



The Civil Engineer School

At The Air Force Institute of Technology

THE CIVIL ENGINEER SCHOOL MISSION

Providing vital, relevant and connected education that enables Airmen to be ready engineers and great leaders who know how to build sustainable installations to last while leading the change for the Civil Engineering career field.

The school's faculty and staff include 18 military personnel, 12 civilians, and seven contractors.



Col Paul Cotelleso
 Dean

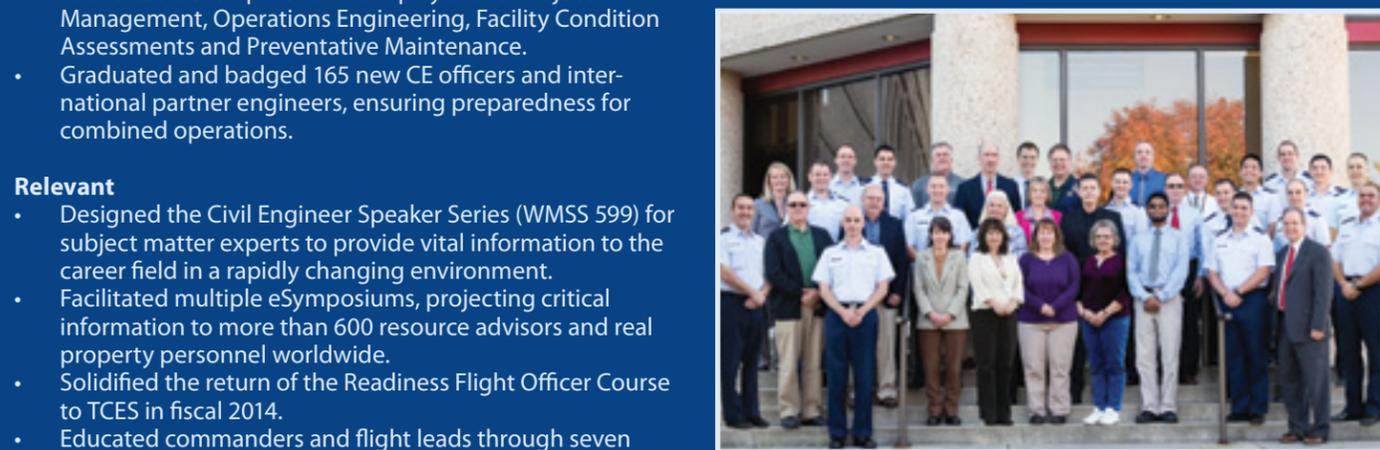


Dr. Jared Astin
 Associate Dean

SIGNIFICANT ACCOMPLISHMENTS

The Civil Engineer School directed approximately 110 courses and taught about 4,500 civil and environmental engineers in residence and at on-sites as well as online and by DVD, satellite and esymposiums in fiscal 2013. Below are some of the highlights:

- Selected by the Society of American Military Engineers as the national 2012 Public Agency Award winner for the school's eminent contributions to SAME.
- Partnered with contingency asset experts from the 49th MMG to host a force beddown exercise, enabling real-time collaboration between initial skills students and contingency planning experts from the field.
- Collaborated with six countries during the Gulf Cooperation Council Water Resources Management and Development for Military Operations Workshop in Amman, Jordan
- Provided consultation services for issues in management (e.g., operations, housing, Prime BEEF wartime skills), engineering (e.g., Airfield pavements, HVAC control systems, roofing, Micro-paver) and environmental (hazardous waste management, pollution prevention).



The faculty and staff of the Civil Engineer School includes military, civilian and contractor personnel. (U.S. Air Force photo)

- Integrated Active Duty, Guard and Reserve engineer officers and civilian engineers into the career field's first "Total Force" initial skills badge-awarding course, ensuring consistent training across the board.
- Air Force Senior Facilitator for six Joint Engineer Operations Courses; 360 engineers ready and certified for JTF J7 operations.
- Facilitated development of four playbooks: Project Management, Operations Engineering, Facility Condition Assessments and Preventative Maintenance.
- Graduated and badged 165 new CE officers and international partner engineers, ensuring preparedness for combined operations.

- Designed the Civil Engineer Speaker Series (WMSS 599) for subject matter experts to provide vital information to the career field in a rapidly changing environment.
- Facilitated multiple eSymposiums, projecting critical information to more than 600 resource advisors and real property personnel worldwide.
- Solidified the return of the Readiness Flight Officer Course to TCES in fiscal 2014.
- Educated commanders and flight leads through seven separate course offerings for varying leadership and position levels.



