

MODEL-BASED SYSTEMS ENGINEERING: DOCUMENTATION & ANALYSIS

Course Run: 22 June to 27 July 2026

MAKE BETTER ENGINEERING DECISIONS

Gain foundational knowledge of MBSE, discuss the management challenges of MBSE, and analyze best practices of MBSE in industry in this *Model-Based Systems Engineering: Documentation and Analysis* course.

This course ensures that learners gain a deeper understanding of advances and opportunities in digital systems engineering - through platform-based digital learning and collaborative content and engagement. Participants will also benefit from engagement with research experts and discussions of industry/defence case studies.

MIT Faculty and Industry Experts Include:

- Dr. Bruce Cameron - Faculty Director, MIT xPRO Architecture & Systems Engineering Program
- Dr. Olivier de Weck - Apollo Program Professor of Astronautics and Engineering Systems
- Dr. Donna Rhodes - Principal Research Scientist MIT Institute for Data Systems
- Dr. Adam Ross - Research Scientist MIT

COURSE SCHEDULE (*fully asynchronous learning*)

- ❖ Week 1: **What is MBSE** 4-6 hrs
Principles of MBSE and its role in modern system design.
- ❖ Week 2: **Building an MBSE Model** 4-6 hrs
Constructing system models and documenting architectural decisions.
- ❖ Week 3: **Critiquing an MBSE Approach** 4-6 hrs
Assessing model clarity, assumptions, and completeness.
- ❖ Week 4: **Case Study: MBSE Enabling Automotive System Safety** 3-5 hrs
Applying MBSE to analyze a safety-critical system.
- ❖ Week 5: **Managing the Model** 4-6 hrs
Maintaining and communicating system models across the lifecycle.

AFTER THIS COURSE, YOU WILL BE ABLE TO:

- Choose an appropriate scope, define the purpose, and define the approach for an MBSE project.
- Identify the core tenets of MBSE and the situations in which it is recommended.
- Distinguish the differences between MBSE and traditional systems engineering.
- Describe the intent and basic structure of SysML and interpret a simple SysML model.
- Critique a project's implementation of MBSE using a set of criteria.
- Build a model management plan.
- Use an MBSE model to produce functional safety deliverables.

TRANSFORM YOUR WORKFORCE

Deepen your team's career knowledge and expand their abilities with MIT xPRO's online programs for professionals

REGISTER NOW (by 11 May 2026)

<https://forms.office.com/r/X1PWYvXVc5>



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