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The best of both worlds in fully online master's: Integrating Open edX and Canvas

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Outline

- Course Context & Background Information
- Instructors' Needs & Platform Decision
- Deep Dive into Platform Features
  - Canvas structure with content integration
  - Open edX
  - Canvas
- Reflection & Future Implications

Course Background

Materials Science 204: Thermodynamics & Phase Equilibria

Materials Science 156/256: Solar Cells, Fuel Cells, and Batteries

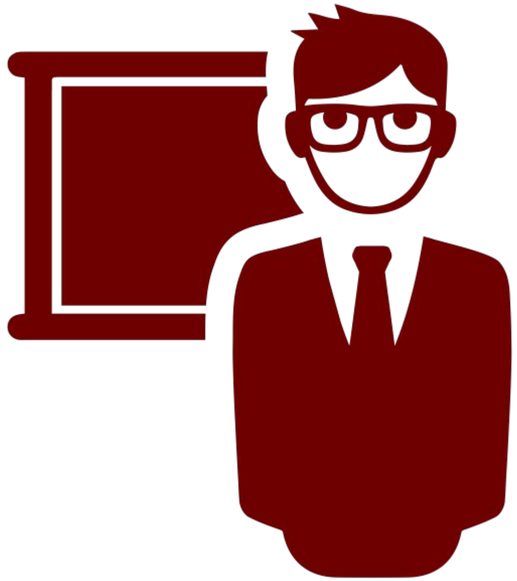
Reduce the amount of time to be on campus

Expand the courses to a broader audience

Offered in Summer 2018 as a pilot

Planning started in December 2017

Instructors' Needs



- Offer interactive student experience
- Integrate constructive response opportunities
- Assign problem sets & exams with manual grading
- Implement prerequisites
- Provide the space to ask questions
- Provide seamless user experience

Platform Features

Why Pick One When You Can Have Both?

POWERED BY OPENedX

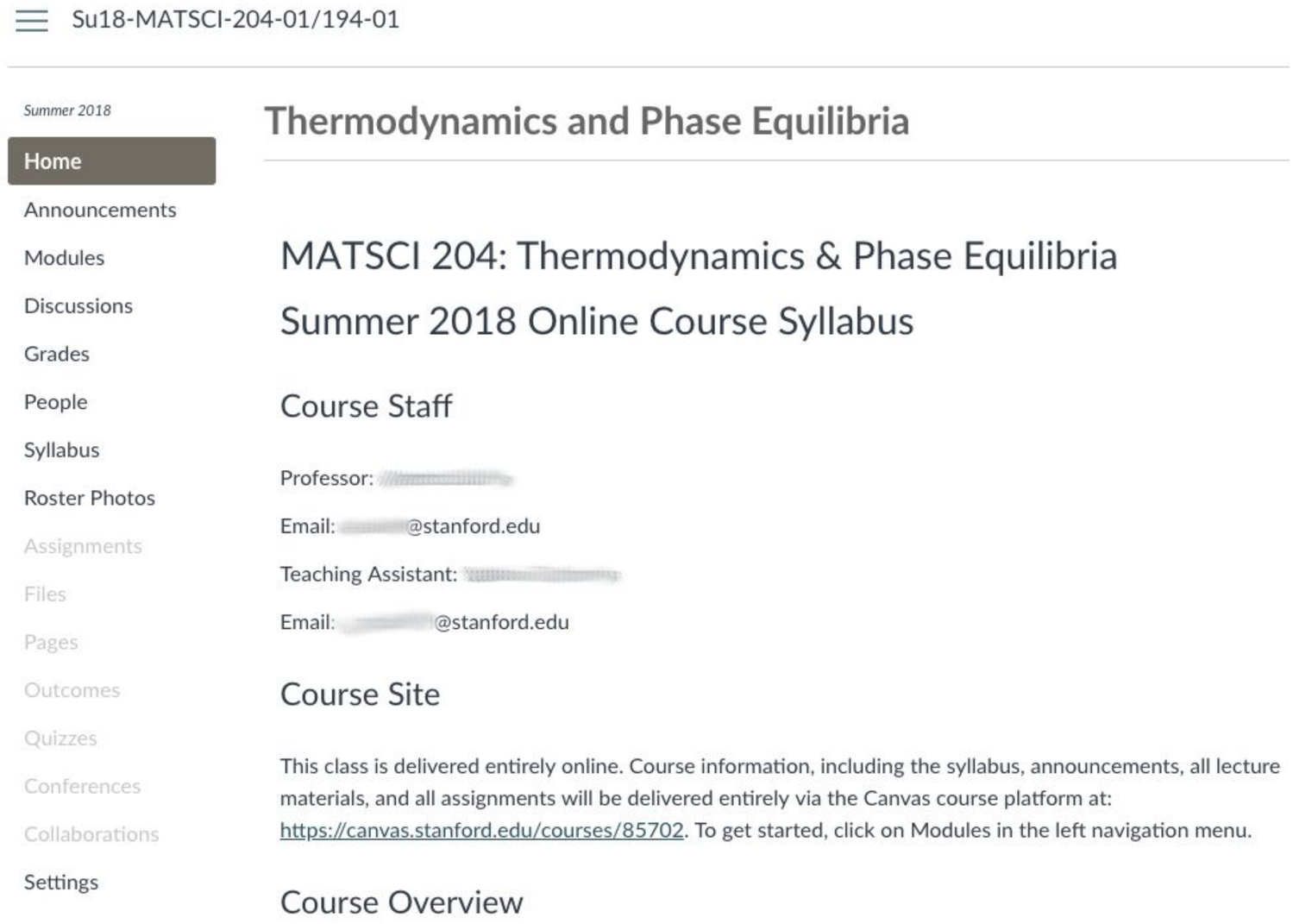
- Student interaction and engagement features
- Interactive video player
- Robust assessment (e.g. peer instruction, drag and drop, submit and compare)
- Supports LTI integration to the other platform

canvas

- Registration system linked
- Assignment/exam feedback using SpeedGrader
- Discussion forum
- More flexible use of prerequisites

