

The Future of Aviation MRO: Autonomy, Servitization, and Next-Generation Maintenance Systems

OEM: SAE International • Code: C2608

COURSE DESCRIPTION

This course explores the future evolution of MRO beyond MRO 4.0, examining emerging technologies, new business models, and standards challenges that will shape autonomous, servitized, and space-enabled maintenance systems in the next decade. This course serves as the capstone of the MRO portfolio, integrating technology, operations, business models, and standards to explore where MRO is heading and how organizations can prepare.

AUDIENCE PROFILE

- Aerospace engineers, Maintenance, Repair and Overhaul professionals in aerospace and defense who are involved in maintenance, reliability, digital transformation, cybersecurity, or lifecycle support.

PREREQUISITES

- This section doesn't contain any content.

COURSE OBJECTIVES

By the end of this course, participants will be able to:

- Explain the technological, operational, and commercial drivers shaping the future of MRO.
- Assess the role and limits of autonomy in future MRO systems.
- Describe how servitization and outcome-based support models change maintenance incentives and decisions.
- Understand how digital platforms and digital thread concepts enable next-generation MRO ecosystems.
- Recognize the continuing importance of human factors and human-centered system design in future maintenance operations.
- Assess future MRO decisions against broader value dimensions including safety, cost, availability, sustainability, and resilience.

COURSE OUTLINE

Module 1

- Why the Future of MRO will not Look Like the Past

- Autonomy in MRO: What it Really Means
- Servitization & Outcome-based MRO
- Platforms, Digital Thread & the MRO backbone
- Human-centric MRO and Industry 5.0
- New aircraft and new MRO models
- Sustainability, resilience & the new value equation
- From Concepts to Reality