



**Calhoun: The NPS Institutional Archive
DSpace Repository**

Department of Systems Engineering

Systems Engineering Department Newsletters

2006-09

**Department of Systems Engineering
Newsletter / September 2006**

Naval Postgraduate School (U.S.)

U.S. Naval Postgraduate School, Monterey, California. Office of Alumni Relations

<https://hdl.handle.net/10945/52920>

This publication is a work of the U.S. Government as defined in Title 17, United States Code, Section 101. Copyright protection is not available for this work in the United States.

Downloaded from NPS Archive: Calhoun



Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

**Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943**

<http://www.nps.edu/library>



NAVAL
POSTGRADUATE
SCHOOL

Department of Systems Engineering Newsletter Fall 2006

Note from the Chair

These are busy and turbulent times for us at NPS. We have a new Provost, and shortly expect a new President to be named. The Meyer Institute is being re-engineered with partners at UC Santa Barbara and Lawrence Livermore National Lab. With the rest of the Navy, we are striving to cut the right costs to free up resources for the war on terror while still executing our mission: providing well-educated leaders for our future defense.

We are experiencing rapid growth in the number of our students, now approaching 60 resident and 250 non-resident students, and continue to be delighted by their accomplishments, about which you will read below. We are also proud of the many achievements of our faculty.

We are very pleased that our resident systems engineering curriculum, sponsored by NAVSEA, has begun.

As the Department grows and adapts, we maintain our commitment to providing excellent education to our students and high value to our curricula and research sponsors --- to you!

Thank you for taking the time to read about **your** Department of Systems Engineering. We **always** appreciate hearing from you, our stakeholders, particularly if you have a suggestion or question. Key personnel contact information is listed on the last page.

Best wishes from Monterey!

--- *Dr. Dave Olwell*, Chair.

New Resident SE Curriculum Begins



Nine students (above), all Engineering Duty Officers (EDOs), enrolled in the first offering of the **resident Systems Engineering degree program**, launched this summer. Together with NAVSEA, we designed the curriculum for officers needing a broad systems engineering education plus depth in a technical domain. It lasts nine quarters.

The new student officers include two lieutenant commanders and seven lieutenants. The students will choose among specialty tracks in combat systems engineering, ship systems engineering, and network-centric systems engineering.

The next cohort starts in July, 2007. The curriculum is open to all US Navy officers, officers from other services, federal civilians, defense industry civilians, and international officers. Professor Cliff Whitcomb (contact information on the last page) can provide more information.

First SE Certificate Group Completes

Eleven students completed the first Systems Engineering Certificate cohort this September.

This first class included five EDOs: CDR **Jess Arrington**, NSW CCD, Philadelphia, LTJG **Charles Le**, NPS, LT **Tracy Sicks**, NPS, LT **Rhondalese Arrington**, NPS, and LT **Michael Burkhard**, NPS.

It also include several other active duty officers: LTCOL **Karl Brandt**, USMC, Strike Fighter Squadron 106, CAPT **Michael Lilienthal**, NAVAIR, and CDR **Paul Salamy**, VP-66.

Three DoN civilian employees, including **Joseph Burkart**, NAVAIR, **Mark Hnatyszyn**, SPAWAR San Diego, and **Alberto Ornelas**, SPAWAR San Diego, rounded out the class.

The certificate program consists of four on-line courses delivered one per quarter over the course of a year. The System Engineering Certificate is designed to provide a broad system engineering course of study to compliment the existing engineering duty officer training/education received in current graduate programs.

The course content and projects provide students with relevant academic challenges by addressing current problems of interest to the Department of Defense. The projects in the first four course sequence revolved around the systems engineering for an improvised explosive device (IED) hunting robot.

The **second NPS SE Certificate cohort** is halfway through their one-year program – with completion in Winter 2007.

The third cohort began on September 25, 2006, and currently has **admitted 24 DL students**. The courses

are paced week-to-week over the traditional quarter schedule by the instructors. Students have great flexibility to do their coursework at times of their choosing during each week. Work is over an NMCI-compliant learning management system.

12 more students in EE, MAE, CS, and Physics have started the **resident** version of the SE Certificate this fall.

New DL and resident cohorts starts every six months. Details of the DL program are available on-line at http://www.nps.edu/DL/NPSO/cert_prog/s/se.html.

23 SEA Students Graduate in June



In June, 23 students from the Systems Engineering Analysis (SEA) curriculum, including LT **Allen Johnson** pictured above with **VADM Stanley Szemborski**, completed their studies.

Students from **Singapore** participating in the **TDSI program** made major contributions to each of the three capstone projects.