Canvas Platform Navigation

- Canvas features and tools are listed in the left hand column
- Instructor decides which features to use and show learners

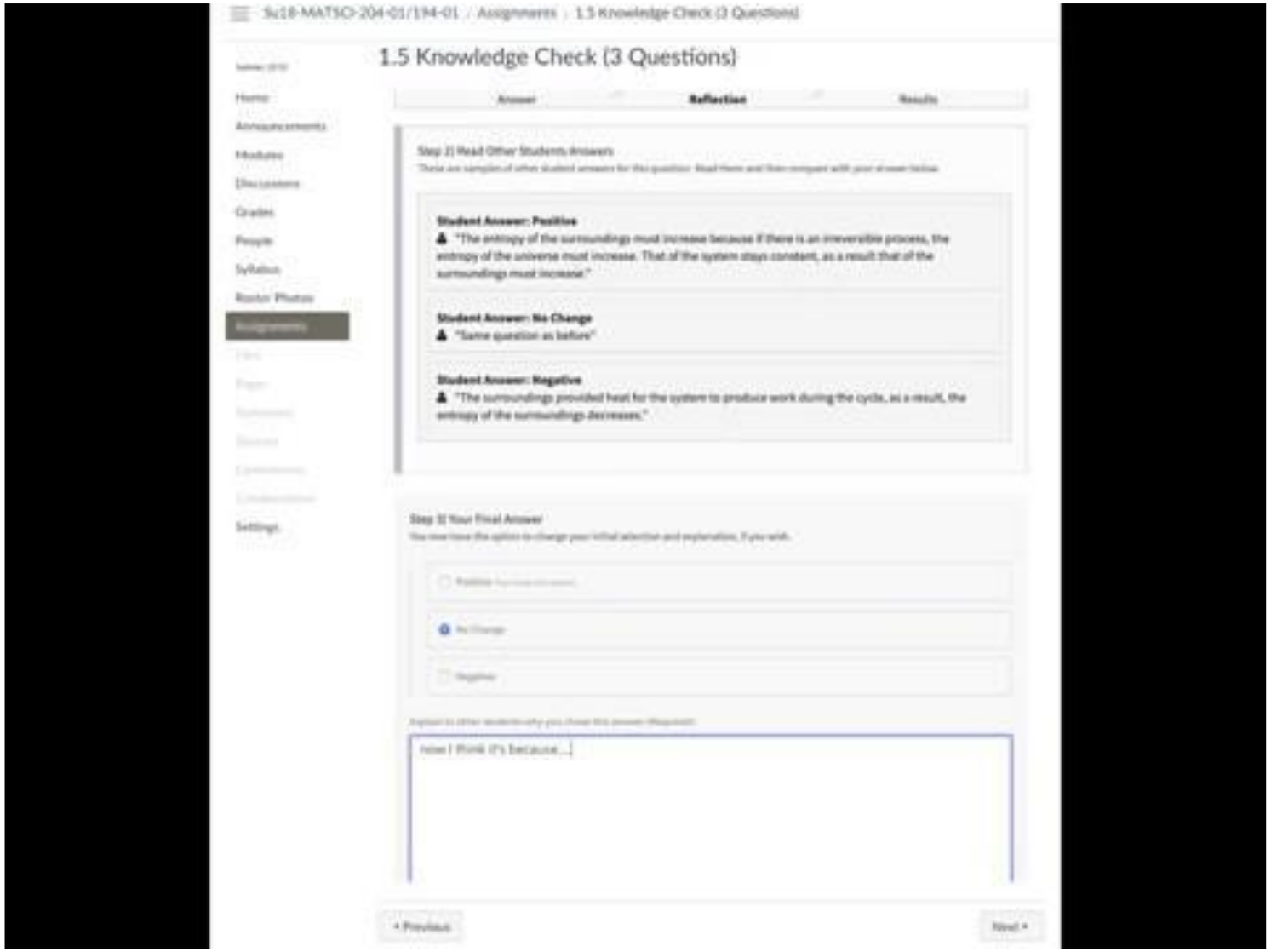


Canvas Structure & Content Integration

- Canvas Modules organize content and create a flow/progression through material
- Various types of content can be displayed in Modules, including external content through LTI
- Integration is seamless and all Open edX functionality is available

