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2016-09-02

# Naval Postgraduate School and Distance Education Master of Science in Systems Engineering

Owen, Wally

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***NPS***

***Serving  
all of DoD***

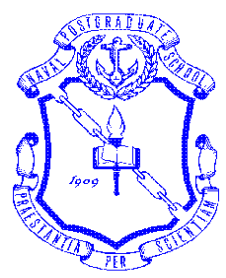


***Naval Postgraduate School and Distance Education  
Master of Science in Systems Engineering***

***By***

***Prof. Wally Owen***

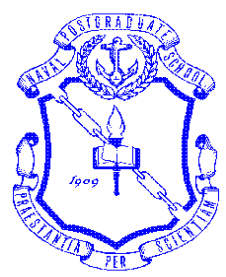
***Meyer Institute of Systems Engineering***



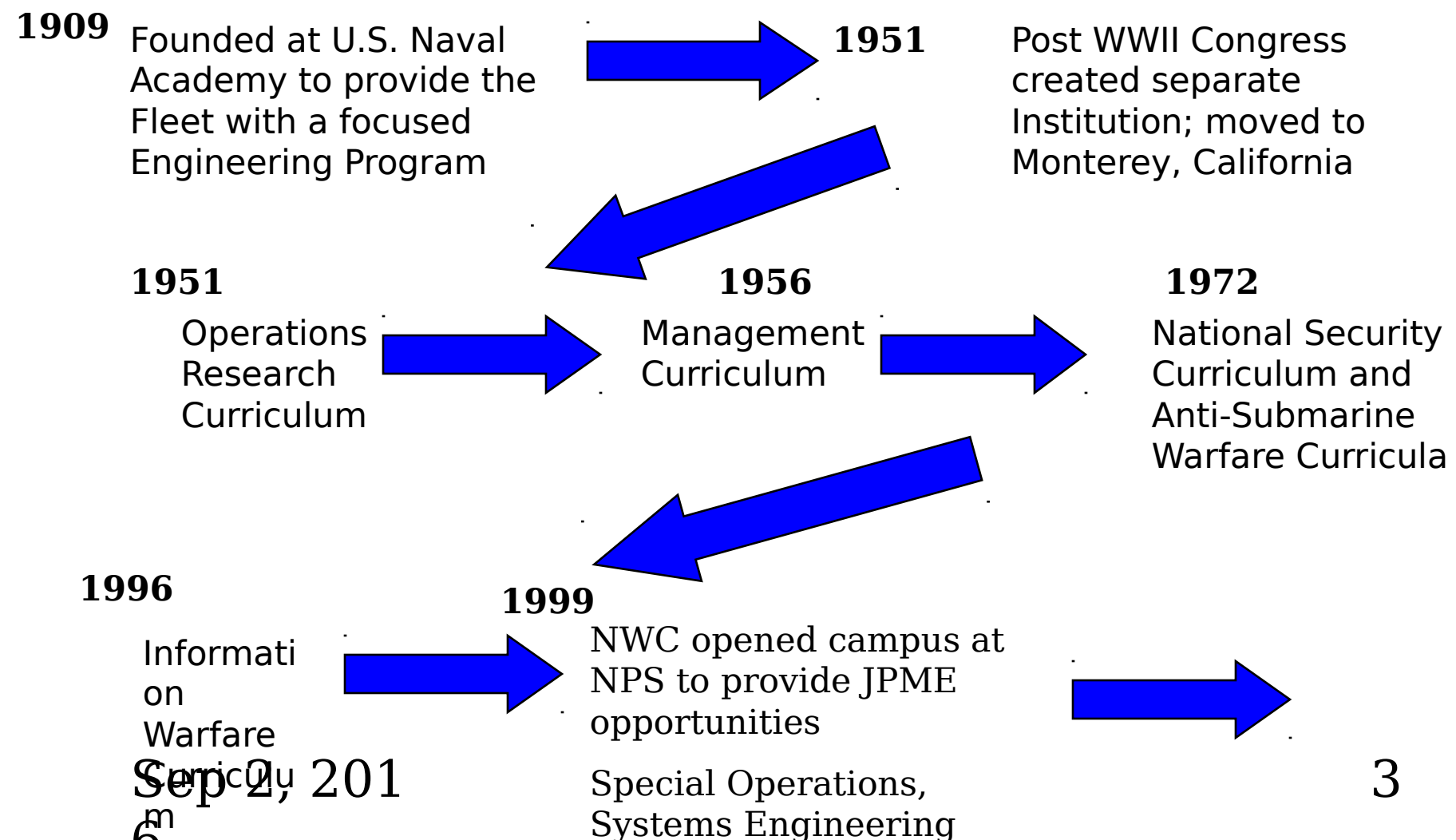
# The NPS Mission

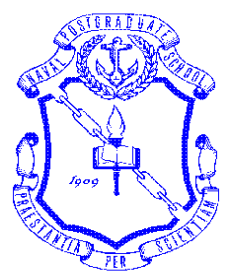


