Ansys

Getting Started with

Ansys Education Resources

FOR EDUCATORS

Version 2, 2024

Supporting educators who inspire today's students to become tomorrow's engineers, researchers and entrepreneurs.

Goal of Ansys Education Resources

We at Ansys understand that it can be challenging to constantly think of new and engaging real-world problem-solving scenarios. So, to support this community, we have created hundreds of realistic resources covering a vast range of engineering topics.

Ansys Education Resources (AERs) are specifically designed to complement inquiry-based learning methods to help promote critical, scientific, and higher order thinking skills among students.

Use of Ansys Education Resources in the Classroom

Ansys Education Resources have been created for student instruction, student projects and student demonstrations. Any commercial use is strictly prohibited.

Academic users may make fair use of screenshots from our resources and/or products in their teaching. Students can use them for educational purposes. This includes but is not limited to capstone project reports, conference posters, educational guides, video demonstrations, webpages, social media channel postings. You must include the following acknowledgment on all materials containing Ansys screenshots: “Images used courtesy of ANSYS, Inc.”

For information about referencing Ansys software tools, please take a look at our Terms and Conditions.

Further Support

Looking for other resources to support your learning and teaching with Ansys software? Check out our Academic Learning Resources page here.

At Ansys, we have a team specifically dedicated to ensuring your teaching is suported by our products and resources. Have a specific question about one of our resources? Want to share your teaching experiences?

Contact us: education@ansys.com

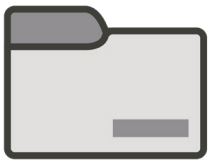
CONTENTS

Click the icons below to explore our resources by category

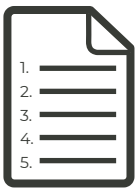
By Type

Lecture Presentation: A collection of themed presentations, covering introductory to advanced topics. Educators can use slides directly within their classes or taken as inspiration to supplement existing content.

Case Study: Using real-world examples, fundamental concepts are brought to life through an engaging topic such as a Scuba fin design and Soccer ball spin. Depending on the level of knowledge, educators can choose between a range of introductory and advanced formats.



Teaching Package: A collection of related teaching resources, housed in one easily downloadable zip file. For example, educators interested in the 'Introductory Materials Science & Engineering' package, will discover lecture slides, exercises, quiz questions, MicroProjects and concept maps.



Tutorials: Looking for content to introduce basic software skills to your students? Look no further than our tutorials, which showcase how to implement fundamental skills like meshing in range of Ansys tools.

Exercises: Sometimes the best way to learn is by doing *i.e.* solving problems and answering questions using our software. These resources have been created to support a broad range of teaching styles, be that in-class activities or as independent homework. Resources that contain answers will be limited to educators with active licenses.

Infographic: Popular material-property charts and even a card game are freely available in these engaging infographics. Use the charts simply in lecture slides or, like the Department of Materials Science & Metallurgy at the University of Cambridge, get creative and paste them as wallpaper!

Technical Paper: From 'Materials Selection' to 'Social Life-Cycle Assessment and Social Impact Audit Tool', these technical documents bring a deeper level of understanding to a range of topics. Some can be used to support self-guided learning, while others provide background theory for Ansys product developments.

By Key Discipline

Materials

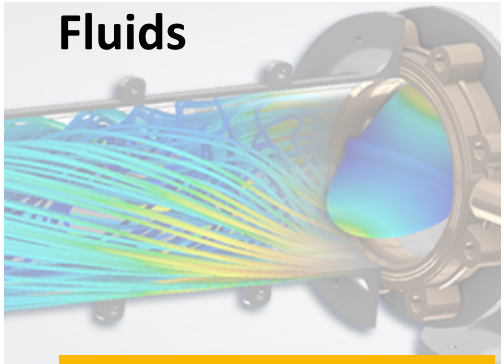
Browse all materials resources >

Materials make up everything, from dinner plates to space shuttles. Learning the fundamentals of materials and how to select them for design is a critical skill for all engineers.

Check out the materials science and selection resources below:

- **Material Property Charts in Ansys Granta EduPack**
- **Materials Selection White Paper**
- **Exploring the Sustainability of Wind Turbines**
- **Materials Science & Engineering in Ansys Granta EduPack**

Fluids



Browse all fluids resources >

Fluids are all around us and sustain our lives in endless ways. Without fluids, your tennis ball's topspin would be meaningless, and your airplane wouldn't generate any lift. Through CFD, we can analyze, understand, and predict the fluids that make up nearly every part of our world.

