

MECH 296A–System Identification

Spring 2017

In this class, students will learn the theory and application of system identification. System identification is a methodology for developing models of dynamic systems from the measured input-output data. The developed model can be used to simulate the system's response and design guidance, navigation, and control (GNC) systems. The methods will be demonstrated with class examples and homework problems that use real test data from the XV-15 tilt-rotor aircraft and a drive-by-wire car. Key topics in class include: Fourier transform techniques, frequency response identification, effects of noise, transfer function and state-space modeling and theoretical accuracy analysis (2 units).

Prerequisite: MECH 142 or equivalent.

Textbook: *Aircraft and Rotorcraft System Identification: Engineering Methods with Flight Test Examples*, Mark B. Tischler and Robert K. Remple, AIAA Education Series, 2nd edition, 2012.

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