



SYSTEMS ENGINEERING & ARCHITECTURE

TECHNICAL WORKFORCE HIGHLIGHT:

OCTOBER 2024

ENGINEERING & TECHNICAL MANAGEMENT (ETM) WORKFORCE DEVELOPMENT

ETM

The ETM workforce has a vital role in developing, fielding, and sustaining high-quality, innovative, affordable, supportable, and effective defense systems and ensuring that DoD products are delivered on time, perform as expected, and are cost-effective. The role requires developing and implementing products and services with an integrated technical approach across the total life cycle. The role includes providing the systems, software, and people to satisfy stakeholder needs and expedite transition of technology to the user, as well as early production planning and systematically examining producibility. The ETM workforce has the strategic perspective, technical competence, and critical thinking needed to operate within various product domains and other engineering and technical disciplines.

❖ WORKFORCE DEVELOPMENT

The DoD is investing in the existing workforce by developing and modernizing training and education. Training addresses technical skills needed to transition technology into usable capabilities. The Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) technical workforce development efforts are guided by Secretary of Defense priorities. OUSD(R&E), ETM workforce leaders from across the Department, and the Defense Acquisition University (DAU) collaborate to develop competencies, training, and credentials for the ETM workforce.



Defend the Nation
Innovate and Modernize the DoD



Take Care of Our People
Grow Our Talent



Succeed Through Teamwork
Build Unity Within the DoD

❖ TRAINING

The ETM training is based on targeted proficiency levels for ETM competencies. The recommended order to complete these courses is below. Completion of ETM 1060 is recommended prior to ETM 2060; all other ETM 1000-level courses are required prior to their corresponding 2000-level course.

ETM COMPETENCIES

CORE (TIER 2)

Leading Change	Mission & Systems Thinking	Requirements Definition & Analysis	Technical Management	Design Considerations
Product Realization	Digital Literacy	Software Literacy	Technical Perspective on Defense Contracting	

SPECIALTY (TIER 3)

Technology Portfolio Management	Mission Engineering Approach	Mission Engineering Documentation	Systems Engineering Management	Technology Transition/Transfer
Stakeholder Requirements Definition	Requirements Analysis	Implementation	Integration	Facilities
Verification & Validation	Transition	System of Systems / Family of Systems	Architecture Design	Software Assurance
Cyber Acumen for Engineering	Adversity-Driven Requirements Derivation	Analysis of Adversity & Adverse Effects	Adversity-Driven Design	Technology Protection
Adversity-Driven Design Realization	Industrial Workforce Planning	Quality Management	Materials Management	DevSecOps
Software Engineering/Design	Digital Environment Development	Digital Environment Operations & Support	Process Capability & Control	Technology & the Industrial Base
Modeling, Simulation, & Analysis	Manufacturing Planning, Scheduling, & Control	Software Configuration Management	Surveillance Activities	
Adversity-Driven Verification & Validation		Mission Capability Analysis, Definition, & Characterization		

ETM TRAINING

FOUNDATIONAL

ACQ 1010 Fundamentals of System Acquisition Management
ETM 1040 Technical Management Fundamentals
ETM 1010 Leading Change Fundamentals
ETM 1020 Mission & Systems Thinking Fundamentals
ETM 1030 Requirements Definition & Analysis Fundamentals
ETM 1050 Design Considerations Fundamentals
ETM 1060 Product Realization Fundamentals
ETM 1070 Digital Literacy Fundamentals
ETM 1080 Software Literacy Fundamentals
ETM 1090 Technical Perspectives on Defense Contracting Fundamentals

PRACTITIONER

ETM 2010 Leading Change for Practitioners
ETM 2070 Digital Literacy for Practitioners
ETM 2080 Software Literacy for Practitioners
ETM 2020 Mission & Systems Thinking for Practitioners
ETM 2030 Requirements Definition & Analysis for Practitioners
ETM 2050 Design Considerations for Practitioners
ETM 2040 Technical Management for Practitioners
ETM 2060 Product Realization for Practitioners
ETM 2090 Technical Perspectives on Defense Contracting for Practitioners

Complete Remaining 1,000-level Courses in Any Order

Green = Online Training (OLT)
Blue = Virtual Instructor-led Training (VILT)



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TECHNICAL WORKFORCE HIGHLIGHT: ETM WORKFORCE DEVELOPMENT cont'd

❖ CREDENTIALS

Defense acquisition credentials:

- Provide job-specific, specialty, and point-of-need training;
- Allow the workforce to customize their knowledge base throughout their career; and
- Are transferable across Components.

OUSD(R&E) is collaborating with the DAU, Military Services, and Defense agencies to develop over 30 credentials applicable to the ETM workforce. Several ETM and interdisciplinary credentials are already available with more on the way. Credentials currently available can be accessed here:

https://icatalog.dau.edu/onlinecatalog/tabnav_credentials.aspx

ETM CREDENTIALS IN DEVELOPMENT

Fundamental Secure Cyber-Resilient Engineering
(CCYB 003)*

Intermediate Digital Engineering
(CENG 028)*

Intermediate Secure Cyber-Resilient Engineering
(CCYB 004)*

Basics of DoD Software Modernization
(CENG 031)*

Fundamental Mission Engineering
(CENG 005)*

Introduction to DevSecOps Employed in DoD
(CENG 032)*

Software Engineering Intermediate
(CENG 008)

Strategic Planning for DevSecOps Implementation
(CENG 033)*

Technology Portfolio Management
(CENG 013)*

DevSecOps Continuous Development in DoD
(CENG 034)*

Intermediate Systems Engineering Requirements & Architecture
(CENG 016)*

DevSecOps Continuous Delivery in DoD
(CENG 035)*

Intermediate Systems Engineering Management
(CENG 017)

Modern Software Configuration Mgmt Strategies
(CENG 036)*

Intermediate Systems Engineering Product Development
(CENG 018)

Securing the DevSecOps Pipeline
(CENG 037)*

AVAILABLE ETM CREDENTIALS

Digital Engineering for DoD Consumers
(CENG 001)

Technology Project Management
(CENG 012)

Data Analytics for DoD Acquisition Managers
(CENG 002A)

Program Protection
(CCYB 001)

Artificial Intelligence Foundations for the DoD
(CENG 003)

Cybersecurity for Program Managers
(CCYB 002A)

Agile DoD Team Member
(CENG 004)

Supplemental training is available in the form of job-centric credentials.



*Some learning assets available to the workforce now!

The full list of available learning assets for ETM and interdisciplinary credentials currently in development is available at <https://www.cto.mil/sea/workforce/>.

Workforce members can register for these learning assets through DAU's Course Catalog: <https://icatalog.dau.edu/onlinecatalog/tabnavlas.aspx>.

TYPICAL ROLES

ETM workforce members hold a variety of positions that may include, but are not limited to, Engineer/Chief Engineer, Architect, Software Developer, Specialist (Quality, Reliability, etc.), Production Controller, Researcher/Scientist, Technical Management, and Analyst.

For more information, visit <https://www.cto.mil/sea/workforce/> or email osd-sea@mail.mil, ATTN: Workforce