EdX Robust Assessment - Peer Instruction

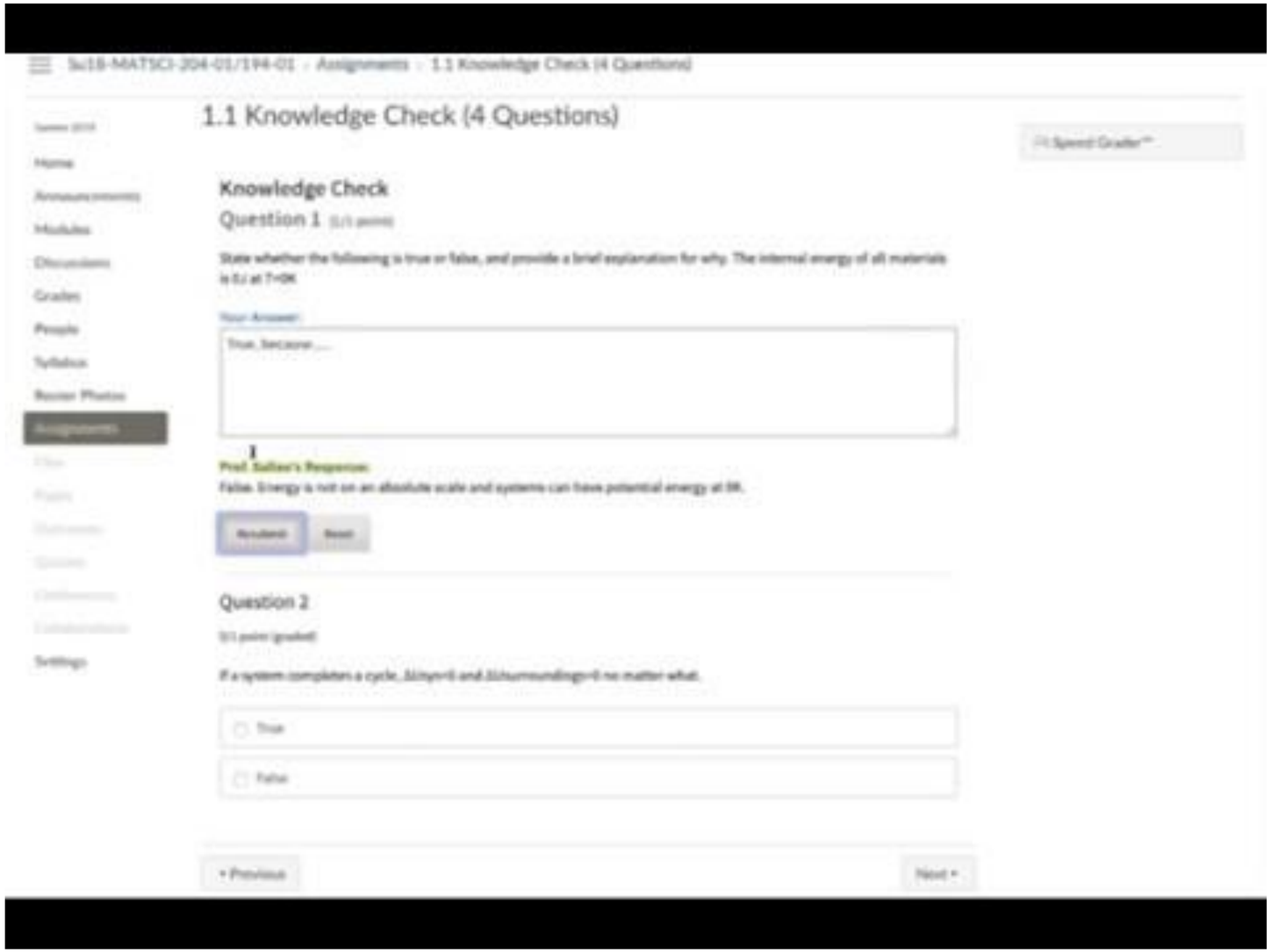
- Multiple-choice question where learner provides explanation for choice
- After submitting, learner sees peers' explanations for different choices and can change answer and explanation
- Provides a sense of engagement and interaction with peers in online environment



https://edx.readthedocs.io/projects/edx-partner-course-staff/en/latest/exercises_tools/peer_instruction_tool.html

EdX Robust Assessment - Submit & Compare

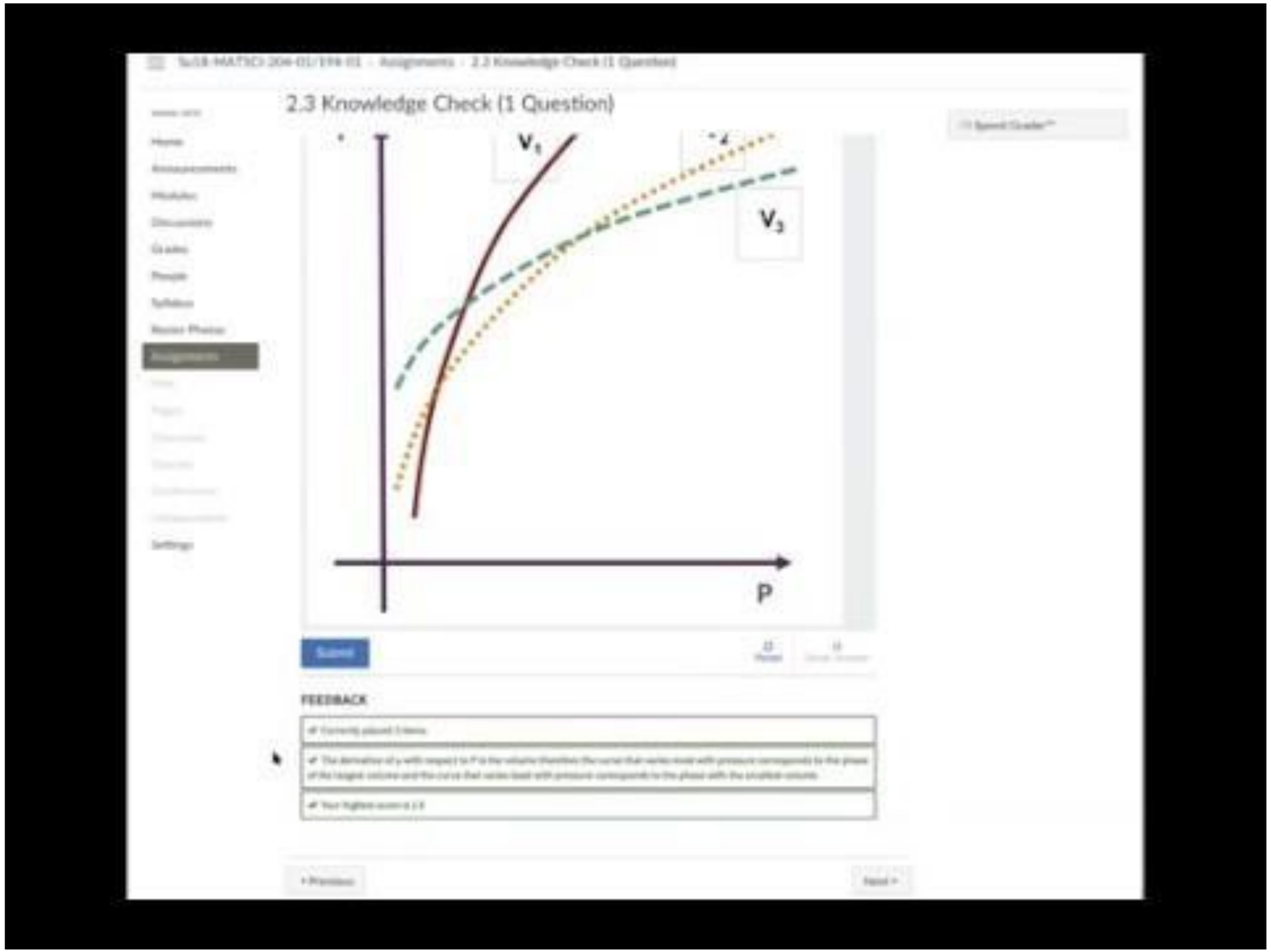
- Free text response submission
- Learner receives expert or model answer from instructor to compare their own response
- Xblock developed by Open Learning Initiative (OLI)



