



Model-Based Systems Engineering

- Build practical skills in model-based systems engineering and gain the confidence to manage complexity across multi-domain national security and engineering environments.

INDUSTRY PARTNER:



Who this course is for

Our Model-Based Systems Engineering course is best suited for:

- **Early to mid-career engineers** transitioning from component or discipline-specific roles into systems-level work across national security, aerospace and advanced engineering environments.
- **Professionals** looking to grow into systems-level roles across national security, aerospace and advanced engineering environments.



Key details

Time commitment:

100% online, 6 weeks, approximately 8-10 hours per week.

Course price:

\$3,950 GST inc.

Prerequisites/level of study:

There are no prerequisites.

Method of study:

Online study, including interactive videos, assignments, prescheduled webinars, and a 1:1 online session with mentors and industry experts.

Enrolment:

You can enrol online. The whole process takes only a few minutes. Express your interest [here](#)

Why study Model-Based Systems Engineering

Most engineers spend the early part of their careers deep in a discipline. That expertise matters, but defence and advanced engineering environments increasingly expect something else: the ability to think across the whole system, make decisions at the architecture level, and communicate complex trade-offs to people who don't share your technical background.

This course gives you a working foundation in Model-Based Systems Engineering (MBSE), designed with MEMKO, one of Australia's leading MBSE consultancies. You'll learn to build and interpret structured system models, trace requirements across the lifecycle, and use those models to support real engineering decisions.



By the end of this course, you'll be able to:

- Synthesise advanced Model Based Systems Engineering (MBSE)
- Apply core MBSE frameworks and lifecycle concepts
- Develop and interpret structured systems models
- Use systems models to support engineering analysis and assurance
- Communicate MBSE outputs and insights effectively leverage MBSE models.

The MBSE market is growing at 16.5% annually, but a shortage of skilled practitioners remains **one of the biggest barriers to adoption.**

(BUSINESS RESEARCH INSIGHTS, 2026)

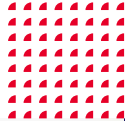
Global national security spending rose by nearly 10% in 2024, its **fastest growth rate in nearly four decades.**

(KPMG, 2025)



Why study with RMIT Online

RMIT Online is for students who want real world training from industry professionals. We call this the RMIT Online edge. Get ready to sharpen those skills.



Digital credential

The cutting-edge skills you'll learn are rigorously assessed and recognised by both a leading university and key employers in the field of study through a digital credential.

Connect with industry

Our courses are designed with high profile partners to ensure you're job ready, learning practical skills that align with industry best practice.

Real world skills

Our project-based assessments mean you'll roll up your sleeves and create a project for a real world business scenario, allowing you see the immediate impact of your learning within your organisation.

100% flexible skills

The freedom of online learning means you can study whenever you want, wherever you want, in a manner that suits your work and lifestyle.

Collaborative online experience

Never feel like you're studying alone and feel supported with our team of expert industry mentors, SMEs, and the learner success team.

What you'll learn

Learn how to apply model-based approaches to manage complexity in modern engineering systems. You'll build the skills to define requirements, develop system models using SysML, and support verification, validation and decision-making across the system lifecycle.

MODULE 1:

Introduction to MBSE

- Understand systems thinking and complexity in modern engineering
- Explore MBSE principles and model-based approaches
- Define system context, stakeholders and objectives

Milestone: Define system context and select scenario.

MODULE 4:

System modelling and integration

- Develop behaviour and structure models
- Model system interactions and dependencies
- Apply MBSE in integrated and system-of-systems contexts

Milestone: Develop system models and interactions.

MODULE 2:

MBSE concepts and lifecycle

- Apply MBSE frameworks and lifecycle models including the V-model
- Map systems across lifecycle phases and environments
- Identify where MBSE adds value in complex systems

Milestone: Map system to lifecycle and identify key phases.

MODULE 5:

Verification and validation

- Map verification and validation to system requirements
- Apply testing and assurance strategies
- Use models to support engineering decisions

Milestone: Define verification and validation approach.

MODULE 3:

Modelling with SysML

- Use SysML to define and structure system requirements
- Decompose requirements and establish traceability
- Develop foundational system models

Milestone: Define and structure system requirements.

MODULE 6:

Communicating insights and decisions

- Synthesise system models and analysis into insights
- Communicate findings to technical and non-technical stakeholders
- Present recommendations for decision-making

Final project: Present final system model and recommendations, demonstrating applied MBSE capability in a real-world national security or engineering context.

Who's supporting you

Just because it's online, doesn't mean you're on your own. RMIT Online's support network includes 1:1 feedback from our industry mentors, real-world insights, and study support from our learner success team. Our industry partners have helped shaped and build this course to ensure the content is up to date and best practice.



MEMKO Systems is a sovereign digital engineering business specialised in digital transformation, MBSE, PLM, and integration, enabling connected engineering and operational ecosystems for aerospace, defence, energy, transportation, and advanced manufacturing.

The Security & Resilience Hub brings together academic expertise, industry capability, government partners and communities to advance solutions for a safer, more secure and resilient Australia.

Aligned with Australia's National Science and Research Priority 5, "Building a secure and resilient nation", the Hub drives collaboration across national and digital security, sustainable and resilient infrastructure, and disaster management.

Through applied research, research translation, strategic partnerships and tailored education programs, the Hub supports the development of practical solutions that protect society, strengthen infrastructure, and build disaster-resilient communities and future-ready workforces.



**Learner success team,
RMIT Online**

Our learner success team are here to help you with 1:1 coaching, tips on how to successfully study online, and any questions or concerns you may have.

How online learning works

This is a basic breakdown of how your course works. You can always find more information at online.rmit.edu.au



Before the course starts

Before we get cracking, you'll need access to a computer with broadband connection running Windows, macOS, or Linux, with at least an Intel Core i5 processor, 16GB of RAM, and 8GB of free disk space. We'll help you install any software you might need, but in the meantime, download Slack and Zoom, and make sure your webcam and speakers are working.

During the course

A lot of your RMIT Online Future Skills course will consist of video snippets. You can watch these whenever you like. There are also regular interactive webinars, online forums to chat with your peers and a scheduled 1:1 session with your industry mentor.

We'll set up Slack channels so you can connect with your classmates and grow your professional network. You can also reach out to your Course Manager if you ever need help.

Tools

- Video lectures
- 1:1 mentor session
- Webinars
- Slack channels and forums

Enrolment

You can enrol online. The whole process takes only a few minutes.

Enrol now →

For more information about the course, head to our [FAQ](#) page.

If you have any questions about payment and enrolment, please get in touch via [our contact form](#) or talk to our team directly 1300 145 032