School of Systems&Enterprises

EM/SDOE 612

PROJECT MANAGEMENT OF COMPLEX SYSTEMS

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

A project is a temporary endeavor undertaken to create a unique product or service. Project Management is the application of knowledge, skills, tools, and techniques accomplished through five linked processes for initiating, planning, executing, controlling, and closing work to meet a set of defined requirements. This project-based module exposes students to tools and methodologies useful for the effective management of systems engineering and engineering management projects. This course presents the tools and techniques for project definition, work breakdown, estimating, resource planning, critical path development, scheduling, project monitoring and control, and scope management. Reinforcing these fundamentals in project management, the course will introduce advanced concepts in project management, and establish the building blocks for the management of complex systems.

MODULE ORGANIZATION

This modular course combines lectures, classroom activities, case studies, and readings to develop an understanding of project management concepts and principles for complex systems. A project assignment allows participants to integrate and apply their knowledge.

MODULE AUDIENCE

This modular course would be of interest to systems engineers, project managers, integrated product team members, business managers, and contract administrators. People who are involved with any aspect of system and business analysis, design and development, mission capability and business process definition and architecting, and test and verification will find this module to be useful.

COURSEWARE

Participants receive a binder containing notes specifically developed for this course and additional readings. A textbook will also be used to convey the concepts discussed.

MODULE DIRECTOR

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MODULE REGISTRATION & INFORMATION

For additional information:
Contact **Beth Austin DeFares**, Beth.Defares@stevens.edu, 201.216.5362 or download the SDOE Graduate Enrollment Form from our website at **www.stevens.edu/SDOEenroll** and fax it to 201.216.5080.

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STEVENS Institute of Technology

DAY 1	
SESSION 1	**Executive Overview** - Defining Project and Program Management; Benefits and Obstacles of Project Management; Basic Concepts of Project Management; Defining Roles of Leadership in a Project; Exploring the Definition of Complex Systems
SESSION 2	**Bounding Project Scope** - Creating the Project Charter; Project Classification Frameworks
SESSION 3	**Leading and Managing the Project Team** - Difference Between Management and Leadership; Power and the Influencing of Behavior; Situational Aspect of Leadership Styles and Follower Readiness; Team-Building and Conflict Resolution Techniques; Successful Motivation Practices; Effective Leader Communications
DAY 2	
SESSION 4	**Work Breakdown and Organizational Structures** - Work Breakdown Structure; Organizational Structures; Selecting the Organizational Form; Selecting the Project Manager; Building the Project Team; Complex Systems: Organizational Issues
SESSION 5	**Task Planning** - Introduction to Estimation; Time Estimates; Equipment Driven Activities; Labor-Driven Activities; Software Estimates
SESSION 6	**Project Network Modeling** - Introduction to Networks; Creating the Network; Determining the Critical Path; Gantt Charts; Fast-Tracking The Project Schedule
DAY 3	
SESSION 7	**Project Management Software** - MS Project and Other Software Packages; Gantt Charts; MS Project Tutorial
SESSION 8	**Resource Leveling and Project Budget** - Resource Leveling; Generating a Project Budget; Management Reserve/Contingency Funds; Budget Estimation Tips
DAY 4	
SESSION 9	**Project Control** - Elements of Project Control; Earned Value Analysis; Change Control and Configuration Management
SESSION 10	**Project Quality Management** - Project Metrics; Calculate Performance Metrics; Quality Control; Quality Assurance
SESSION 11	**Contracting and Sub-contracting** - The PM's role for supplier and subcontractor management
SESSION 12	**Risk Management** - Risk Management Process; Identifying Risks; Qualitative and Quantitative Techniques; Risk Mitigation
DAY 5	
SESSION 13	**Evaluating, Directing, and Closing Out a Project** - Independent Assessments; Project Closeout; Lessons Learned
SESSION 14	**Business Ethics** - The importance of ethics in the PM profession