https://github.com/openlearninginitiative/xblock-submit-and-compare

EdX Robust Assessment - Drag & Drop

- Constructed-response question (not selecting from a set of options)
- Feedback can be provided in various ways



Platform Features

POWERED BY OPENedX

- Great students interaction and engagement features
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canvas

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Canvas - Pen and Paper Assignment

Homework 1

Submit Assignment

Due Jul 8 by 11:59pm **Points** 25 **Submitting** a file upload **File Types** doc, docx, pdf, and txt

To submit this assignment, complete the following Homework Problems on your own paper. Once complete, scan the completed document and upload as a PDF, Word doc, or .txt file. All submissions must be uploaded by Sunday, July 8 @ 11:59 pm PDT.

Note: If you need additional resources to solve these problems, please refer to Unit 2 videos.

Complete problems 1, 3, 4, 5, and 9 from the Unit 1 Homework Problems.

View or download the complete set of Homework Problems.

Tip: Midterm and Final exam will be in the same format with limited time given. You might want to use this homework assignment to estimate the time you take to upload and submit the answers so that you can finish the future exam in a given time.

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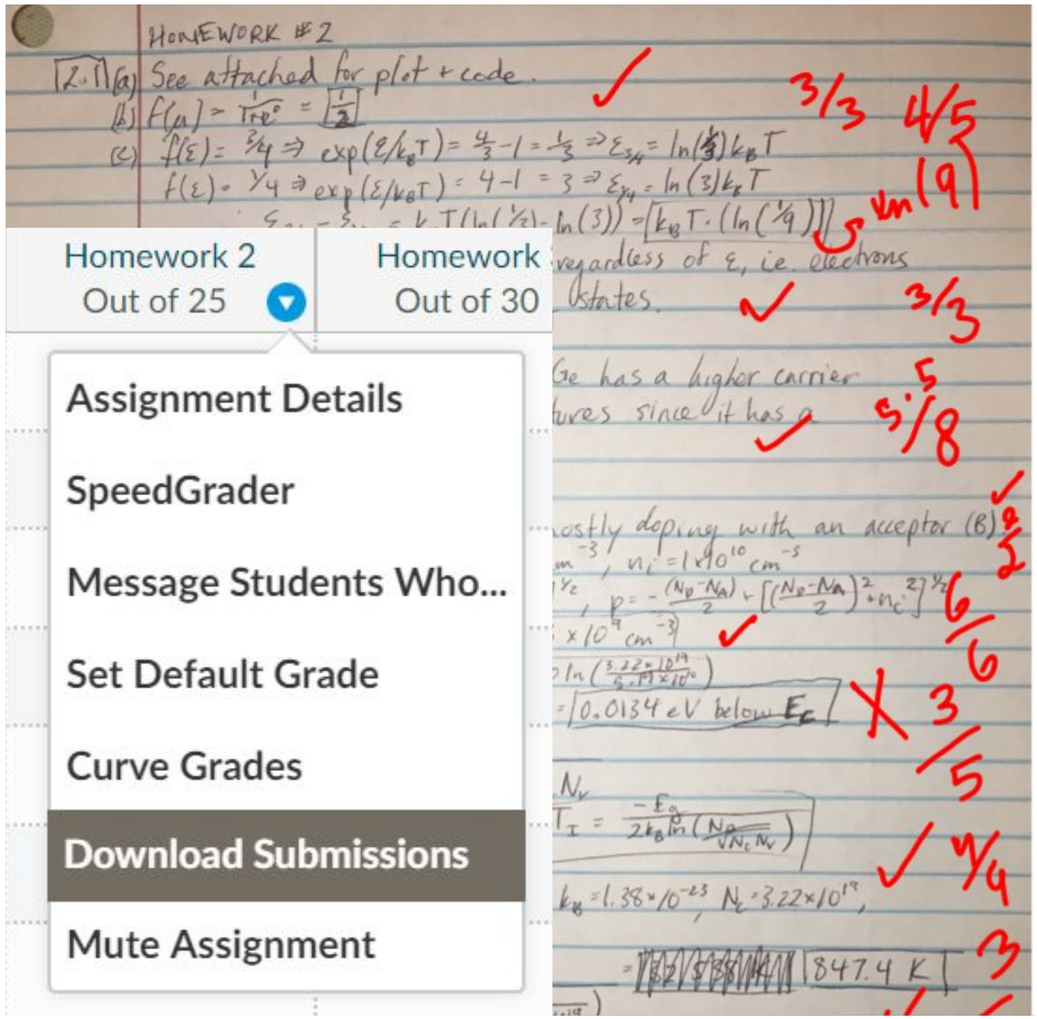
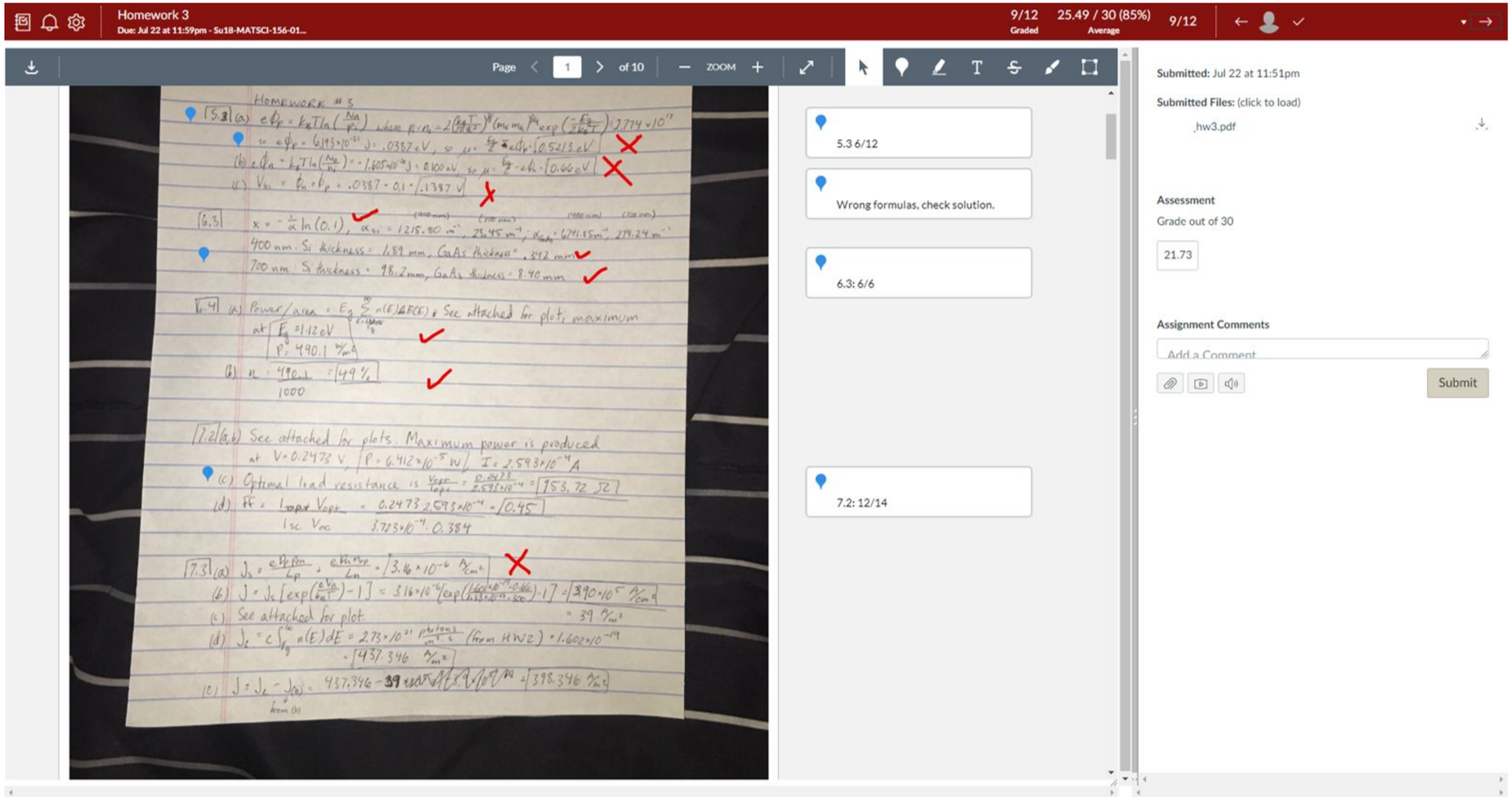
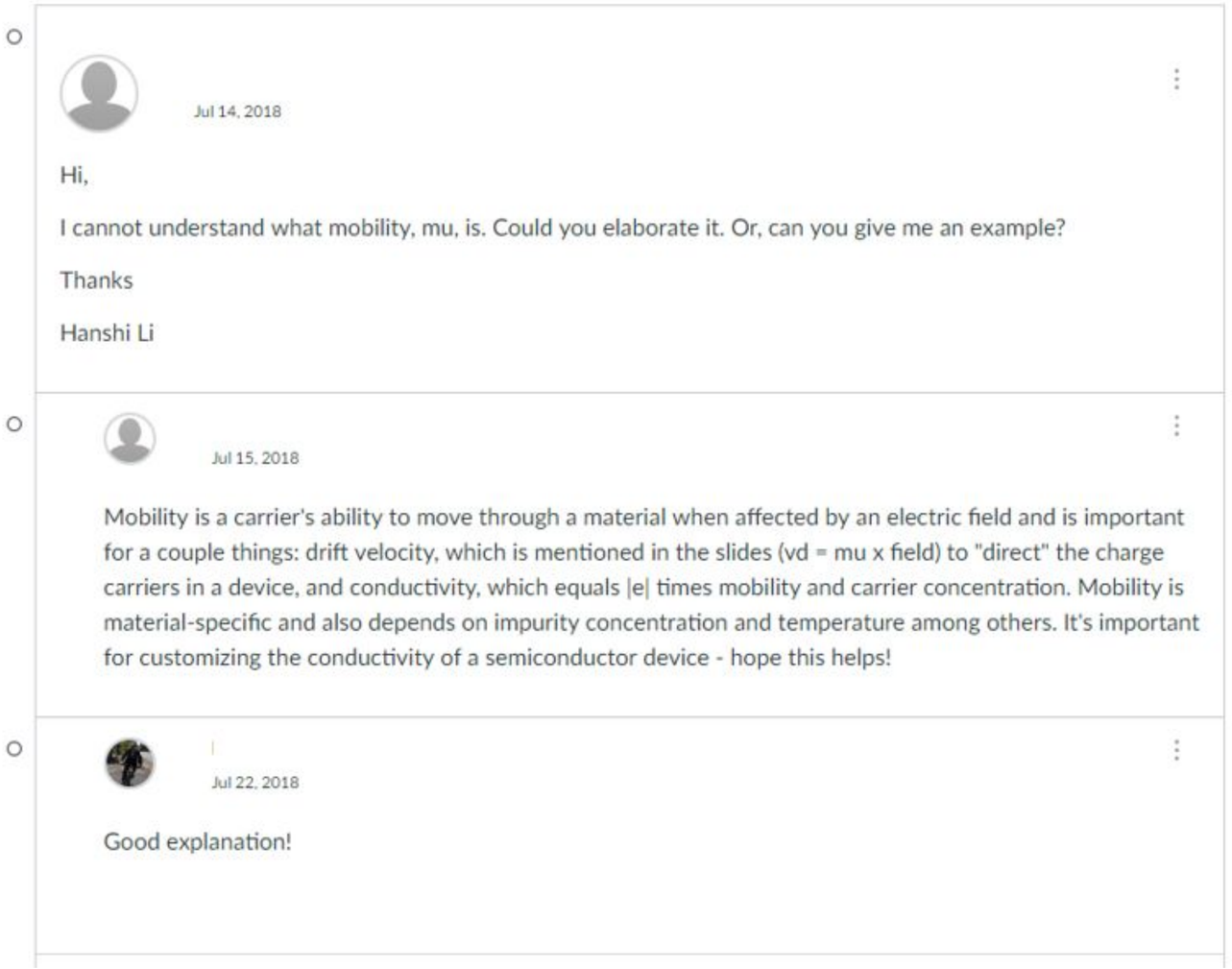


