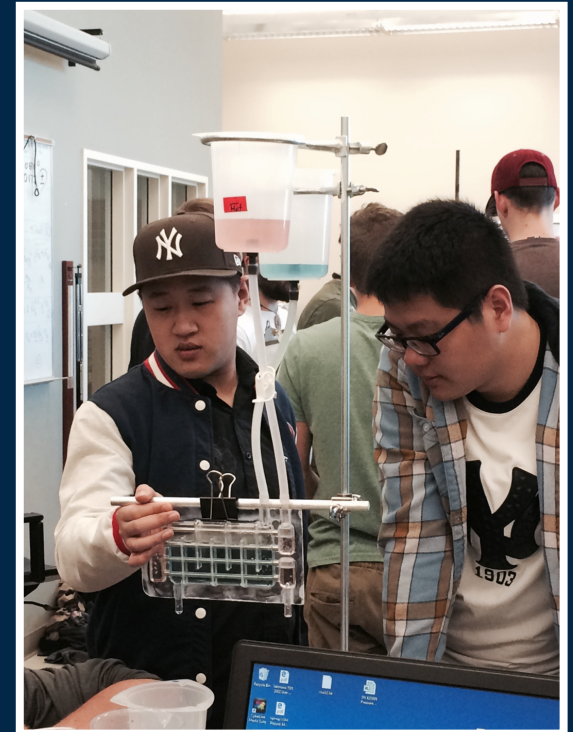
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Portable Hands-on Interactive Learning

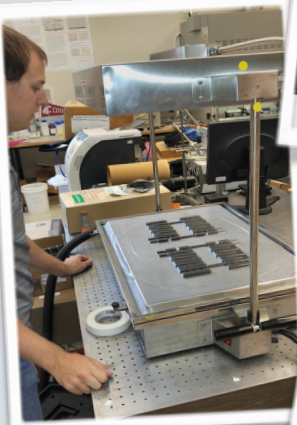


A collaborative research project partnering Kenai Peninsula College, Washington State University, and NSF-ATE

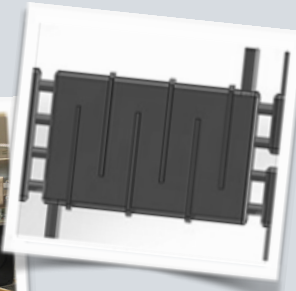


Low Cost Manufacturing

3-D Print Inside



Molded Heat Exchanger



Vacuum Form



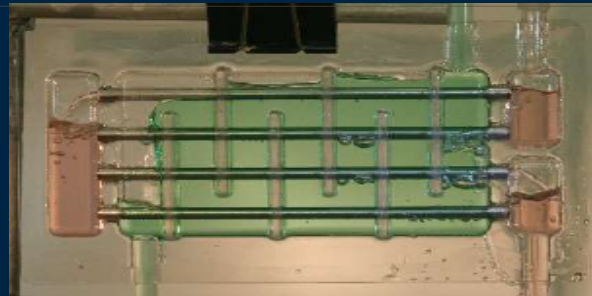
Laser Cut



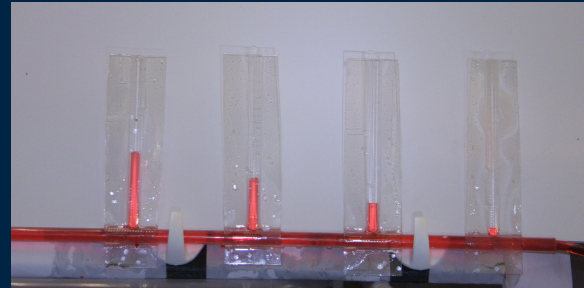
Assemble



Leak Testing



Heat Exchanger



Pressure Drop



Eductor



Mobile

Table 4: Project timetable.

	Yr 1 2016/2017			Yr 2 2017/2018			Yr 3	
	Sum	Fall	Spr	Sum	Fall	Spr	Sum	Fall
Task #1 New LCMIE specific to PTEC needs								
<i>Design / Construct Alpha Version Injector</i>								
<i>Test / Refine Injector – 3 Iterations</i>								
Task #2 Materials for implementation of LCMIEs								
<i>Determine Subject Matter & Content Level</i>								
<i>Design Activities for Content Breadth & Depth</i>								
<i>Design Materials for Classroom Use</i>								
<i>Develop Facilitator's Manual</i>								
Task #3 Implement LCMIEs; assess & refine								
<i>Develop Assessment Tools</i>								
<i>Collect Control Data</i>								
<i>Implement & Assess the LCMIE & Activities</i>								
Task #4 Disseminate instructional materials								
<i>Informal Dissemination Activities</i>								
<i>Presentations & Instructional Workshops</i>								