6.3100: Dynamic System Modeling and Control Design

Retrospective

Please give us feedback on 6.3100/2.

Fall 2024 subject evaluations are open now and until Monday, December 16, at 9 am.

→ http://registrar.mit.edu/subjectevaluation

Provide specific feedback on 6.310:

→ "Survey" tab on 6.310 website

December 11, 2024

What Comes Next?

In EECS

6.3000: Signal Processing
Fourier methods to analyze and process signals

6.3010: Signals, Systems, and Inference
time- and transform-domain methods for estimation problems

6.7100[J]: Dynamic Systems and Control
in-depth follow-on to topics in 6.3100

6.7110: Multivariable Control Systems
in-depth consideration of multi-input multi-output systems

6.7120: Modeling, Computing and Control for Decarbonized Systems
application of dynamics and control in electrical energy systems

6.8200: Sensorimotor Learning
application of learning methods for control

6.8210: Underactuated Robotics
nonlinear dynamics and control of robotic manipulators

What Comes Next?

In MechE

2.004: Dynamics and Control
dynamic system modeling and control (similar to 6.3100)

2.14: Analysis and Design of Feedback Control Systems
fundamentals of feedback control using linear transfer function models

2.151: Advanced System Dynamics and Control
analytical descriptions of state-determined dynamic physical systems

2.152: Nonlinear Control
nonlinear stability theory, nonlinear observers, emphasizes applications

2.153: Adaptive Control and Connections to Machine Learning
parameter estimation, recursive algorithms, stability properties, convergence

2.171: Analysis and Design of Digital Control Systems

This course by Dave Trumper is a good follow-on to 6.3100:

A comprehensive introduction to digital control system design, reinforced with hands-on laboratory experiences. Major topics include discrete-time system theory and analytical tools; design of digital control systems via approximation from continuous time; direct discrete-time design; loop-shaping design for performance and robustness; state-space design; observers and state-feedback; quantization and other nonlinear effects; implementation issues. Laboratory experiences and design projects connect theory with practice.

What Comes Next?

In Aero/Astro

16.002: Unified Engineering: Signals and Systems
fundamental principles and methods of signals and systems

16.06: Principles of Automatic Control
introduction to the design of feedback control systems

16.30: Feedback Control Systems
state-space prepresentation of dynamic systems

16.32: Principles of Optimal Control and Estimation
dynamic programming, variational calculus, numerical algorithms

16.338: Dynamic Systems and Control
multi-input-output systems in control

In ChemE

10.352: Modern Control Design
state estimation and controller design

10.353: Model Predictive Control
multivariable control of dynamical systems with constraints

Please Tell Us How To Improve 6.310

We want to present course material in a way that encourages a deep **technical understanding** while also being **fun and engaging.**

We need your help and your feedback in order to make that happen.

Please use the next **15 minutes** to fill out the Registrar's Subject Evaluation and the 6.3100 End-of-Semester Survey.

- Fill out the MIT Subject Evaluation:

  `http://registrar.mit.edu/subjectevaluation`

- Provide specific feedback on 6.3100:

  go to "Survey" tab on 6.3100 website

> **Remember to Submit your responses**

After you have finished, we will have an open discussion.