Canvas - Grade Assignments Using SpeedGrader



Canvas - Discussion Forum

- Canvas forum for Q&A
- Open edX inline discussion cannot be used



Jul 14, 2018

Hi,

I cannot understand what mobility, mu, is. Could you elaborate it. Or, can you give me an example?

Thanks

Hanshi Li

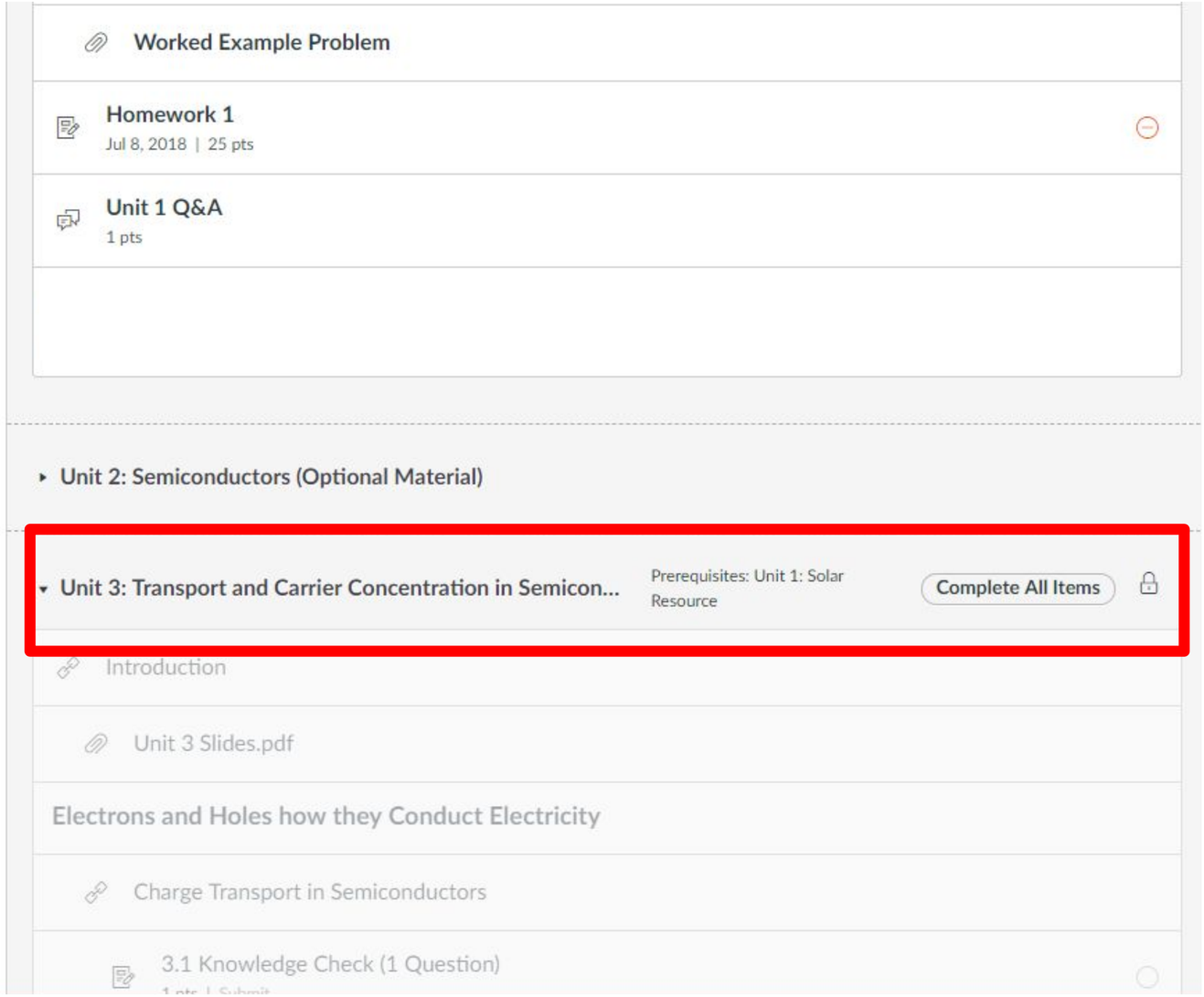
Jul 15, 2018

Mobility is a carrier's ability to move through a material when affected by an electric field and is important for a couple things: drift velocity, which is mentioned in the slides (vd = mu x field) to "direct" the charge carriers in a device, and conductivity, which equals |e| times mobility and carrier concentration. Mobility is material-specific and also depends on impurity concentration and temperature among others. It's important for customizing the conductivity of a semiconductor device - hope this helps!

