



Acoustics Modeling in COMSOL Multiphysics®



SciEngineer's training courses are designed to help organizations and individuals close skills gaps, keep up-to-date with the industry-accepted best practices and achieve the greatest value from MathWorks® and COMSOL® Products.

Acoustics Modeling in COMSOL Multiphysics®

If you want to learn more about how to use COMSOL Multiphysics® software to model acoustics and vibration phenomena, this is the course for you.

The 2-day Acoustics Training Course will involve in-depth discussions of all the physics interfaces in the Acoustics Module. During the course, you will learn how to make the best use of our functionality for modeling small, medium, and large-scale acoustic wave generation and propagation, in fluids, solids, and porous media, as well as various Multiphysics situations. We will cover solution methods such as FEM, BEM, ray tracing, and explicit time stepping with the discontinuous Galerkin formulation.

As part of the training, we will set up and demonstrate a variety of example models. Some of them deal with the desired creation or detection of sound, in applications such as loudspeakers or non-destructive testing. Others concern damping, in for example mufflers or a car compartment. They all have it in common that they serve to illustrate functionality and best modeling practices in relevant scenarios.

Suggested Background

This course assumes familiarity with the basic concepts of acoustics and structural dynamics. To get the most out of this course, it is recommended to have taken an introduction course in COMSOL Multiphysics® or similar.

Topics Include

- Acoustic wave propagation in fluids, solids, and porous media
- Perfectly matched layers (PMLs) for modeling of infinite domains
- The Boundary Element Method
- Acoustic-structure interaction
- Electroacoustics, with coupling to circuits
- Thermoviscous acoustics, for acoustics in small spaces
- Ray acoustics, for acoustics in large spaces
- Aeroacoustics, for acoustics in a background flow
- Best practices for meshing and solving
- Time domain, frequency domain, and eigenfrequency modeling
- Acoustics-related news in version 5.5



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knowledge**

