Concentration in *Dynamical Systems Modeling & Analysis* for
Bachelor of Science in Mechanical Engineering (BSME)

Focus of the Concentration: Mathematical modeling and analysis of dynamical systems regardless of their physical origin through coursework in Dynamics and Vibrations, Signal Analysis and Control, and Numerical Analysis and Data Science.

Target Degree: BSME

Concentration Requirements: 10 credit hours comprising a required 1-credit hour course introducing dynamical systems modeling (ME 428), two 3-credit courses from List A, and a choice of one 3-credit hour course from List B provided below.

Requirements for the Concentration

1. **A 1-credit course**
   ME 435 Dynamical Systems

2. **Two courses from List A:**
   ME 562 Advanced Dynamics
   ME 563 Mechanical Vibrations or CE 573 Structural Dynamics
   ME 497/498 Research (3 credits) – to be approved by a faculty member in Dynamics and Vibrations Area

3. **One course from List B:**
   ME 47500 – Automatic Control Systems
   ME 53900 – Introduction to Scientific Machine Learning
   ME 57500 – Theory and Design of Control Systems
   ME 57900 – Fourier Methods in Digital Signal Processing
   ME 58400 – System Identification
   ME 58100 – Numerical Methods in Mechanical Engineering
   ME 58000 – Nonlinear Engineering Systems
   ME 59700 – Aeroelasticity (permanent course number request is in process)
   ME 59700 – Wave Propagation in Solids
   ECE 43800 – Digital Signal Processing with Applications