Proposed New Continuing Education and Development Plan for USAF Acquisition Engineers

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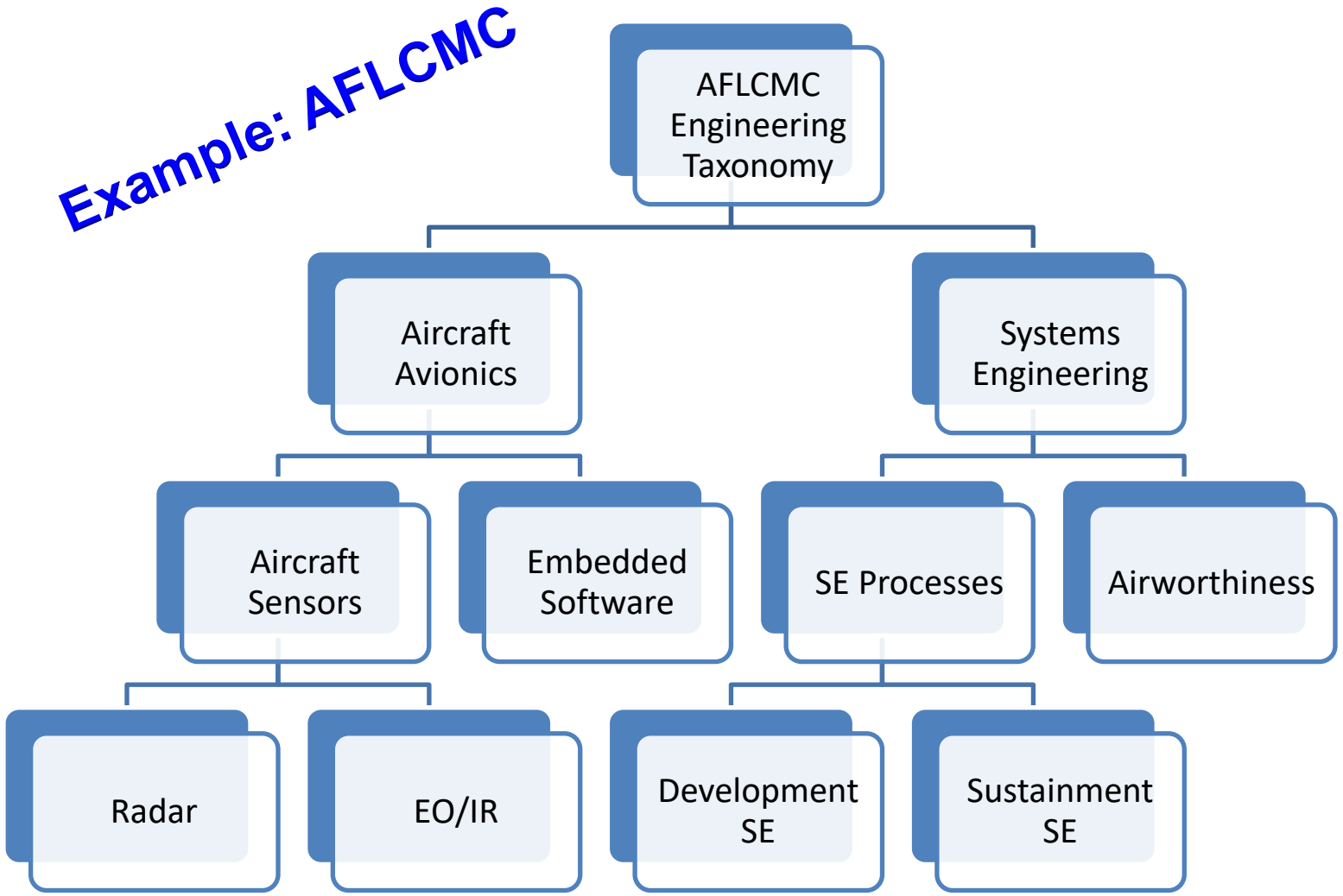
Proposal arose from discussions about the current SYS 482 Chief Engineer Course

- Original direction on SYS 482 topic requirements for came from the course sponsor, AFLCMC/EZ, Senior Leader for Systems Engineering
- Course is nine months long, over 206 hours of formal instruction
- Feedback is that course is very good, but too long and taxing
- Sponsor also wants to cover a large spectrum of topics that are not presented in a systematic manner elsewhere

