

Systems and Control

Systems and control is an area of study within mechanical engineering that integrates the basic concepts learned in fluids, heat transfer, mechanical dynamics and electrical elements into a methodology that can be used to design complete interdisciplinary systems.

As each area of engineering has become more specialized, it is important to have individuals in industry who can design, analyze and predict the behavior of integrated systems, i.e. systems that may contain mechanical, electrical, thermal and fluid elements. They must understand how to combine or arrange the various system elements, and how to develop mathematical models that relate an output to an input, e.g. propulsion and desired speed.

Undergraduates in Mechanical Engineering are introduced to systems and control with ME 670, Systems Modeling, Simulation, and Control. This course covers the essentials of system modeling and dynamic response and introduces feedback controls. The first lab course is ME 646, Experimental Measurement and Data Analysis. This is followed by a second lab course, ME 747, Experimental Measurement and Modeling of Complex Systems. This course provides experimental testing and evaluation of basic dynamic systems and control of DC motors.

Mechanical Engineering students who are interested in pursuing this area of study should consider taking these additional technical electives: ME 743, Satellite Systems, Dynamics, and Control; ME 770, Design with Microprocessors; ME 772, Control Systems; and ME 773, Electromechanical Analysis and Design.