- **NPS exists to:**
  - **Enhance the security of the USA**
  - **Increase the combat effectiveness of U.S. and Allied Armed Forces**



# ***NPS: 92 Years of Excellence in Graduate Military Education***



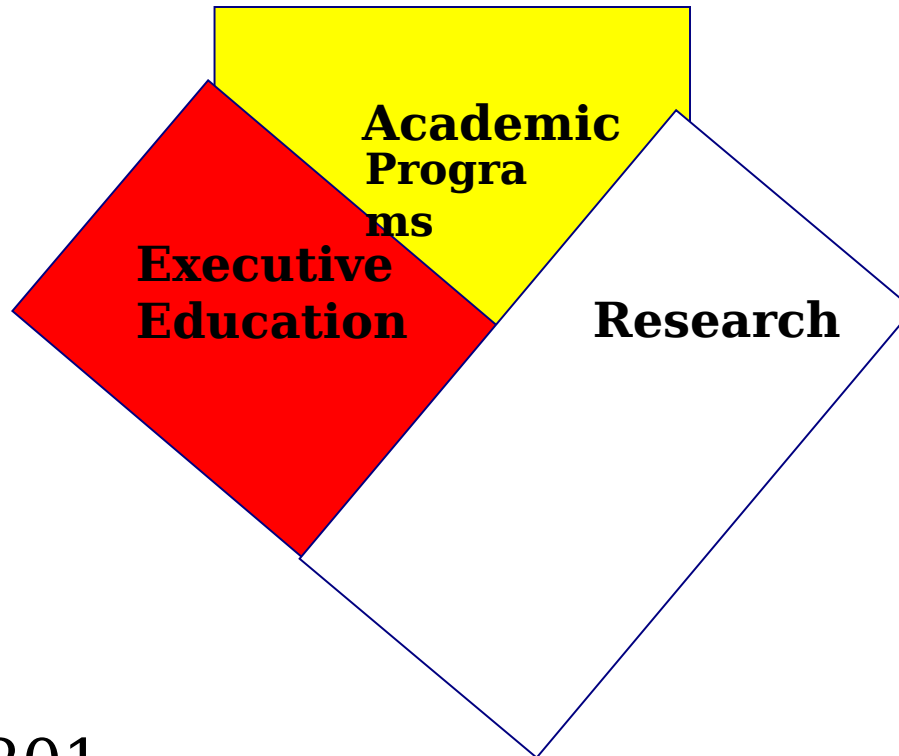


# ***NPS TODAY***



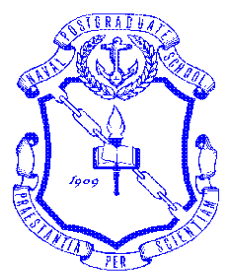
**Graduate degree programs that support modern war-fighting**

**Fleet relevant through extensive executive and continuing education programs**



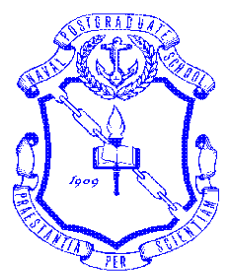
- \$43M reimbursable funded research program as an integral part of graduate education

