

Dynamics, Systems and Controls

Course Selection Guidance for Students with Interests in Dynamics, Systems and Controls

The DSC group is most easily described using a small list of both disciplines and applications:

Disciplines	Applications
Dynamics, Dynamical systems	Autonomous Systems
Estimation/Filtering/Model Inversion Theory	Robotics
Control Theory	GPS/GNSS
Optimization	Space Dynamics/Space Systems
Mechatronics	Aero Systems
Structural Dynamics and Smart Materials	Bio-Dynamics

Core Courses:

- MAE 5730 Intermediate Dynamics and Vibrations (Fall)
- MAE 5780 Feedback Controls (Fall)

Typically, students take two or more of these core courses.

Follow-on courses include:

- MAE 3780 Mechatronics (Fall)
- MAE 5180 Autonomous Mobile Robots (Spring)
- MAE 5910 Model Based Systems Engineering (SYSEN) (Fall)
- MAE 6750 Nonlinear Vibrations (Spring)
- MAE 6760 Model-Based Estimation (Spring) (not offered 2019-20)
- MAE 6780 Multivariable Control Theory (Spring)
- MAE 7760 Applied Dynamical Systems (Spring)

Most students could benefit from taking a course in Applied Mathematics such as:

- MAE 3100 Intro to Applied Math (not offered 2019-20)
- MAE 6810 Methods of Applied Mathematics I (Fall)

Additional courses to broaden engineering knowledge

- MAE 5230 Intermediate Fluid Dynamics with CFD (Spring)
- MAE 6110 Foundations of Solids Mechanics (Fall)