Welcome to Military Engineer Education & Training

Moderator: Maj. Gen. Randy Castro, USA (Ret.), AECOM

Speakers:
- Col. Paul Cotellessso, Air Force Institute of Technology
- Capt. Kevin Brown, USN, CSFE
- Mr. James Rowan, U.S. Army Engineer School
- Command Sgt Major Karl Groninger, USA, USACE
The Civil Engineer School

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Col Paul Cotellesso
DSN 785-5654x3505
Paul.cotellesso@afit.edu
Delivering Vital, Relevant, and Connected Instruction Across the Globe

The AFIT of Today is the Air Force of Tomorrow.

Locations Served:
- Lakenheath AB
- Spangdahlem AB
- Mildenhall AB
- Ramstein AB
- Aviano AB
- Osan AB
- Yokota AB
- Kadena AB
- Misawa AB
- Jordan
- Kyrgyzstan
- Afghanistan
- Guam

Air University: The Intellectual and Leadership Center of the Air Force
Aim High…Fly - Fight - Win
Air bases are a determining factor in the success of air operations. The two-legged stool of men and planes would topple over without this equally important third leg.

-- Gen Henry H. “Hap” Arnold

Ops & Engineering Mgt
Course Categories:
• Contingency/Expeditionary Eng
• CE Flights & Sq CC Courses
• Asset Management
• Ops & Engineering Flt Processes

Technical Applications
Course Categories:
• HVAC Design
• Electrical Power Sys Design
• Simplified Facility Design
• Airfield Pavement Design
• Energy

Installation Mgt
Course Categories:
• Environmental
• Housing
• Resource Management

The Civil Engineer School: Vital

The AFIT of Today is the Air Force of Tomorrow.

Technical Professional Continuing Education
One third the Foundation for:
• Building great leaders
• Building ready engineers
• Building sustainable installations
• Leading change
The Civil Engineer School: Relevant

The AFIT of Today is the Air Force of Tomorrow.

Continued education for AF Civil Engineer garrison & deployed installation missions

CE Transformation – Implements and incorporates PAD 07-02 into all curriculum

Continued partnership in Joint Engineer Operations Course (JEOC)

Led Provincial Reconstruction Team (PRT) PM & Construction Inspection Course

Promote Defense-Industry Contractors at AFIT: 2013 NDAA authorized enrollment
The Civil Engineer School: Connected

The AFIT of Today is the Air Force of Tomorrow.

Utilizing all modes of instruction
- Synchronous/Asynchronous – Satellite, Internet, VTC, Self-Paced Web Enabled Courses
- e-Symposiums - $1.5M travel cost avoidance
  - AFCEC-ICE – 250 people & 70 bases
  - AF/A7CR - 487 people & 52 bases

Faculty/Staff: 39
- Students: ~6000/yr
- Initial Skills Course for 32E Accessions
  - FY12 CE Badges Awarded: ~90 Active Duty & ~40 ANG/AFRES
- 70+ courses/seminars and 118 Offerings/year
Future Outlook

The AFIT of Today is the Air Force of Tomorrow.

- Continued pressure on TDY approval and budgets
- Increased reliance on Distance Education technologies
- Increased eSymposium capacity
- Increased education for contingency missions
Mission
To develop and deliver combat skills, construction and facilities engineering training to meet shore based installation requirements and achieve expeditionary warfare superiority

Vision
Leaders in Training

VADM Van Buskirk, CNP, visits Builder Schoolhouse at NCTC PH

CECOS Energy Management Class, Souda Bay, Greece

Equipment Operator “A” School Course, CSFE Det FLW
CSFE Learning Sites

* Imbedded Training Support Detachment
Scope of Instruction
Center for Seabees and Facilities Engineering

➢ Type of Students:
  - AC/RC Officer
  - AC/RC Enlisted
  - Civilian

➢ Type of Courses:
  - Basic and Advanced Construction
  - Professional Development
  - Fleet Specific

- 160 Different Courses
- Annual courses completed ~ 853
- Annual Student throughput ~ 16K

“Train today’s leaders to meet tomorrow’s challenges around the globe”
## Civil Engineer Corps Officer Career Path

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Seabee Training Reset

Intent: Align Fleet manpower (NEC billets) to formal training opportunities

Benefits:

- **Fleet**
  - More time for mission training and construction projects
  - More Reserve-friendly, average “G” Course 19 days

- **MPT&E**
  - Estimated out-year annual cost avoidance of ~$3.4M
  - Reduction of over 2,600 hours of curriculum and 5,400 students annually
Instructional Method Changes