- Co-located with other educational and research establishments in an education- rich environment



# NPS Academic Accreditation

- **NPS consistently receives excellent ratings from both regional and professional accrediting bodies**
  - ***Western Association of Schools and Colleges (WASC)***
  - ***Accreditation Board for Engineering and Technology (ABET)***
    - Aeronautical, Astronautical, Mechanical, and Electrical Engineering
  - ***National Association of Schools of Public Affairs and Administration (NASPAA)***
  - ***International Association for Management Education (AACSB)***

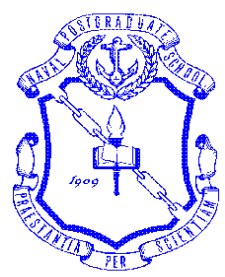


# Graduate Education at

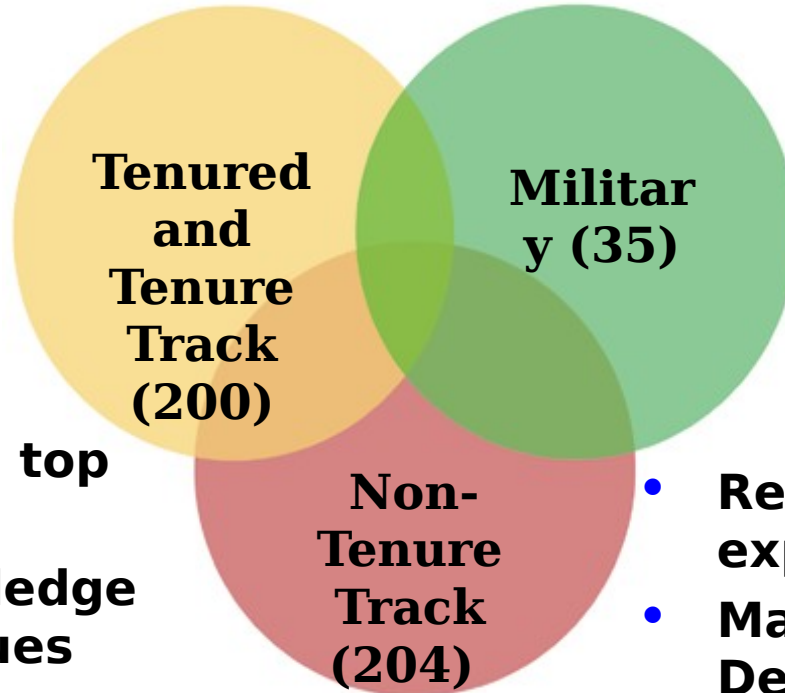
**NPS:**

## How We Operate

- **Primarily Master's level programs**
  - **Clear focus on military systems and applications**
- **Year round operations**
- **Programs sponsored by Navy or other Defense organizations**
  - **Reviewed every two years based on Educational Skill Requirements (ESRs)**



# An Integrated Faculty



- Recruited from top PhD Programs
- In-depth knowledge of Defense issues
- Excellent academic standing

- Recent Fleet/service experience
- Masters or Doctoral Degrees
- Inject focused military view

Civilian Faculty hired under provisions of Title 5 and Title 10 - U.S. Code

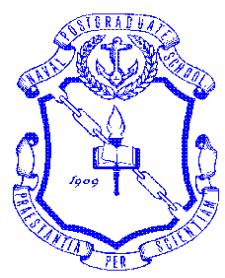
- "Excepted Service" - subject to Civil Service Laws and Regulations

- Faculty Salary Schedule (Level IV of the Executive Schedule)