There is no civilian systems engineer career field education and training guide

Engineering Taxonomy for Competency Management



Domains

Competency Areas

Technical Disciplines

From Distro A Presentation, Dr. Ken Barker, 30 Aug 2016
"AFLCMC/EN-EZ Competency Management Fundamentals"

Current SYS 482: Chief Engineer Course

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Chief Engineer Roles and Responsibilities (Module 1)

Lesson 1	CE Role & Responsibilities Overview
Lesson 2	CE/PM/PEO relationship
Lesson 3	OSS&E
Lesson 4	CE Roles Across the System Life Cycle Stages
Lesson 5	CE Leadership Role
Lesson 6	Laws, Policy, and Standards

Select Topics in Systems Engineering (Module 2)

Lesson 1	Systems Engineering Overview
Lesson 2	Technical / Project Planning
Lesson 3	Concept Definition
Lesson 4	Decision Management and System Analysis Processes
Lesson 5	System Definition
Lesson 6	Risk Management
Lesson 7	Configuration, Information and Interface Management
Lesson 8	System Realization
Lesson 9	Technical Assessment
Lesson 10	System Deployment and Use
Lesson 11	Application of Systems Engineering to Air Force Programs

Current SYS 482: Chief Engineer Course

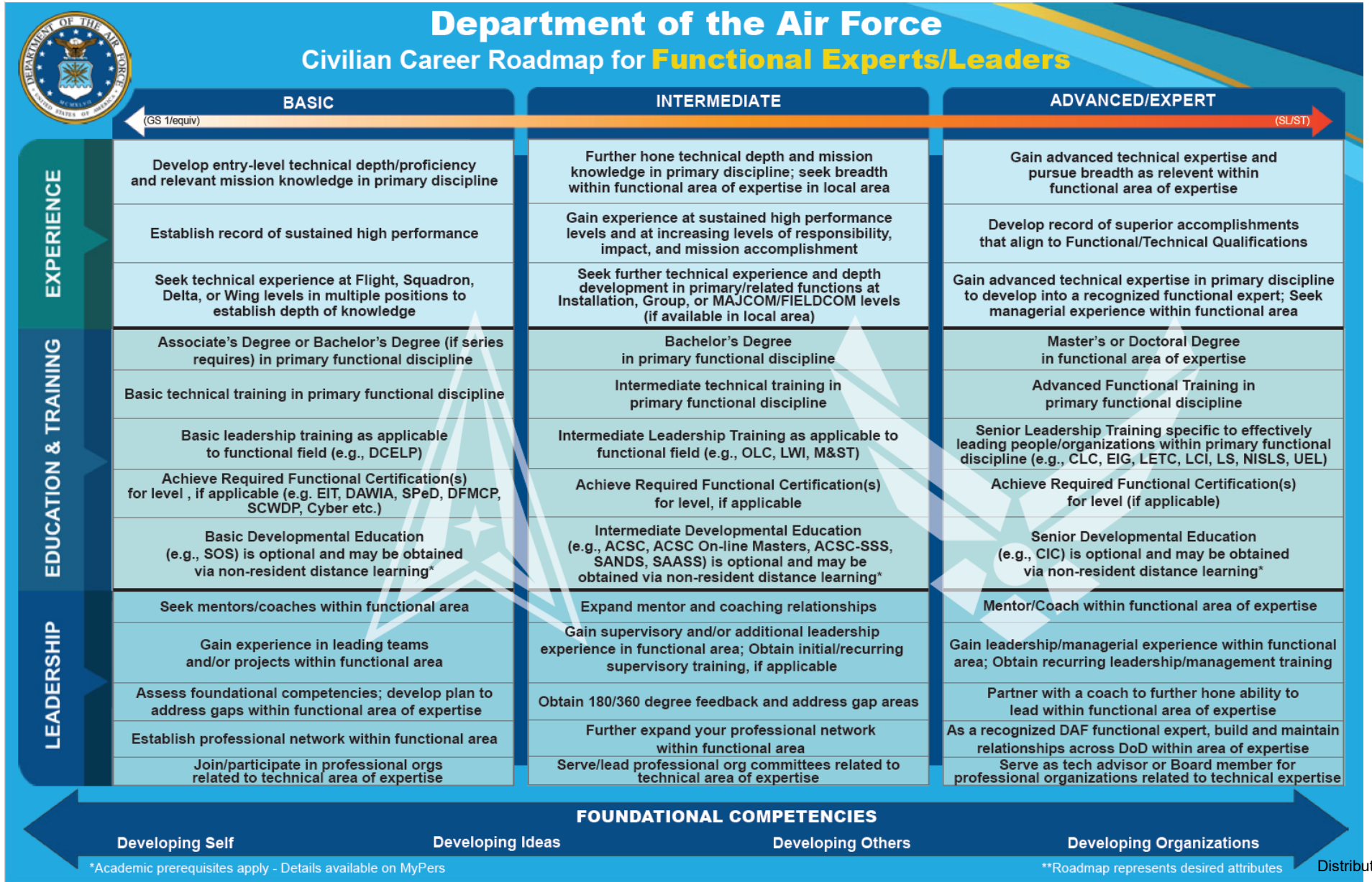
DoD/USAF Initiatives / Emphasis areas (Module 3)

