Moving your course online? nanoHUB can help with lectures and virtual labs

As the outbreak of COVID-19 pushes universities to adapt quickly for online course delivery, current learning management systems can be stressed and overloaded. nanoHUB.org is here to:

- help you deploy your course materials online,
- supplement your curriculum with our existing courses and lecture videos,
- enable students to explore interactive simulations like a virtual class lab.

nanoHUB reaches 1.6 million visitors annually and isn’t limited to the area of nanotechnology. nanoHUB has supported many fundamental courses in Electrical Engineering (electronics and E&M/photonics), Materials Science and Engineering, Mechanical Engineering, Chemical Engineering, Physics, Chemistry, and Bioengineering.

All of these 6,000+ resources are available at no cost to instructors, classrooms, or individual learners. Below you can find more details on the various services.

Please let us know through email or our Help/Support link if you have any questions or concerns. We hope we can provide you with some needed help in the rush toward online learning.

-- the nanoHUB Team

Ready to use resources and virtual labs for your area
Our curated pages highlight quality material for specific communities:

- Nanoelectronics: https://nanohub.org/groups/nanoelectronics
- Materials Science and Engineering: https://nanohub.org/groups/materials
- Semiconductor Device Physics: https://nanohub.org/groups/semiconductors
- Data Science and Machine Learning: https://nanohub.org/groups/ml
- Chemistry: https://nanohub.org/groups/chem
- and more: https://nanohub.org/groups/education

Groups

Create a nanoHUB discussion group for your classroom: https://nanohub.org/groups/new

Lecture Deployment

The NCN video production team is available to assist in recording lectures for online delivery. Contact Joe Cychosz, Production Manager at nanoHUB (3ksnn64@ecn.purdue.edu) for details.

Preparing Online Lecture Material

- Record narration and timings for your Powerpoint presentation: [instructions]
- Here is an example of a recorded presentation
- Export your presentation as an .mp4 file
- Edit your Powerpoint video recordings: [instructions]

These lectures are then ready to be uploaded to nanoHUB.

Instructions on publishing resources on nanoHUB: https://nanohub.org/kb/tips/publish-a-resource-on-nanohub

Insert Virtual Lab explorations into your existing course

nanoHUB hosts over 500 simulation apps that are self-contained and easy to use. We have assembled sets of these apps for immediate insertion into existing curricula:

- ABACUS - Assembly of Basic Applications for Coordinated Understanding Semiconductors: https://nanohub.org/resources/abacus
- AQME - Advancing Quantum Mechanics for Engineers: https://nanohub.org/resources/aqme
- ANTSY - Assembly for Nanotechnology Survey Courses:
You can search nanoHUB for specific topics that fit your curriculum. There are complete science and engineering courses published from which you can select individual lectures.

**Find Course Material**

You may navigate to “Learn & Teach” on nanoHUB to view find a large variety of lecture materials and simulation tools that you can immediately use.  

**Curated Educational Resources** to find graduate-level courses by topic. Some appropriate for undergraduates follow:

**General**

- nanoHUB-U: The Science, Art, and Practice of Analyzing Experimental Data Designing Experiments  
- Numerical Methods for Partial Differential Equations

**BioEngineering**

- nanoHUB-U: Biological Engineering - Cellular Design Principles

**Electrical Engineering**

- nanoHUB-U: Primer on Semiconductor Fundamentals  
- Principles of Semiconductor Devices  
- ABACUS - Assembly of Basic Applications for Coordinated Understanding Semiconductors

**Quantum Mechanics**

- AQME - Advancing Quantum Mechanics for Engineers

**Materials Science and Engineering**

- MSEN 201: Introduction to Materials Science & Engineering  
- Illinois MATSE 280: Introduction to Engineering Materials
Physics

- Physics 342: Modern Physics

Nanotechnology

- Nano 101
- NACK Unit 3: Materials in Nanotechnology
- NACK Unit 5: Nanotechnology Applications
- NACK Unit 6: Basic Characterization Techniques

Questions

If you need help, we’d be glad to speak with you. Please write to us at contact@nanohub.org.