Sep 2, 2011

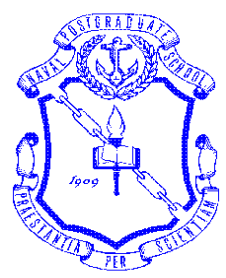
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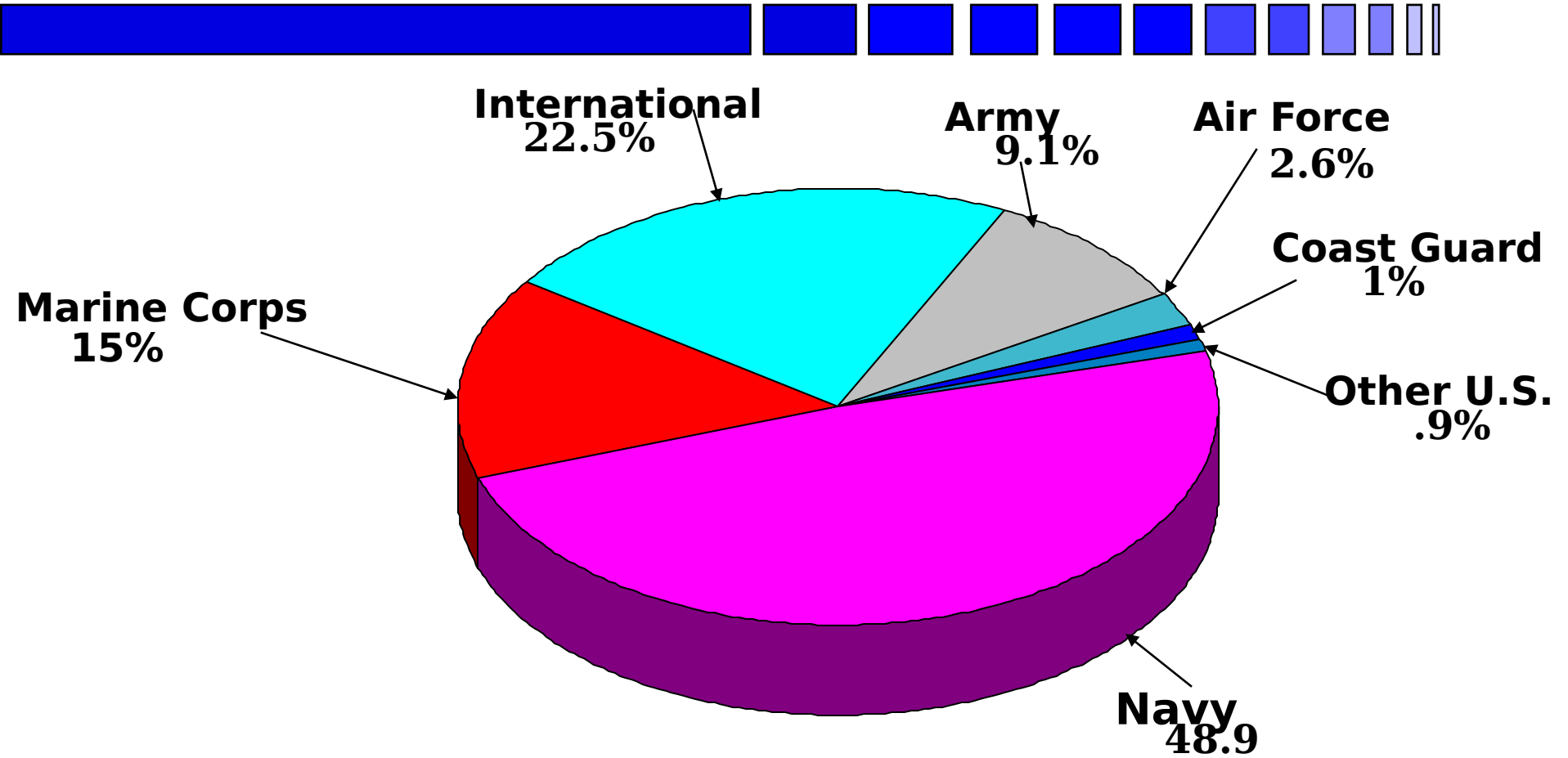