Lesson 1	Managing the Technical Baseline
Lesson 2	Digital Enterprise
Lesson 3	Modeling Simulation and Analysis
Lesson 4	Software
Lesson 5	Decision Analysis
Lesson 6	Open System Architecture
Lesson 7	Integrity Programs
Lesson 8	Strategic Development Planning and Experimentation
Lesson 9	Digital Engineering Plan, Leadership, Program Assessment and Capstone Preparation

Capstone (Module 4)

Lesson 1	Guest Speakers, Case Study
Lesson 2	Module Based Systems Engineering Experience
Lesson 3	Capstone Digital Engineering Presentations
Lesson 4	Capstone Leadership, Program Assessments Presentations
Lesson 5	Comprehensive Assessment, Course Survey

Dept of the AF "Civilian Career Roadmap"



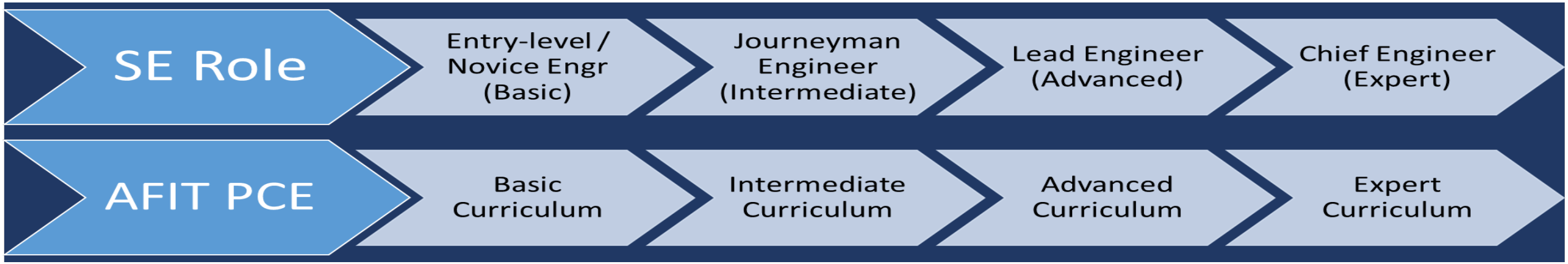
Our general concept

Following the roadmap; link SE Role, PME, PCE, Grad Ed, Experience, & Proficiency together.

PCE = Professional Continuing Education

PME = Professional Military Education

SE Role	Entry-level / Novice Engineer	Journeyman Engineer	Lead Engineer	Chief Engineer
Proficiency Level	Basic	Intermediate	Advanced	Expert
AFIT PCE	Basic Curriculum	Intermediate Curriculum	Advanced Curriculum	Expert Curriculum
PME		Squadron Officer School	Air Command & Staff College	Air War College
Grad Edu	Graduate Cert/Degree Programs		Advanced Specialization	
Minimum Timeframe	Years 1 – 3 (3 years)	Years 4-9 (6 years)	Years 10-12 (3 years)	13+ years



1. Complete courseware
2. Pass assessment
3. Earn micro-credential

Notional courses in SE technical and technical management processes

Recommended optional education / electives will be provided in addition to these tracks

