Four parts of Systems Engineering – A summary sheet only DoD:

Introduction; Systems Engineering Process; Systems Analysis and Control; and Planning, Organizing, and Managing. The first part introduces the basic concepts that govern the systems engineering process and how those concepts fit the **Department of Defense** acquisition process.

The DoD 5000 series documents were revised in 2000 to make the process more flexible, enabling the delivery of advanced technology to warfighters more rapidly and at reduced total ownership cost. The new process encourages multiple entry points, depending on the maturity of the fundamental technologies involved, and the use of evolutionary methods to define and develop systems. This encourages a tailored approach to acquisition and engineering management, but it does not alter the basic logic of the underlying systems engineering process.

Integration Definition for **Function Modeling** (IDEF0) is a common modeling technique for the analysis, development, re-engineering, and integration of information systems; business processes; or software engineering analysis. Where the FFBD is used to show the functional flow of a product, IDEF0 is used to show data flow, system control, and the functional flow of life cycle processes.
Trade studies identify desirable and practical alternatives among requirements, technical objectives, design, program schedule, functional and performance requirements, and life-cycle costs are identified and conducted. Choices are then made using a defined set of criteria. Trade studies are defined, conducted, and documented at the various levels of the functional or physical architecture in enough detail to support decision making and lead to a balanced system solution. The level of detail of any trade study needs to be commensurate with cost, schedule, performance, and risk impacts.

The utility curve is a common methodology used in DoD and industry to perform trade-off analysis. In DoD it is widely used for cost effectiveness analysis and proposal evaluation.
The three classes of models and simulations are virtual, constructive, and live:
• **Virtual simulations** represent systems both physically and electronically. Examples are aircraft trainers, the Navy's Battle Force Tactical Trainer, Close Combat Tactical Trainer, and built-in training.
• **Constructive simulations** represent a system and its employment. They include computer models, analytic tools, mockups, IDEF, Flow Diagrams, and Computer-Aided Design/ Manufacturing (CAD/CAM).
• **Live simulations** are simulated operations with real operators and real equipment. Examples are fire drills, operational tests, and initial production run with soft tooling.

Metrics are measurements collected for the purpose of determining project progress and overall condition by observing the change of the measured quantity over time. Management of technical activities requires use of three basic types of metrics:
- Product metrics that track the development of the product,
- Earned Value which tracks conformance to the planned schedule and cost, and
- Management process metrics that track management activities.

MIL-STD-499A, on **Engineering** Management (**System Engineering**)
MIL-STD-806 , Graphical Symbols for Logic Diagrams, originally a USAF standard [10]
MIL-STD-810 , test methods for determining the environmental effects on equipment
Release DI-MGMT-81024 on Systems Engineering

DoD policy is quite clear in regard to risk management: **it must be done.**
The PM shall identify the risk areas in the program and integrate risk management within overall program management. (DoD 5000.2-R.). In addition, DoDD 5000.4 identifies risk and cost analysis as a responsibility of the program manager

16.2 ELEMENTS OF TECHNICAL PLANS

Technical plans should include sufficient information to document the purpose and method of the systems engineering effort. Plans should include the following:
• An introduction that states the purpose of the engineering effort and a description of the system being developed,
• A technical strategy description that ties the engineering effort to the higher-level management planning,
• A description of how the systems engineering process will be tailored and structured to complete the objectives stated in the strategy,
• An organization plan that describes the organizational structure that will achieve the engineering objectives, and
• A resource plan that identifies the estimated funding and schedule necessary to achieve the strategy.

The SOO is an alternative to a government prepared SOW. A SOO provides the Government's overall objectives and the offeror's required support to achieve the contractual objectives. Offerors use the SOO as a basis for preparing a SOW which is then included as an integral part of the proposal which the government evaluates during the source selection.

MIL-HDBK-61 Military Handbook 61, on **Configuration Management**
MIL-HDBK-881 Military Handbook 881, on **Work Breakdown Structure**
MIL-STD 499A Military Standard 499A, on **Engineering Management**
MIL-STD-961D Military Standard 961D, on **Standard Practice for Defense Specifications**
MIL-STD 962 Military Standard 962, on **Format and Content of Defense Standards**
MIL-STD-973 Military Standard 973, on **Configuration Management**
and DD Form 1423 Road Map

Welcome to DoDAF Version 2.02! This is the official and current version for the Department of Defense *Architecture Framework*. **Version 2.02,** is the approved release of the DoDAF as of **August 2010.** For a description of changes made to DoDAF/DM2 2.01 to create DoDAF/DM2 2.02, download the Version Description Document here.
This site has been edited to remove references to the DoD Architecture Registry System (DARS) and the DoDAF Journal which are **no longer** supported.
Existing DARS data is accessible via the Warfighting Mission Area Architecture Federation and Integration Portal WMA AFIP **(CAC Required)**

https://www.nasa.gov/sites/default/files/atoms/files/nasa_systems_engineering_handbook.pdf