GRADUATE SCHOOL OF ENGINEERING & MANAGEMENT

The faculty is responsible for all aspects of the graduate engineering management program. The GEM program is responsive to the needs of the Air Force CE community, developing courses and tailoring curriculum to prepare graduates for the future. Students are educated to plan, organize and lead in a technology-focused organization and to apply critical thinking skills and analytical techniques to solve the most challenging problems. The students collaborate with Air Force agencies in conducting defense-focused independent research. The faculty conducts independent research and their technical expertise is proven by the program's journal publication track record.



Lt Col Tay W. Johannes, Ph.D., P.E.
 Program Director

- GEM Faculty:**
- Col Paul Cotelleso, Ph.D. (adjunct)
 - Maj Greg Hammond, Ph.D., P.E.
 - Lt Col Tay W. Johannes, Ph.D., P.E.
 - Al Thal, Ph.D.
 - Maj Vhance Valencia, Ph.D., P.E.

GEM PROGRAM DESCRIPTION

The GEM program is designed for individuals who desire to integrate technical and managerial skills in preparation for operating within a technical environment. Students learn to define problems, formulate approaches to investigate the problems, collect and analyze data with appropriate analytical tools, and interpret findings for managerial action. With coursework in management science, project management, decision and risk analysis, systems analysis and behavioral science, students are able to develop their management proficiency within an area of technical specialization (e.g., infrastructure, construction or crisis management). The program's strength lies in its multidisciplinary approach — core management principles are integrated with graduate-level technical education.

The program includes several civil engineer specific courses, including those on the following topics: construction management, inspection, contracts and law, and risk and finance; asset management modeling; infrastructure asset management and risk analysis; geographical information systems; and crisis management.

SIGNIFICANT ACCOMPLISHMENTS

- **GEM 13**
 - Ten graduates; two P.E.s; two certified project management professionals
 - Eight conference papers accepted for peer-review conferences (only two presented due to restrictions with non-DOD conference attendance)
 - Three peer-reviewed journal papers submitted and in review
 - Supporting research sponsored by external grants valued at approximately \$320,000
- **GEM 14**
 - Twenty-one current students (18 captains, two lieutenants and one master sergeant)
 - All student research projects sponsored by external stakeholders

- Supporting research sponsored by grants valued at approximately \$450,000

Representative Articles and Conference Proceedings

- Griffin, JS, Thal, AE., Jr, & Leach SE. "Enhancing Asset Management Through a Better Understanding of Energy Consumption." International Journal of Strategic Property Management. (in press).
- Ochs, KS, Miller, ME, Thal, AE Jr, & Ritschel, JD. "A Proposed Method for Analyzing Infrastructure Investment Decisions Involving Rapidly Evolving Technology: A Case Study in LED Streetlights." Journal of Management in Engineering (in press).
- Chun, W, Feng PP, Thal AE Jr, & Badiru AB. 2013. "Life-Cycle Assessment of LEED vs. Conventionally Constructed Residential Units." Industrial and System Engineering Research Conference, San Juan, PR, May 18-22. (Finalist for Best Paper Award in Engineering Management Track)
- Hammond, GD & Bier VM. 2013. "Alternative Evacuation Strategies for Nuclear Power Accidents." American Nuclear Society's Winter Topical Meeting: Risk Management for Complex Socio-technical Systems", Washington, D., Nov 10-14.
- Johannes, T. 2013. "Creating Effective Response Communications." In Handbook of Emergency Response: A Human Factors and Systems Engineering Approach, A. Badiru and L. Racz (eds.). Boca Raton, FL: CRC Press, pp. 597-609.
- Murley, DJ, Thal, AE Jr, Wyatt, LJ, Johannes, TW & Badiru AB. 2013. "Development of a Cooling Load Model for Geospatial Analysis of Energy Efficient Technology in Austere Environments." Industrial and Systems Engineering Research Conference, San Juan, PR, May 18-22.
- Hammond, GD & Bier, VM. 2012. "Improving protective-action strategies following a nuclear-power accident." Annual meeting of the Society for Risk Analysis, San Francisco, CA, Dec 9-12.
- Gannon, T, Feng, P, & Sitzabee, W. 2012. "Reliable Schedule Forecasting in Federal Design-Build Facility Procurement." Lean Construction Journal, pp. 1-14.