# Tenure Track Faculty Source of Faculty Degrees

- 
- **14 Stanford**
  - **12 UCLA**
  - **12 UC Berkeley**
  - **7 UC San Diego**
  - **7 Purdue**
  - **7 U of Washington**
  - **7 MIT**
  - **5 Princeton**
  - **5 UC Davis**
  - **6 USC**
  - **4 Harvard**
  - **4 Penn State**
  - **5 Yale**
  - **4 Cornell Univ.**
  - **3 Univ. of Maryland**
  - **4 Georgia Tech**
  - **3 Arizona State**
  - **3 Northwestern**
  - **3 Oregon State Univ.**
  - **3 Univ. of Michigan**
  - **3 Case Western**
  - **3 UC Santa Barbara**
  - **73 Other PhD's**
  - **3 Other Doctorate**
  - **1 Other**



# ***Resident Student Population Winter 02***

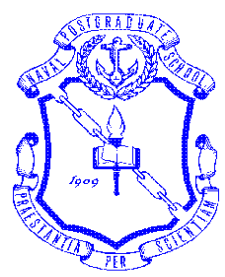


**Current Enrollment: 1279 plus 182 in Non-Resident Progr**

Sep 2, 201

9

6



# International Degree Students

## 44 Countries and 287 Students



### North America

Canada 3

3

### South America

Brazil 16

Chile 4

Colombia 1

Ecuador 1

Mexico 5

Venezuela 1

### Europe

Albania 2

Bulgaria 4

Croatia 1

Czech Rep 6

Estonia 1

Germany 9

Greece 38

Hungary 10

Moldova 1

Poland 5

Portugal 3

Romania 3

Spain 2

Sweden 2

Switzerland 1

Turkey 68

### Middle East

Bahrain 2

Oman 1

Saudi Arabia 2

5

### Africa

Botswana 3

Djibouti 1

Ghana 1

Nigeria 1

Senegal 1

So Africa 1

Tunisia 7

15

### Far/Near East

India 1

Japan 3

Korea 10

Malaysia 3

Mongolia 1

Philippines 3

Singapore 31

Taiwan 7

Thailand 11

70

Australia 3

10

Sep 2, 201

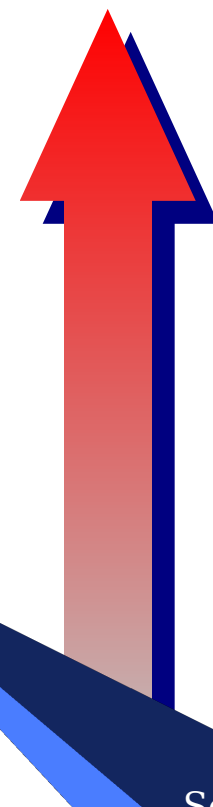
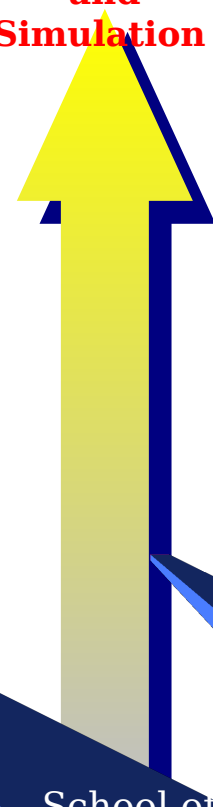
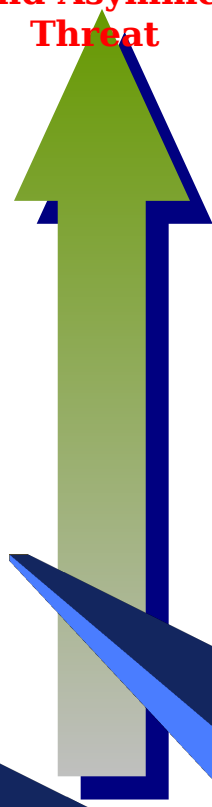
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# NPS: Aligned for Excellence and Relevance

**“Institutes insure that the academic tools learned in the Schools are applied to military challenges”**

**Institute of Defense Information Superiority/Innovation and Asymmetric Threat**  
**Institute of Defense Modeling and Simulation**