- Simulators
  - Convoy Trainer
  - Battle Staff Trainer
  - Mobile Counter IED Trainer
  - Basic and Advanced Skills
    - Cranes
    - Graders
    - Welding

- Sakai Project
Contact Us

CAPT Kevin Brown
CSFE Commanding Officer
(805) 982-3300
DSN 551-3300
Kevin.l.brown2@navy.mil

NCTC GP Builder Instructor Re-enlists
Army Training and Education

Mr. Jim Rowan
Deputy Commandant
U.S. Army Engineer School
Agenda

• Mission and Vision
• Regimental Framework
• Simulation Supported Learning
• Geospatial Relocation
• Instructor Exchange
• Credentialing
• Engineer Captain’s Career Course
MISSION: ENGINEER HQs and SCHOOL generates the military engineer capabilities the Army needs; training and certifying Soldiers with the right knowledge, growing professional leaders, organizing and equipping adaptive units, establishing a framework of doctrine for integrating capabilities with operations, and remaining an adaptive institution in order to provide Commanders with the freedom of action they need to win decisive action as part of JJIM-IA (“Whole of Government”, “Whole of Society”) team.

VISION: **Engineers are the “Swiss-Army Knife” of the Army**

- The World’s Best and Most Versatile Military Engineers
- **Technically as well as Tactically Expert**
- It’s lonely in the lodgment!
- Warriors Always
- Expeditionary Training and Mindset
- Regimental Family
- Most Flexible and Adaptive Units and People
- Soldiers and civilians that inspire each other
- Soldiers who dare to demand “Let Us Try”...and get it done

Before the end of this decade, almost 99 percent of the Army will be stationed in a US state leaving just over 1 percent forward deployed. We have not seen this situation since 1941.

**Engineer Warriors leading to serve maneuver forces:**
“A Regiment inspired to overcome all challenges to enable victory”
The Army Engineer Profession: A Model

Capabilities “Interdependent Disciplines”

The Engineer Regiment

Lines of Engineer Support “The Unique Work of Our Profession”

The Reason We Exist “Our Purpose: Provide Freedom of Action”

Unified Land Operations

Mission Command

Decisive Action

Offense

Defense

CAM

Core Competencies

WAS

Stability

DSCA

Modular Engineer Company Formations

Key Tasks for the Profession

• Breed the Army’s best/most creative/most agile leaders... inspired with passion
• Focus on the unique skills and capabilities our Regiment provides
• Support the forces in contact (expeditionary ops, SOF, Cyber, HLD, theater shaping ops; partner capacity and infrastructure prep of theater). Engineers units are always in the fight.
• Capture what we have learned (or relearned) in a decade of war... apply to it all DOTMLPF
• Weigh the Main Effort by remissioning engineers- no engineers not applied to our missions (no Engineers in the reserve)
• Build Great Engineers... warriors always
• Readiness is key... revolutionize home station and functional Engineer training
• Win as a team...JIIM-Industry-Academia
• From dawn of warfare to today and in the first and last 300 meters to any objective- maneuver, fires and engineers ... serving proudly with a Sapper’s heart

Addressing “Over-modularization” of the engineer force
Simulation Supported Learning

• Virtual Battlespace 2 (VBS2) is a highly accurate 3D representations of US Army and threat elements, vehicles, and weapons with thermal signatures.

• A flexible, real time networked training environment able to simulate complex combined-arms maneuvers such as combat teams of infantry and armored elements operating with Soldier-controlled aircraft and artillery in support of the mission.
Geospatial Relocation

• Geospatial training moved from Ft. Belvoir, VA to Ft. Leonard Wood, MO in Jan 2012 to create a smoother transition from basic training to AIT, and cross-training opportunities between Engineer MOSs.

• The Geospatial Engineering Technician (125D) and Geospatial Engineer (12Y) is an 18-week course the NCO level course is a 16 week course. Graduated the first class at FLW in Aug 12.
Instructor Exchange

• The US Army Engineer School in coordination with the Maneuver, Fires, and Aviation Centers of Excellence supports an Army branch instructor exchange program. The program is primarily focused at the ECCC.

• The primary focus of the exchange program is to improve the understanding of other combat branches and capabilities.
Credentialing

• In support of the President’s Military Credentialing and Licensing Task Force and US Army TRADOC’s credentialing initiative, the USAES is leveraging pilot education programs that produce credentials for US Army Engineers.

