Enroll Now:

- **On-Demand Format** (Pre-Recorded Content, Instructor Access)
- **Upcoming Session** (Aug 28–Oct 8, 2023)
- **Live-Remote Format** (Saturdays, 7am–4pm PT)
- **Upcoming Session** (Aug 26–Oct 21, 2023)
- **Live-Remote Format** (Monday/Wednesday, 5pm–9pm PT)
- **Upcoming Evening Session** (Sep 4–Oct 11, 2023)

[ctme.caltech.edu/mbse-open](ctme.caltech.edu/mbse-open)

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**Program Objectives**

Mastering Model-Based Systems Engineering (MBSE) is essential for optimizing design and simulation activities. It equips you with the necessary skills to navigate the complex challenges of digital engineering. With MBSE, you can seamlessly integrate design iterations and gain valuable insights into the implications of your choices, changes, and system behaviors.

Our expert-led MBSE course offers a unique blend of hands-on model making and action learning. Through real-world case studies, we empower you and your team to hit the ground running in real-world deployments. With our program, you’ll enhance your ability to create flexible and robust models, ultimately boosting your organization’s capability to deliver expected value.

**Learning Objectives**

Learn how to apply systems thinking to the engineering process in just five days. This program covers everything from gathering customer needs to integrated design and delivery. Get practical experience with interactive SysML models using Cameo Systems Modeler or similar Dassault tools.

You will learn how to:

- Discover MBSE within the context of Model-Based Engineering (MBE) and complex systems
- Efficiently carry out the entire life cycle of MBSE tasks
- Create models of systems using SysML and MBSE methodologies
- Design structures, interactions, and behaviors that meet requirements and constraints
- Examine both internal and external interactions
- Analyze and consider different options and their consequences
- Evaluate, analyze, and enhance SysML models
- Develop important representations, diagrams, and use-cases
- Gain confidence in applying MBSE principles to effectively contribute to your projects
- Clearly communicate the economic and operational value of MBSE models and practices to stakeholders
Participants

This program is designed for professionals in aerospace, defense, electronics, mobility, and advanced medical devices who work in systems engineering. Engineers, analysts, designers, and developers at all career levels will learn a structured approach to requirements analysis and systems design, as well as ways to improve their planning, execution, and communication skills.

Project managers and support teams will explore how MBSE disciplines can enhance mission effectiveness and agile-like program delivery through iterative simulations.

Why CTME?

Leaders who aspire to innovate and execute come to Caltech’s Center for Technology and Management Education (CTME). Here, you will do more than attend a class. You will develop new mindsets, technology skills, and leadership capacity to master the complex issues that challenge your organization today.

Instructors with real industry insight—Our instructors bring decades of real-world expertise and leadership in engineering, commercialization, manufacturing, operations, innovation management and executive accountability within technology-driven organizations and government agencies.

Achieve real impact in our on-demand classes with Caltech’s action learning approach. Our module exercises, relevant cases, and structured reinforcement learning empowers you to apply new knowledge and thrive in the face of new challenges.

Discover the freedom to learn your way with our flexible programs. Whether you prefer online classes, on-campus or international experiences, or self-paced learning, we have options for you. With frequent course offerings, you can easily fit your education into your busy schedule.

Take on the challenge with Caltech. Earn a distinguished certificate by completing full programs (40+ hours) or choose targeted learning for your objectives and career. Gain credit for continuing education and professional development.

About Caltech

Caltech is a world-renowned science and engineering institute that marshals some of the world’s brightest minds and most innovative tools to address fundamental scientific questions and pressing societal challenges. Caltech prizes excellence and ambition. The contributions of Caltech’s faculty and alumni have earned national and international recognition, including over 45 Nobel Prizes. The Institute manages the Jet Propulsion Laboratory (JPL) for NASA.

In accordance with Caltech policy, CTME does not discriminate against any person on the basis of race, color, sex or sexual orientation, gender identity, religion, age, national or ethnic origin, political beliefs, veteran status, or disability in admission to, access to, treatment in, or employment in its programs and activities.

Instructor

Michael Brenner, is a Principal Systems Engineer at the Jet Propulsion Laboratory (JPL), which Caltech manages for NASA, where he is the product delivery manager for an advanced mirror development and imaging system. He has over 22 years of experience in the aerospace industry at JPL, supporting space imaging systems in the advanced instruments division.

Mr. Brenner has experience in system engineering, electronics design, optical system design, flight instrument integration and test, flight software development, ground support software development, product delivery management, and project management.

Mr. Brenner previously was the product delivery manager for advanced optical hardware and drive electronics for a flight demonstrator program. He was responsible for the architecture of a visible/NIR space telescope designed to directly image and spectrally characterize planets and disks around more than 100 of the nearest stars. Previously, he was the project systems engineer for the Advanced Mirror Development Project responsible for requirements development, ICD generation, Integrated Modeling, and project V&V process through completion. He served as project delivery manager for the Space Interferometer Mission (SIM) Instrument Electronics, responsible for design, fabrication, assembly and testing of flight electronics. Mr. Brenner was a JPL cognizant engineer for the Mid-infrared Instrument (MIRI) focal plane electronics on the James Webb Space Telescope (JWST), where he was in charge of the design, fabrication, control implementation, assembly and testing of the engineering model and flight hardware deliveries. Previously, Mr. Brenner was an electrical / system engineer for the Tropospheric Emission Spectrometer (TES), supporting the test and integration of the electronics and interfacing mechanisms, Instrument Ground Support Equipment (IGSE) Software, Flight Software, and Protolflight Environmental Acceptance Test execution.

Mr. Brenner received his MSEE with emphasis on digital system design and computer architecture from California State University, Northridge.