



Modeling Dynamic Systems using Simulink

The MathWorks, Inc.

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WORKSHOP

ABSTRACT

The use of MATLAB® as a computational tool is widespread in engineering curriculum, specifically in fields related to modeling and analysis. Simulink is a visual design tool that enables graphical modeling, simulation, design and development of different dynamic systems. As such, incorporating Simulink along with MATLAB® into teaching can help further bridge the gap from theory to practice. The goal of this tutorial workshop is to enable participants

- To build & simulate models for dynamic systems using Simulink
- To use Simulink models in teaching

It is expected that faculty focused on teaching dynamic systems in various engineering disciplines should benefit from this workshop.

OUTLINE

Workshop Introduction

Gain an understanding of the purpose and applications of Simulink.

- Obtain a quick overview of The MathWorks and Simulink
- Provide a "big picture" view of the workshop ahead.

Simulink On-Ramp (45 min)

This section introduces building models and running simulations using Simulink.

- Constructing and running a simple model
- Simulation fundamentals
- Working with MATLAB®
- Creating Subsystems.

Modeling Dynamic Systems (1 hrs)

This section shows how different components of a control system can be modeled and designed using Simulink. Additionally, features of the Physical Modeling tools will be illustrated.

- Modeling transfer functions and differential equations
- Designing and applying a controller

Integrating Simulink models into teaching (15 min)

Simulink based interactive models can be used in various ways and at various stages when teaching control theory and related courses. Using an introductory Control Theory and Signal Processing courses as examples, this section will illustrate some of the relevant course design issues and teaching methods.

- Benefits
- Typical first day of a signal processing course
- Typical first day of a controls theory course



ADDITIONAL INFORMATION

The MathWorks, Inc. Contacts

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Quality Management

The MathWorks, Inc. is committed to deliver the highest quality products and services to its customers and management of quality is regarded as an integral part of the business policy. The MathWorks, Inc. objective is to serve its customers by meeting and exceeding their requirements.

Instructors

A MathWorks engineer experienced in classroom teaching leads each workshop. Instructors are dedicated to the philosophy that training should be hands-on, interactive, and based on real-world problems and examples. The actual Training Engineer teaching the course may vary depending on date requested.

The MathWorks Deliverables

1. Tutorial workshop
2. Course Materials to include:
 - Exercises and examples provided on CD-ROM
 - MATLAB© product family software for the duration of the course.

Participant Requirement

1. Participants will benefit most by having personal laptops to follow along during the presentation.
2. Participants are advised to register in advance and follow the software installation procedures before the workshops.