



ENGINEERING & PHYSICS

This comprehensive set of Engineering & Physics video resources from JoVE provides the breadth and depth needed to meet the needs of students and researchers at all levels. With videos illustrating basic and advanced concepts and methods, novel experimental research and more, this solution maximizes productivity from the classroom to the advanced research laboratory.

Partnering With JoVE Today

- Free [syllabus mapping](#) and customized playlists for teaching, research and training
JoVE's staff Ph.D.'s can map JoVE content to any syllabus or lab training program and create shareable playlists.
- Seamless integration with online learning platforms such as Zoom, Microsoft Teams, Google Classroom, as well as learning management systems.
- Expanding JoVE Engineering & Physics solution keeps up with scientific developments and automatically updates with newly released subject-specific video content and products.

24/7

Access worldwide

2,100+

Engineering & Physics videos

Improve Learning Outcomes With JoVE



Improve student engagement and learning outcomes

JoVE videos enable quick in-depth comprehension of complex Engineering & Physics topics, improving student performance by up to 100%.¹ Videos demonstrating laboratory protocols and concepts also help science major and non-major students prepare for lab work: in studies on the effectiveness of JoVE videos, 90% reported feeling more confident in the lab.²



Streamline lesson planning

JoVE videos can save faculty 30+ minutes of lesson planning and facilitate success in in-person, flipped, and virtual classrooms, such as online [lab courses](#). In addition, free syllabus maps, personalized video playlists, and customizable tests are available to support instruction.

"The JoVE videos are an excellent teaching aid and can be used to support teaching of 1st year through to PhD studies, and for both text book learning as well as complex experimental procedures."

—Craig L. Bennett, MSc, Ph.D., Senior Lecturer
in Molecular Biology, University of Lincoln

Accelerate Research With JoVE



Improve reproducibility and productivity

As a young researcher, JoVE's co-founder and CEO Dr. Moshe Pritsker realized that videos could capture the intricate details of complex experiments better than text alone, making them easier to replicate and improving productivity.

"It [watching a JoVE video] can actually bring other researchers to the point where they can, in their laboratory, get the same results that we were getting in the JoVE publication."

—Marilene Pavan, Lab Manager at Boston University



Save time, money and resources

JoVE videos save time and money spent on travel and resources oftentimes needed to reproduce a complex experiment or learn a new technique under expert guidance. After adopting JoVE videos, Valerie Rezek, Lab Manager at UCLA, saved 2,336 work hours, 20% of lab resources, and at least \$5,700 in personnel costs, based on salaries.



Enable faster onboarding and training of new lab members

JoVE videos make onboarding and training more efficient, and preserve knowledge in the lab by providing a consistent reference point for new researchers working on old or ongoing projects.

¹ Mutch-Jones, K., Sengupta, N., Minor, V. C., & Goudsouzian, L. K. (2020). [Professional science education videos improve student performance in nonmajor and intermediate biology laboratory courses](#). *Biochemistry and Molecular Biology Education*. Advance online publication. ² Ramachandran, R., Sparck, M., & Levis-Fitzgerald, M. (2019). [Investigating the Effectiveness of Using Application-Based Science Education Videos in a General Chemistry Lecture Course](#). *Journal of Chemical Education* 96(3), 479-485.

JoVE Science Education

- Engineering
- Physics

A revolutionary video library dedicated to teaching scientific fundamentals through easy-to-understand video demonstrations. These videos capture key conceptual and methodological details that are difficult to visualize using text alone, and feature text translations and subtitles in over 10 languages.

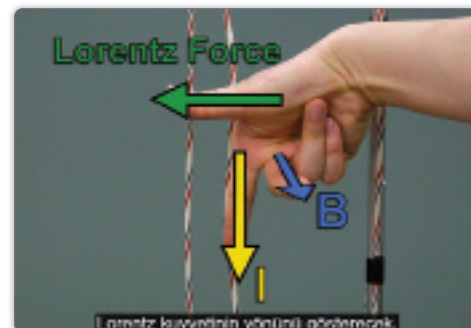
“JoVE videos are a great solution for engaging students to the learning process, helping them to better understand the theoretical key concepts”

—Hila Failayev, Research Scientist and Lab Manager, Tel Aviv University



Engineering — X-ray Diffraction

The Engineering series covers fundamental concepts and techniques in several engineering disciplines such as electrical, mechanical, and aeronautical engineering, which was released in 2019 to commemorate the 50th anniversary of the moon landing.



Physics — Magnetic Fields

The Physics series explores classical mechanics, thermodynamics, magnetism, optics and much more, presenting relevant laws and equations, experiments validating theoretical hypotheses, and real world examples.

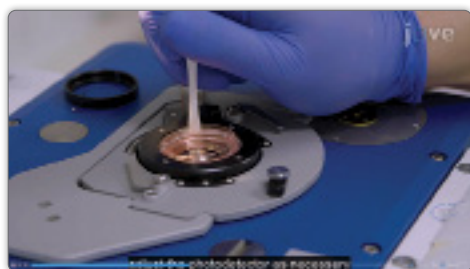
JoVE Journal

- Bioengineering
- Chemistry
- Engineering

“Instead of trying to learn a technique from the literature for six months, new researchers can master the method in a few days. As such, everything is streamlined with JoVE.”

—Jeanette Moore, Lab Manager at the University of Alaska Fairbanks

A peer-reviewed scientific video journal indexed in PubMed, Web of Science, SciFinder, Scopus and SCI Expanded. Scientific research is published in video form alongside downloadable text protocols, bringing to life the intricate details of experimental methods.



Bioengineering — Application of Atomic Force Microscopy to Detect Early Osteoarthritis



Chemistry — Interactive Molecular Model Assembly with 3D Printing



Engineering — Thermocapillary Convection Space Experiment on the SJ-10 Recoverable Satellite