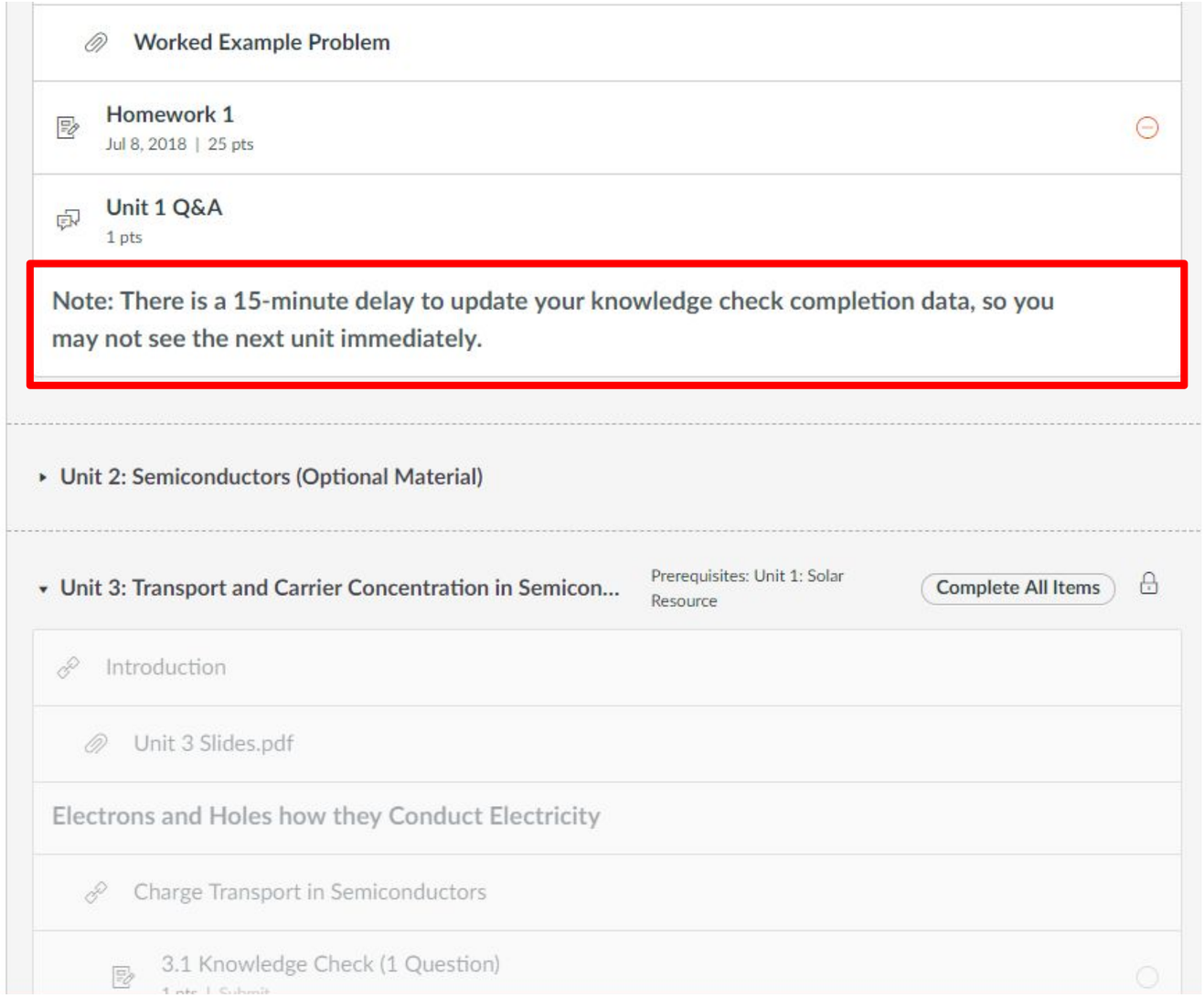
Jul 22, 2018

Good explanation!