**Meyer Institute of Systems Engineering**



School of International Graduate Studies

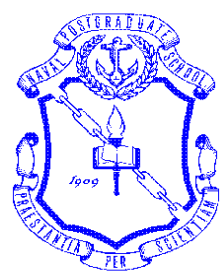
School of Business and Public Policy

School of Operational and Information Sciences

School of Engineering and Applied Science

**“Graduate schools provide the academic structure needed by our students to cope with future challenges.”**

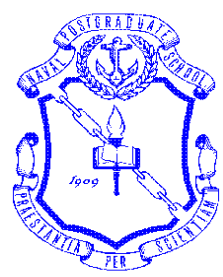
**Military Requirements**



# ***Graduate School Of Engineering & Applied Science Programs*** ***(14 Curricula / 333 Students)***

- **Aero Engineering**
- **Aero Engineer Avionics**
- **Combat Systems**
- **Underwater Acoustics**
- **Electronic System Engineer**
- **Meteorology/  
Oceanography**
- **Applied Math**
- **Space System Engineer**
- **Systems Engineering\***
- **Mechanical Engineering\***
- **Electrical Engineering\***
- **Meteorology**
- **Naval / Mechanical Engineer**
- **Applied Physics**
  - **Oceanography**
- **Operational Oceanography**
- **Test Pilot School -  
Cooperative**

**Resident/ \*Non Resident Students - 95**

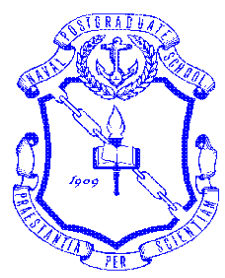


# **Graduate School Of Operations & Information Sciences Programs**

## **(16 Curricula / 543 Students)**

- **Computer Science**
- **Electronic Warfare**
- **Information System Technology**
- **Information Warfare**
- **Joint C4I Systems**
- **Modeling, Virtual (SEI) Environments & Simulation**
- **Software Engineering\***
- **Space Systems Operations**
- **Special Operations**
- **Intelligence Information Management**
- **Undersea Warfare**
- **Information System Operation**
- **Systems Eng & Integration**
- **Operations Analysis**
- **Operations Logistics**

**Resident /\* Non-Resident Students - 26**

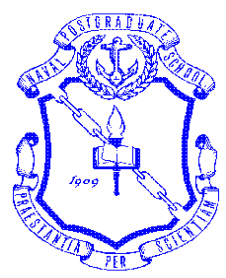


# **Graduate School Of Business & Public Policy**

## **Management Programs (12 Curricula / 222 Students)**

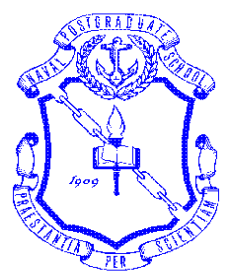
- **Acquisition/Contract**
- **Contract Management \***
- **Defense System /Analysis**
- **Financial Management**
- **Manpower System Analysis**
- **Leadership Education & Development**
- **Program Management \***
- **Material Logistics**
- **Shore Installation**
- **Systems Acquisition**
  - **Systems Inventory**
- **Transportation**
- **Transportation Log**
- **Product Development (PD-21) \***