Basic SE Track Yrs 0-3	Inter. SE Track Yrs 4-9	Advanced SE Track Yrs 10-12	Expert SE Track 13+ yrs
Foundational edu in: • Systems Engineering • MBSE, Digital Modeling • Requirements • Risk Management • Data Management • Configuration Mgmt • Test and Evaluation	Intermediate edu in: • Systems Engineering • Environmental, Safety, & Occupational Health • System Safety • Wpn system cyber analysis • Data Architecting (DoDAF) • Program & Tech Protection • Reliability • Agile & DevOp Processes	Dedicated courses: • SYS 382: Advanced Applied Sys Engineering • SYS 392 Advanced SE Specialty Topics	• SYS 492 Chief Engineer Preparatory Course
MCSE 100 exam	MCSE 200 exam + Practicum project	MCSE 300 exam + Practicum project	

New “Lead + Chief Engineer Sequence”
- SYS 382
- SYS 392
- SYS 492

MCSE = Microcredential in Sys Engr

Thank you!

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http://www.afit.edu/ls

BACKUPS

Course Revisions

Keep topics from Modules 1 and 4 for new Chief Engineer Preparatory Course (SYS 492)

SYS 492: Chief Engineer Preparatory Course
CE Role & Responsibilities Overview
CE/PM/PEO relationship
OSS&E
CE Roles Across the System Life Cycle Stages
CE Leadership Role
Laws, Policy, and Standards
Model-Based Systems Engineering Experience
Capstone: Digital Engineering, Leadership, & Program Assessments Presentations

Course Revisions

Move Modules 2 and 3 topics to new courses SYS 382 and 392

Notional topics based on the current Modules 2 and 3

SYS 382: Advanced Applied Systems Engr
Systems Engineering Overview & Review
Technical / Project Planning
Concept Definition
Decision Management and System Analysis Processes
System Definition
Risk Management
Configuration, Information, and Interface Management
System Realization
Technical Assessments
System Deployment and Use
Application of Systems Engineering to Air Force Programs

SYS 392: Advanced Systems Engineering Specialty Topics
Managing the Technical Baseline
Digital Enterprise
Modeling Simulation and Analysis
Software
Decision Analysis
Open System Architecture
Integrity Programs
Strategic Development Planning and Experimentation

SYS 382: Advanced Applied Systems Engineering

Course Title: WSYS382 - Advanced Applied Systems Engineering

Course Description: This course prepares students to integrate a comprehensive working knowledge of systems engineering concepts, techniques, roles, and responsibilities into their daily interactions with program management, logistics, financial management, contracting, and other functional areas to influence the outcome of a balanced system design within programmatic constraints of cost and schedule that impacts performance.

Course Objectives:

- Analyze common industry and DoD systems engineering frameworks and taxonomies.
- Assess tools and techniques, resources, organizational systems, and decision-making processes for the successful management of projects.
- Apply the 16 DoD systems engineering processes in notional weapon system program office exercises.

SYS 392: Advanced Systems Engineering Specialty Topics

Course Title: WSYS392 - Advanced Systems Engineering Specialty Topics

Course Description: This course prepares students to comprehend and integrate specialty technical topics into systems engineering decisions. This includes topics such as digital materiel management and model-based systems engineering, Open Systems Approaches, software development and management methodologies, and data analytics for technical decision making.

Course Objectives:

- Comprehend the application of a model-based approach to systems engineering in a digital environment.
- Comprehend open systems approaches to weapon system development and sustainment.
- Comprehend different software development and management methodologies.
- Apply data analytics techniques to develop and support technical decisions.
- Integrate specialty topics into a holistic systems engineering approach to manage technical baselines.

SYS 492: Chief Engineer Preparatory Course

Course Title: WSYS492 – Chief Engineer Preparatory Course

Course Description: This course prepares highly educated motivated professionals that are at the grade of NH-IV, O-4, and above with comprehensive expert-level education on Chief Engineer roles, responsibilities, authorities, and topics across the life cycle of a DAF weapon system. This helps arm current and future Chief Engineers with the knowledge and skills necessary to support strategic program decisions in executing the mission of the Department of the Air Force.

Course Objectives:

- Comprehend Chief Engineer roles, responsibilities, and authorities throughout the system life cycle.
- Analyze laws, policies, standards, and guidance from the perspective of a Chief Engineer.
- Apply strategic systems engineering concepts to analyze program technical gaps and handling strategies to achieve objectives.
- Analyze personal leadership qualities and apply improvement methodologies.