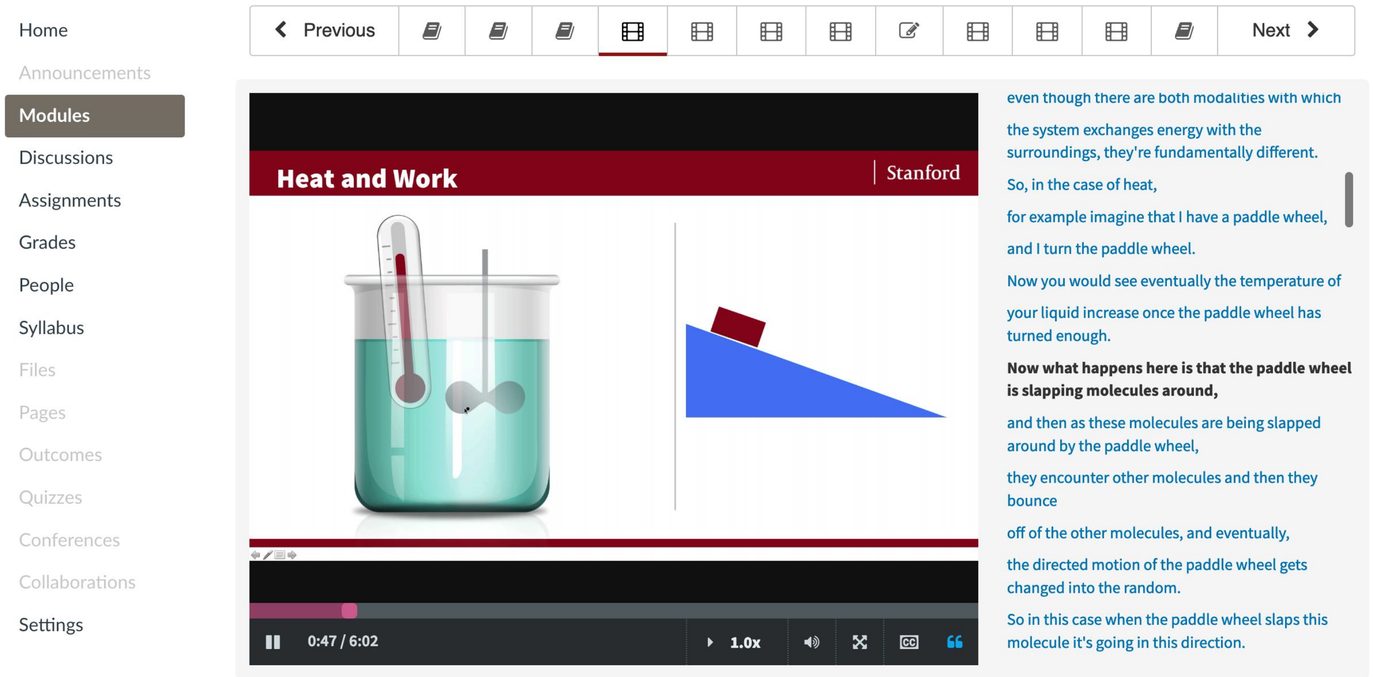
Canvas - Prerequisite Feature



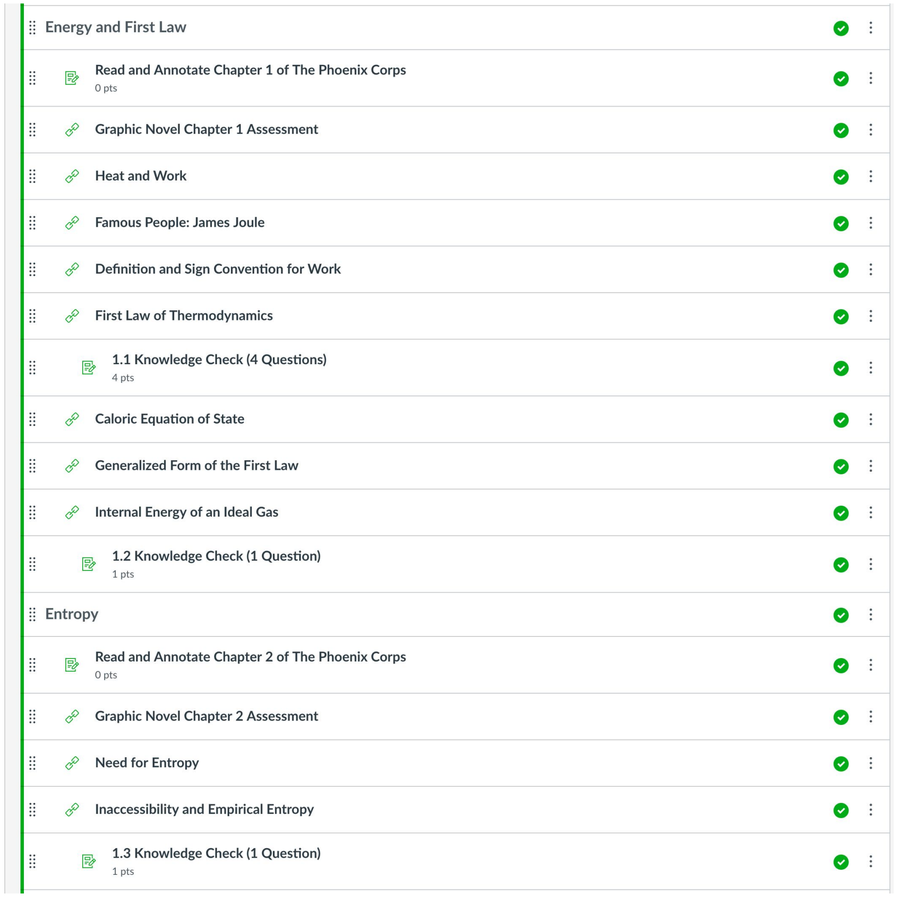
Challenges - Server Delay



Challenges - Level of Content Integration



Canvas "Module" Layout



Reflection

MET INSTRUCTORS' NEEDS BY USING BOTH PLATFORMS

Included robust assessments and streamlined the user experience

NEED MORE USE CASES WITH HIGHER ENROLLMENT

Encountered low enrollment due to summer, optional quartering course offering with late promotion

Future Implications

DEVELOP PUBLIC-FACING OFFERINGS

Make it public and allow other faculty to use the assets

DEVELOP FULLY ONLINE INTRODUCTORY COURSES

Expand the offerings to include introductory courses

INTEGRATE CUSTOM PROBLEMS

Take advantage of Open edX's custom-graded problems


Q & A

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Transforming Learning Together

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Overview of how to set up the LTI integration

In Open edX:

- LTI provider option needs to be enabled in Django Admin interface
- set up LTI consumer to generate key and secret used in external LMS

In external LMS (in our case, Canvas)

- add App using above LTI key and secret
- within a Canvas Module, add “external tool” and select the App you created
- add the LTI specific URL of the content you want to embed

LTI specific URL construction to use in the above “external tool”:

https://{host}/lti_provider/courses/{course_id}/{usage_id}

https://edx-lti.org/lti_provider/courses/course-v1:edX+DemoX+Demo_Course/block-v1:edX+DemoX+Demo_Course+type@vertical+block@vertical_3888db0bc286

https://edx.readthedocs.io/projects/edx-partner-course-staff/en/latest/course_features/lti/index.html#using-edx-as-an-lti-tool-provider