

Course	SE 53000 - Systems Engineering Management
Type of Course	Elective
Catalog Description	The systems engineering (SE) management team is responsible for planning and managing all systems engineering activities that are required to successfully develop complex products and systems. It is in charge of ensuring that all system elements are compatible, available on-schedule and on budget, must work together seamlessly, and satisfy customer requirements. This course addresses the role and activities of the systems engineering team in managing and coordinating product development. Topics include systems engineering planning, management of scope, risk and cost configuration, interfaces and human resources, project control, reviews, performance measures, standards, and documentation.
Credits	3
Contact Hours	3
Prerequisite Courses	None
Corequisite Courses	None
Prerequisites by Topics	Prerequisites: Senior or graduate class standing in an engineering or science degree program, or consent of instructor.
Textbook	None
Course Objectives	<p>Students who successfully complete this course will be able to:</p> <ol style="list-style-type: none"> 1. Understand the difference between classical systems engineering, large systems engineering and complex systems engineering. 2. Understand the types of system design decomposition. For example, System Design Map / Decomposition (i.e., Axiomatic Design), etc.... and their strengths and weaknesses. 3. Understand what the milestones of the SE Acquisition Process / SE Life Cycle are, their content and how to apply them. 4. Learn key definitions regarding systems and systems engineering. 5. Understand and develop a Systems Engineering Management Plan (SEMP) to document the development of your term project.

	<ol style="list-style-type: none"> Understand what the strengths and weaknesses of the SE Acquisition Process / SE Life Cycle are relating to products, product delivery systems and service system design. Understand the Scope of what the DoD now calls Earned Value Management (EVM) and the strengths and weaknesses of the approach. Demonstrate how your System Design Map may be used to make effective management and investment decisions during system implementation and operation. Be able to design an organization that applies your System Design Map with Plan Do Check Act (PDCA) methodology to sustain and improve your LD within the mindset/ context of a learning organization. Become current on Lean X implementations in healthcare and the pros and cons of those implementations. Understand why issues in healthcare also occur in Lean X manufacturing implementations.
Lecture Topics	<ol style="list-style-type: none"> Department of Defense Acquisition Lifecycle The Flame Model of Systems and the Tone of Senior Leadership System Design Language Manufacturing System Design Decomposition (MSDD) and the 7 FRs of Manufacturing System Design Decision Analysis and Consequences Plan Do Check Act (PDCA), Sustainability and Improvement of the System Design Build, Integration and Test Planning Risk Management: FMEA, EVM, TPM and feedback of risk into design Verification and Validation
Computer Usage	None
Laboratory Experience	None
Design Experience	Low
Coordinator	David S. Cochran, Ph.D.
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