

THIS MODULAR COURSE CAN BE TAKEN FOR GRADUATE CREDIT TOWARDS A MASTER'S IN SYSTEMS ENGINEERING OR AS PART OF A PROFESSIONAL DEVELOPMENT PROGRAM.

MODULE DESCRIPTION AND OBJECTIVES

Module participants will be exposed to the latest trends and concepts in complex system design for reliability, maintainability, and supportability. Supportability issues pertaining to COTS-intensive systems through practices such as technology refreshment will also be specifically focused. All phases of the system design and development process (requirements definition through detailed design) will be addressed, including the opportunities available to influence the system for reliability, maintainability, and supportability. Software intensive systems will also be addressed in the instructional process.

MODULE ORGANIZATION

This modular course combines lectures and readings to understand the "why" and "how" of influencing system designs and architectures from a reliability, maintainability, and supportability perspective. Particular focus will also be given to software intensive systems.

MODULE AUDIENCE

This module addresses concepts, methods, practices, tools, and metrics to influence the architecture and design of complex systems from the perspective of reliability, maintainability, and supportability. As such, this module will be of relevance to systems engineers, reliability engineers, logistics engineers, and program managers involved with the specification (user perspective) and the design (development and integrator perspective) of complex systems.

COURSEWARE

Participants receive a binder containing notes/handouts developed specifically for this course; and Blanchard, B.S., D. Verma, and E. L. Peterson, *Maintainability: A Key to Effective Serviceability and Maintenance Management*, John Wiley and Sons, New York, 1995.

MODULE DIRECTOR

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MODULE REGISTRATION & INFORMATION

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DAY 1 SESSION 1

Brief Overview of the System Engineering Process; Reliability, maintainability, and supportability in the system engineering process;
 Current Supportability Engineering and Logistics Planning Trends.

SESSION 2

Refresher on Reliability, maintainability, and supportability metrics and measures;
 Introduction to system dependability factors; Development of system reliability, maintainability, and supportability requirements.

DAY 2 SESSION 3

System Functional Analysis - integration of operational and support functions;
 Concept of system packaging and system architecting;
 Influencing system architectures for reliability, maintainability, and supportability.

SESSION 4

Concept of Failure Mode, Effects, and Criticality Analysis (FMECA);
 Concept of Fault Tree Analysis (FTA); application to system testability and diagnostics; Case studies and group exercises.

DAY 3 SESSION 5

System Level of Repair Analysis (LORA); System Reliability Centered Maintenance; Case study and group exercises.

SESSION 6

Maintenance Task Analysis (MTA) and the identification of logistic support resources; Total Productive Maintenance (TPM).
Guest Lecture: Reliability, Maintainability, and Supportability of a COTS-Intensive System – Case Study and Lessons Learned.

DAY 4 SESSION 7

System Reliability, Maintainability, and Supportability Planning;
 Integrated Logistics Support – Planning and Control;
 Supportability Planning for COTS-Intensive Systems.

SESSION 8

Reliability, Maintainability, and Supportability for Software-Intensive Systems

DAY 5 SESSION 9

Reliability, Maintainability, and Supportability for Software-Intensive Systems;
 COTS Supportability Assessment and Technology

SESSION 10

Introduction to System Life Cycle Costing;
 Module Project Introduction;
 Module Conclusion and Evaluation.