The first project examined Ship-based Anti-Ballistic Missile Responses, and was advised by **Dr. Cliff Whitcomb** of the SE department, **Dr. Orin Marvel** of the IS Department, and Mr. **Bill Solitario** of the Meyer Institute. The student lead was **LT Allen Johnson**. Key findings included the need for non-organic sensors, technical requirements

for automated battle management and data exchange, the feasibility and cost-effectiveness of a rail-gun as the interceptor, determining the system saturation points, and the strategic mobility attributes of a sea-based system.

The second project developed a Rapid Response Command and Control package. This was advised by **Dr. John Osmundson, Dr. Tom Huynh, and Mr. Gary Langford**. The student lead was **LCDR Lisa Sullivan**. They were supported by the **Deployable Joint Command and Control Joint Program Office**. Their key findings developed, modeled, and evaluated a system architecture that enables regional combatant commanders to quickly deploy a command and control node suitable across the full spectrum of possible missions.

Maritime Threat Response was studied by the third project team. The student lead was **LCDR Andy Kessler**, and **Dr. Tom Huynh** was the project advisor. They examined systems to defend against ship-carried weapons of mass destruction, small boat attacks, and the use of a ship as a weapon. Their work emphasized non-materiel solutions, such as better rules of engagement and inter-agency cooperation, to minimize the effects on commerce.

[Http://www.nps.navy.mil/sea](http://www.nps.navy.mil/sea) provides more information on the SEA curriculum, including enrollment.

Students, Faculty Honored at Spring Graduation

RDML Richard Wells, NPS President, presented **Northrop--Grumman Awards for Excellence in Systems Engineering** to two students and two faculty members at NPS.

LT Lisa Sullivan (below) was recognized by **RDML Wells** for her leadership of the SEA9 Rapid Response Command and Control project.



LCDR Andy Kessler (below) was recognized for his leadership of the SEA9 Maritime Threat Response team.



Professor John Osmundson (below), of the NPS Department of Information Sciences and the Systems Engineering Department, was recognized for his contributions to the education of the SEA9 class, including excellence in project advising.





Professor Bob Harney (above) was also recognized for his contribution to the SEA9 class, especially for excellence in instruction.

First 'Open Enrollment' Systems Engineering Distance Learning (DL) Cohort Begins

The SE department kicks off the first SE DL Open Enrollment cohort this Fall. As of this writing, fourteen students have enrolled, both active duty and civilian employees, from eight different commands from coast-to-coast. **Open enrollment** means that the students can participate from across DoD, instead of the more usual concentration at the location of a single sponsor,

The MSSE degree includes a ten course SE core consisting of courses in Fundamentals of Systems Engineering, Systems Acquisition & Program Management, Systems Engineering & Integration, Systems Architecture, Naval Systems Analysis, Engineering Economics & Cost Estimation, along with a Capstone Design Project.

Along with their core systems engineering courses, the cohort will also be taking a program focusing on the **C⁴I (ISO)** curriculum within the systems engineering degree program.

The students will be taking their classes in a distributed learning (DL) format, using combinations of virtual tele-education (VTE), asynchronous

internet-based education, and live synchronous internet-based education over their two year program.

One student will be taking courses while deployed to **Baghdad, Iraq** – via internet-based DL. Others are deployed at sea.

The cohort is expected to graduate in September 2008.

PD21 Class Graduates at end of Summer

Eleven students graduated from the Product Development for the 21st Century curriculum this September. They were recognized at Bullard Hall at a ceremony just before graduation.



Pictured above is LCDR **Peter L. Morrison**, USN, who graduated with distinction, and who also earned the **Wayne E. Meyer** Award for Excellence in Systems Engineering. Dr. **Olwell**, center, and Dr. **Owen**, right, presented the Meyer Award to LCDR Morrison.

Captain **Jeremiah Stahr**, USAF, earned the Outstanding Thesis award.

Professors Tom Huynh or Wally Owen (contact information on last page) can provide more information about the PD21 program, and opportunities to join next falls' class, which will be the eighth cohort.

Port Hueneme MSSE Cohort Graduates in September and Sets Project Record



A record class of 31 students from the fourth “NSWC Port Hueneme” cohort graduated in September, earning Master of Science degrees in Systems Engineering. They participated in four group projects, under the leadership of **Mike Green**.

Project topics included:

- Implementation of Forcenet by Coalition Forces,
- Integrating the Non-Line of sight weapon in the US Navy,
- Open Architecture as an Enabler for ForceNet, and
- Digital Array Radar for Ballistic Missile Defense.

Three students graduated with distinction: **Jack Zen-Fung Chung**, **Eric R. Romero**, and **Mario J. Sanchez**.

The **Wayne E. Meyer** Excellence in Systems Engineering award was presented to **Robert A. Hazle** and **David R. Bedford**.

This was the fourth cohort of students from Port Hueneme to graduate.

SPAWAR MSSE Cohort Graduates

NPS celebrated the achievements of a large class of 25 students, primarily from **SPAWAR** in San Diego, who earned their graduate degrees in September.