Check out the fluids resources linked below:

- **What are Fluids? using Ansys Fluent**
- **Heat Transfer Tutorial with Ansys Fluent**
- **Effect of Side Spin on a Soccer Ball using Ansys Fluent**

Structures

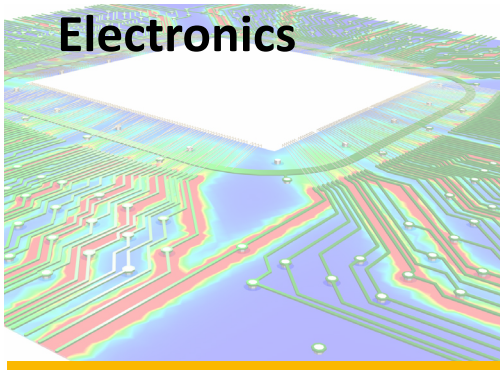
Browse all structures resources >

Physical structures are under constant stresses. Finite element modeling makes it possible to simulate the physical world without the expense, time, or risk of building physical prototypes. These models are used to solve for various conditions and scenarios across a variety of industries.

Check out the structures resources linked below:

- **Stresses and Strains with Ansys Discovery**
- **Intro to Explicit Dynamics using Ansys LS-Dyna**
- **Basics of FEA Simulation with Ansys Mechanical**

Electronics



Browse all electronics resources >

Antennas, integrated circuits, wireless networks, and more; by simulating electromagnetic systems, we can understand and design both high and low frequency systems.

Check out the electronics resources linked below:

- **Design and Simulation of Circular Waveguides with HFSS**
- **Transmission Lines and Waveguides with AEDT**
- **2D Dipole Antenna Array in Ansys HFSS**

By Specialized Topic

Click the boxes to explore each topic

The future of this planet really does lie in the hands of our students. Equipping them with a fundamental understanding of these entwined sustainable pillars, is a noble responsibility for educators today.

Browse Sustainability & Eco Design Resources >

Aerospace engineering is centered around the design of aircraft and spacecraft, which function at peak performance in extreme environments. Students to grasp how fundamental concepts, taught in the classroom, impact the design choices made on the job.

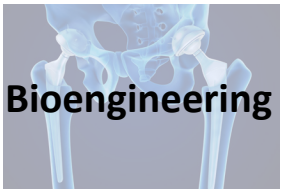
Browse Aerospace Resources >

Industrial design-- the process of designing products from start to finish. Considering business needs, environmental impact, the design cycle, and more.

Browse Industrial Design Resources >

Automotive engineers in the modern world need understanding of more than just how engines work. Giving students the foundations they need to build the cars the future requires a variety of subjects and skills.

Browse Automotive Resources >



Combining the principles and problem-solving skills from unusually disparate disciplines, bioengineering requires students to grasp new knowledge and understanding of living systems through the application of experimental and analytical techniques of engineering sciences.

Browse Bioengineering Resources >

Additive manufacturing; a technology once focused on polymer printing has expanded to include more materials and applications including healthcare and transportation. This expansion requires additional training.

Browse Additive Manufacturing Resources >

Engineering concepts are becoming more prevalent in pre-university classrooms. Ansys looks to support educators at all levels teaching these concepts so critical to the next generation.

Browse STEM Resources >

Manufacturing, or the process of manufacturing products at large scales, requires understanding of the product itself and the systems needed to produce them.

Browse Manufacturing Resources >

Engineers within the built environment not only create and transform places for communities and businesses to thrive, but they are also increasingly responsible for designing sustainable homes for the future of our planet.

Browse Built Environment Resources >

By Product

Below are the current products we support with our Education Resources (at the time of document publication). We are ever looking to expand these offerings, so be sure to check the site to see what is new!

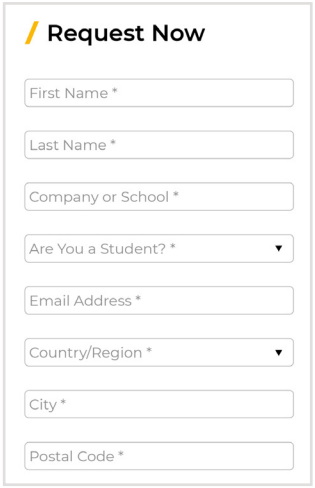
- MECHANICAL
- LS-DYNA
- FLUENT
- ROCKY
- CFX
- DISCOVERY
- GRANTA MATERIALS
- HFSS
- ADDITIVE SUITE
- SOUND
- SYSTEMS TOOL KIT (STK)

By Access

The vast majority of our resources are open for anyone to use but there are some, like project files and exercise solutions, where we need to restrict access to licensed educators.

To retrieve these resources, educators can simply request access by filling out a Request Now form which can be found on all relevant pages.

Once approved, educators will then receive ZIP files, containing ***all*** restricted resources.



Browse restricted resources >

By Language

While the majority of our resources are in English, we do have some in other languages. You can find links to the non-English pages below. The teaching materials in the other languages below support Granta EduPack; if you are interested in collaborating to on language resources, please contact us!

Deutsch **Français** **Português** **Español**