GRADUATE CERTIFICATE IN MODEL-BASED SYSTEMS ENGINEERING

Model-Based Systems Engineering (MBSE) is the formalized application of modeling to support various systems engineering activities throughout the life phases, including requirements, design, analysis, and verification & validation.

The Graduate Certificate in Model-Based Systems Engineering teaches a variety of approaches for utilizing models to achieve the vision of value that MBSE provides over document-oriented practices. From descriptive system architecture models capturing structure, behavior, and more of a system to nonlinear dynamic behavior of complex systems with system dynamics and general computational approaches for multi-disciplinary analysis of a variety of engineering domains, students can gain hands-on experience with modeling tools such as Magic Systems of Systems Architect, Vensim, MATLAB, Simulink, and more. Students completing this certificate would build competency in both Core: Systems Modeling and Analysis and Technical: System Architecting areas from the INCOSE Systems Engineering Competency Framework.

Students interested in graduate work should refer to CSU's Graduate and Professional Bulletin (http://catalog.colostate.edu/general-catalog/graduate-bulletin/).

Learning Objectives

Upon successful completion, students will be able to:

1. Apply model-based approaches for a variety of systems engineering activities.
2. Understand the principles of modern systems architecting from a model-based perspective.
3. Construct models in several state-of-the-art tools.
4. Exemplify critical skills in INCOSE Systems Engineering Competency Framework, specifically Core: Systems Modeling and Analysis and Technical: System Architecting.