Under the faculty leadership of **Mike Green**, they completed two projects. The first examined Forcenet Coalition Implementation Analysis. The second studied Tactical Satellite Feasibility.



Above, the Secretary of the Air Force, Mr. **Michael Wynne**, presents **LCDR Uriah Zachary** with his diploma at graduation. Lcdr Zachary is the Chief Engineer at Corona and was in the SPAWAR cohort. **He previously completed the Systems Analysis certificate via the web**, as did **LCDR Paul Choate**, who also graduated.

CDR Ted Berger and **Mr. Greg Whalin** received the **Wayne E. Meyer** Award for Excellence in Systems Engineering.

The graduates with distinction were **CDR Berger**, **LCDR Paul Choate**, and **CDR Gary Perkins**.

SE Professor Honored by ASNE

Professor Cliff Whitcomb (above, at right) has won the American Society of Naval Engineers (ASNE) “Jimmie” Hamilton Award for the best original technical paper published in the association’s journal in 2005. The winning article, “A Military Effectiveness Analysis and Decision Making Framework for Naval Ship Design and Acquisition,” was co-authored with **Mr. John Hootman** and appeared in the summer 2005 issue of Naval Engineers Journal.

Since 1967, the ASNE Journal Committee has chosen one paper each year based on professionalism, depth of treatment, importance and lasting value of the subject matter, clarity of composition and style, and individual effort.

The award, presented by Mr. **John Leadmon**, Director of Submarine and Submersible Design at the **Naval Sea Systems Command**, at a ceremony June 19 in Washington, D.C., reads: *“The authors have developed a new framework for performing military effectiveness analysis and design tradeoff decisions...Their methodology represents a profound improvement over traditional, ad hoc tradeoff methodologies, providing a continuous, interactive design space examination tool that can be used by decision makers in real time to simultaneously explore the impact of requirements, product*

design variables, and emerging technologies during concept formulation and development. The authors are highly deserving of the Society’s 2005 ‘Jimmie’ Hamilton Award.”

The research performed by **Whitcomb and Hootman** was funded by the **Office of Naval Research**.

Three Faculty Receive Meyer Awards for Excellence in DL Instruction

Three professors were honored at summer graduation for teaching in the SE programs.



Professor **Tom Huynh** of the SE Department (pictured above with the acting NPS President, COL **Dave Smarsh**) and Professors **Ron Fricker** and **Rick Rosenthal** of the OR Department were selected by the three classes that graduated this fall for the most notable contributions to their education. Each received a **Wayne E. Meyer** Award for Excellence in Systems Engineering. The awards were presented at the fall awards ceremony on September 12, and they were also recognized at the graduation reception.

Associate Professor Bob Harney Awarded Tenure at NPS

Associate Professor **Bob Harney** (previously pictured) was granted tenure

in the FY06 tenure cycle, becoming the first tenured member of the Department. Bob was recognized for his contributions to combat systems engineering, understanding of unconventional weapons of mass destruction, and excellent teaching. Particularly, he was noted for being the **Total Ship Systems Engineering** advisor or co-advisor for eleven design projects.

Projected Curriculum Starts in FY07

The resident MS in SE (**curriculum 580**) will begin again summer quarter 2007. The SEA (**curriculum 308**) will have new classes enroll winter and summer quarter. Seats are **open** for both. Details on both of these residential programs can be found online at <http://www.nps.navy.mil/se/>.

A new DL cohort in systems engineering (**curriculum 311**) will begin each quarter. Most of these cohorts have open seats. Details are available at <http://www.nps.navy.mil/se/msse>.

The Product Development 21 (**curriculum 721**) will launch a new class in September of 2007. See <http://www.nps.navy.mil/se/pd21>.

The **SE certificate** will start a new class each fall and spring quarter. http://www.nps.edu/DL/NPSO/cert_programs/se.html has more details.

Contact Us!

Chair: Dr. Dave Olwell, (831) 656 - 3583, dholwell@nps.edu .

Program Manager for DL programs: Dr. Wally Owen, (636) 925 - 2982, wowen@nps.edu .

Publication of Note



Dr. **Dave Olwell**, SE Chair, co-edited *Statistics in Counter-Terrorism: Game Theory, Syndromic Surveillance, and Biometric Authentication*, which was published this summer by Springer. His co-editors were Dr. **Alyson Wilson** and Dr. **Greg Wilson**, of Los Alamos. The book was sponsored by the Section on Statisticians in Defense and National Security of the American Statistical Association.



<http://www.nps.navy.mil/se>

SE Academic Associate (resident, DL, and Certificates): Dr. Cliff Whitcomb, (831) 656 – 3834, cawhitco@nps.edu.

SEA Academic Associate: Dr. Fotis Papoulias, (831) 656 – 3381, Fotis@nps.edu.

PD21 Academic Associate: Dr. Tom Huynh, (831) 656 – 7568, thuynh@nps.edu.