• The following credentials are applicable:
  ✓ Project Management Professional (PMP)
  ✓ Certified Managers (CM)
  ✓ Certified Construction Manager (CCM)
  ✓ Certified Associate in Project Management (CAPM)
  ✓ LEED Green Associate
  ✓ National Institute for Certification in Engineering Technologies (NICET)
  ✓ Automotive Service Excellence (ASE)
Engineer Officer Skill Identifiers

• Recently, HQDA G1 approved an initiative by the U.S. Army Engineer School and Regimental HQs to merge the three current engineer officer areas of concentration (AOCs) into one (12A Engineer, General) and the creation of eight Skill Identifiers (SI). The SI’ better enable HRC and the Engineer Regiment to get the right officer with the right credentials to the right assignment.

• The skill identifiers (SI) are:
  - S4-Sapper Leader
  - W1-Facilities Planner
  - W2-Geospatial Engineer Officer
  - W3-Professional Engineer
  - W4-Degreed Engineer
  - W5-Project Management Professional
  - W6-Project Engineer
  - W7-Environmental Officer
USACE – A Leader in STEM

4,012,770 9th Graders in 2001 in the USA
70% graduated high school in 2005
32.4% college ready in 2005
6% choose a STEM Major
4% earn STEM Degree (166,530 grads)

China: 1.9M “Engineer” graduates
763K received an equivalent* degree
10% globally employable
= 76,400 globally employable grads

India: 793K “Engineer” graduates
497K received an equivalent* degree
25% globally employable
= 124,400 globally employable grads

USA: 166K STEM graduates
166K received an accredited degree
81% globally employable
= 134,460 globally employable grads

*In China and India, equivalent degree compared to USA accredited institutions

China and India have no standard definition of the word “Engineer” (includes auto mechanics, IT Specialists, varies based on needs of the government)

“Quantity instead of Quality” Program Goals in both India and China

In China and India, if you’ve taken ONE STEM related class, you’re counted as an ‘Engineer’ in education

The Chinese Government is notorious for inflating statistics to compete with global leaders (i.e. manufacturing, GDP) The Indian Government is more realistic, but not by much
Engineer Captain’s Career Course

• New learning model focuses on application level of learning or higher (i.e. analysis and synthesis) as compared to the previous “knowledge” level of earlier courses.

• The new course is now 23 week vice 21 weeks. The improvements focus on STAFEX, General Engineering, and EN WFX.
Proposed ECCC Expansion (23 weeks)

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MLC 2015 Common Core  New Tng  Engineer Doctrine  General Engineering  Decisive Action  EN WFX  WFX  OUT

IN

5 Days, Harvested from MLC 2015 Common Core (STAFFEX portion)
• Review of Troop Leading Procedures / Orders
• Tactical Decision Exercises (ABCT, IBCT, SBCT) \n• Reinforce Critical Thinking / Analysis
• Intro to Cyber/Space/SOF (reinforced during Decisive Action)
• Broad EN support to JOAC (reinforced during Decisive Action)
• Enhanced Geospatial
• Improved WFX

Expanded GE and Decisive Action
• JLOTS / Port operations
• Operational Energy
• DSCA / Consequence Management (e.g. New Madrid Earthquake; New York City Improvised Nuclear Device; San Joaquin Valley Flood)

“EN WFX” with EN Focus
• BEB support to BCT, with EAB supplementation
• “EN WFX” done prior to WFX, main focus on EN tasks – geospatial, early entry, lodgement expansion, basecamp
• Students Red-Team in exercise (Hybrid Threat); iterations
• Reinforce actions
An integrated, rigorous curriculum informed by CAS3 (2003), the 2009 CCC Common Core redesign, the transformation to a modular ARFORGEN BCT Army, and ALM 2015

ECCC
Mid-Grade Learning Continuum 2015

Comprehensive instruction
Includes critical thinking and leadership throughout.

For Discussion at CDoT Conference: USAES preference is to incorporate this training during branch module, in order to increase the effectiveness and efficiency of training.

An integrated, rigorous curriculum, nested with ILE curriculum, and retains focus on developing competent Bn/Bde staff officers

Formal assessments:
- 6 writing assignments
- 3 formal briefings
- 4 h end-of-course exam
- range of informal assessments

Learning enabled by simulation:
- Crucible of Command (CruCom)
- Decisive Action Brigade Level (DABL)

Leverages students’ training, education and experiences

CCC Common Core (8 WKS)
CCC Branch Specific (13 WKS)