3D Printing–Learn by Building

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UConn 2016 fall

Summary

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  - introduces the principles in 3D printing.

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  - introduces the principles in 3D printing.

  - offers a hybrid learning experience that focuses on the **mechatronics** and **design** of 3D printing machines.

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  - blended: some online contact displaces some portion of the face-to-face class
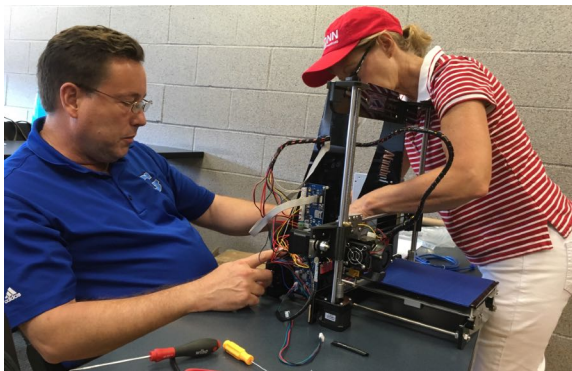
You will do:

Figure 1: 12 high-school teachers built 5 3D printers within 3 hours (2016 UConn Joule Fellows Program)
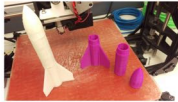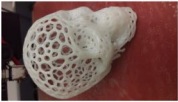
learn:

CAD Training

and use:

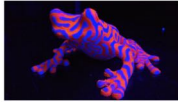# with a goal of making:

and more importantly, to develop *creative thinking* about the involved *sciences* and *engineering*.

Figure 2: New York Times (future) ad on Nov. 11, 2014

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- *contextual learning*:

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- *contextual learning*:
  - extensive **hands-on** activities—you will build 3D printers and participate in a design competition

Blended learning

- course website: http://wp.handson3d.engr.uconn.edu
- announcement and modules: huskyCT (lms.uconn.edu)
- pre-class reading assignments
    - watching videos
    - online "creative thinking" modules
- post-class assignments
    - CAD design
    - assembling
    - creativity tests
- in-class quizzes
- more details in syllabus
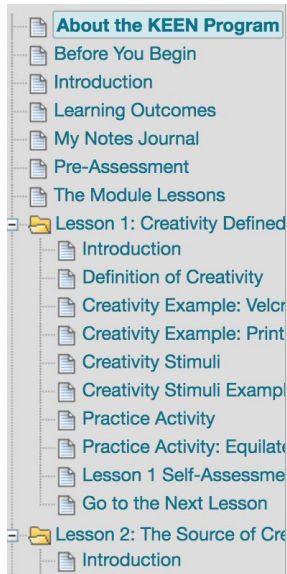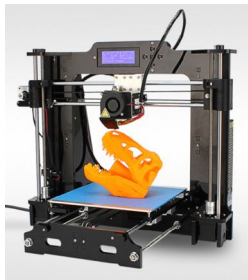
Online e-learning module

Figure 3: KEEN learning module on creative thinking

Kit building and design competition
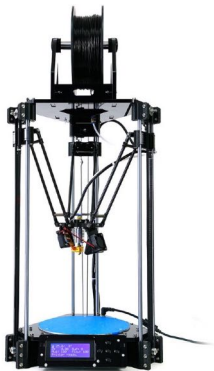
Kit building and design competition

- work in teams of 3 to 5
- final design competition at the Student Union
- evaluation metrics:
  - Kit Building
  - Modeling & Creativity
  - Technical Competence

Grades

- Participation: 5%
- In-class and online quizzes: 15%
- Homework: (5*3%=)15%
- 3D printing kit building: 15%
- Design competition: 30%
- Presentation and report: 20%

There will be rewards

- opportunity to obtain a Solidworks certificate
- winning team will receive an honorary plaque

It will be different

- there will be times that we encourage/need you to use computers in class
- some online contact will displace some portion of the face-to-face class

Instructors

- Prof. Xu Chen, Mechanical Engineering
  - Office: UTEB 382
  - Phone: (860) 486-3688
  - Email: xchen AT uconn.edu
  - Office Hour: Wednesday 1:00pm-2:00pm
- Adam Wentworth, Materials Science and Engineering
  - Office: ENGR II 303
  - Phone: (860) 639-6961
  - Email: adam.wentworth AT uconn.edu
  - Office Hour: Monday 2:00pm-3:00pm

Teaching Assistants

- Leslie Prunier (leslie.prunier@uconn.edu)
  - Office Hour: Mon (12:00pm-3:15pm), Wed (3:30pm-5:00pm), Thur (9:30am-2:30pm) (tentative location: Homer Babbidge Library, 3D Printing Studio)
- Stephen Hawes (stephen.hawes@uconn.edu)
  - Office Hour: Mon-Wed (8:00am-12:00pm) (tentative location: Homer Babbidge Library, 3D Printing Studio)

What's next

- complete pre survey in huskyCT
- form teams by Week 2