



## READ ME: How to Use the Introduction to Engineering files in the .zip folder

Thank you for downloading this teaching package utilizing Ansys Discovery to introduce basic 3D modeling and simulation to students with little or no experience. This series is targeted for an “Introduction to Engineering” or similar class, but instructors may also find it useful in any setting where introduction to CAD and CAE is needed. The lessons work best as tools for guided instruction but can also work for self-study or a combination of both. Each folder contains a PowerPoint tutorial presentation and a corresponding Discovery file with a 3D model for student reference or use. The lessons are to be completed in order, and by the end of the series, students should be competent in constructing simple 3D models and performing simple simulations. The lessons have been adapted for Ansys Discovery 2023 R2.

### 01 Intro to Direct Modeling P1

This lesson introduces basic concepts of 3D modeling. The tutorial explains how to make a coffee mug using direct modeling techniques.

- Lesson 1 - Introduction to Direct Modeling in Ansys Discovery Part 1.pptx
- Mug.dsco

### 02 Intro to Direct Modeling P2

This lesson builds on the direct modeling techniques of the previous lesson. The tutorial explains how to make a boombox using direct modeling techniques.

- Lesson 2 - Introduction to Direct Modeling in Ansys Discovery Part 2.pptx
- Boombox.dsco

### 03 Intro to Direct Modeling P3

This lesson builds on the direct modeling techniques of the previous lesson. The tutorial explains how to make and assemble a camera casing using direct modeling techniques.

- Lesson 3 - Introduction to Direct Modeling in Ansys Discovery Part 3.pptx
- Camera Casing.dsco

### 04 Intro to Direct Modeling P4

This lesson builds on the direct modeling techniques of the previous lesson. The tutorial explains how to make an SD card and assemble it with the camera casing using direct modeling techniques.

- Lesson 4 - Introduction to Direct Modeling in Ansys Discovery Part 4.pptx
- SD card.dsco
- Camera and SD card Assembly.dsco

### 05 Intro to Structural and Thermal Simulation P1

This lesson introduces basic structural and thermal simulation techniques using the coffee mug created in the first lesson.

- Lesson 5 - Introduction to Structural and Thermal Simulation in Ansys Discovery Part 1.pptx
- Mug Simulation.dsco

### 06 Intro to Structural Simulation P2

This lesson builds on the basic structural simulation techniques introduced in the previous lesson. The tutorial explains how to perform a cantilever beam deflection simulation with basic material selection.

- Lesson 6 - Introduction to Structural Simulation in Ansys Discovery Part 2.pptx
- Plank.dsco