

Modeling and Simulation of Multi-Physics Systems with MATLAB and Simulink

Last updated: Oct 4, 2017

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Course Details

Description

This course is an introduction to modeling and simulation, which is a high school course taught in engineering programs to hundreds of high school students. Modeling and simulation play a key role in the engineering design process. Modern simulation tools allow for creation of wholistic system models taking into account all interactions of the system, making for multi-physical models. These digital models accelerate the process of design and test thus saving human and material resources.

This book along with code and model files, introduce MATLAB and Simulink as simulation platforms for modeling in different domains like electrical, hydraulic and mechanical and their interaction with one another.

Recommended Ages: 16+ (high school, university)

NOTE: The Simscape family of products referred to in the book have been renamed in newer releases of MATLAB. The code and model files still work as intended.

Original Course Documents

[Book](#) : intended as a guide for instructors to use in their classroom

Code and Model Files : contains MATLAB and Simulink files arranged per the chapters in the book

Course Contents

Below is a list of chapters covered in the book:

1. Concepts and Strategies in Modeling
2. Introduction and presentation of modeling tools
3. Getting to grips with Simscape
4. MATLAB management
5. Simulink management
6. Stateflow management
7. SimMechanics management
8. Identifying a model
9. Control command with MATLAB and Simulink

Software Resources:

MATLAB, Simulink, Simscape, Simscape Fluids, Simscape Multibody, Simscape Electronics and Stateflow



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