**Resident / \*Non-Resident Students - 97**

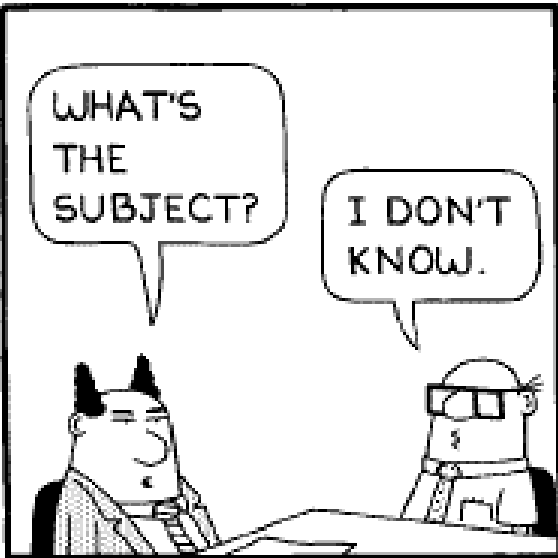


# Distance/Continuing Education Programs

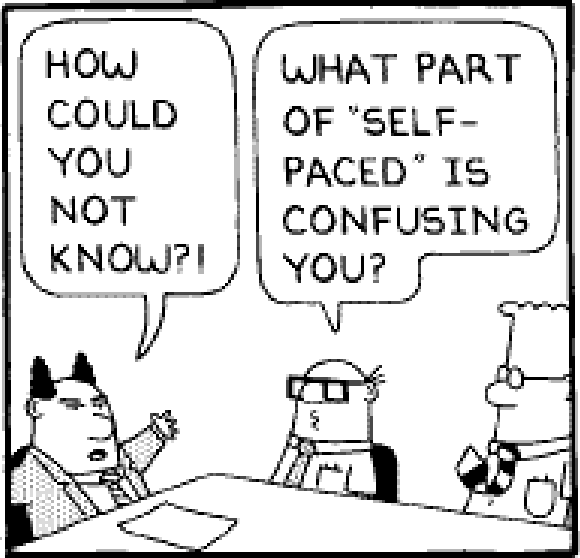
- **Distance Learning Opportunities**
  - **Simultaneous instruction at NPS and multiple remote**
  - **Faculty teams for remote, on-site delivery**
  - **Network based instruction**
- **Distance Learning Programs - Fall 2003**
  - over 30 Sites**
  - over 200 Students**



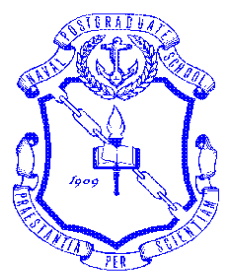
www.dilbert.com scottadams@aol.com



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# Why DL?



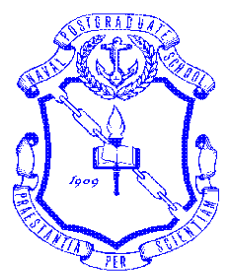
- Accelerate CNO Goal Achievement
- Reinforce People Priority
- Advance Knowledge Superiority
- Improve Recruitment & Retention
- Increase productivity in “slack” periods
- 1 DL Quarter Saves 3 Months student

MPN

- 1 Non-Resident Degree Saves 1-2 Years

MPN

+ 2 PCS Moves  
Sep 2, 201



# DL Approach?



## **Convenient, Economical, Accessible Learning for “Customers”**

- Satellite Campus System
- Multi-Site Video Tele-education (VTE)

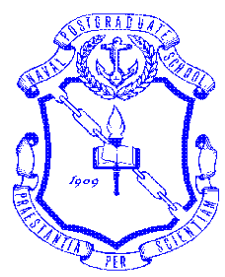
Synchronous

- Web-based education (WBE), Synchronous & Asynchronous, Interactive & Autonomous, Instructor Led/Independent

Study

Sep 2, 201

• Blended Education Integrated Learning

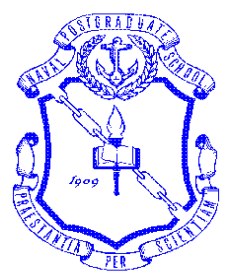


# Satellite Campuses

## Mobile Faculty



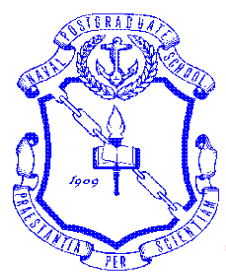
- USNA - MA (Leadership & HR)
- NAVSEA 08 @ Washington Navy Yard, MB
- PD21 Partner with MIT- MS in Product Dev
- NSWC-PHD- MS Systems Engineering (M
- MCTSSA-Corona-Crane partnership- MSS
- IMET: IDARMP/DHMI/CCMR/DRMI
- Singapore Defense Initiative
- San Diego Satellite campus and others pro
- USS Constellation - Area Briefings



# Web-based Education (WBE)



- Afloat Delivery: Carl Vinson- ISO Certificate (12 students completed satellite course during combat ops)
- ISO MS
- 12 Courses 100% On-Line, 100+ Courses Web Enhanced
- Outsourcing Undergrad Refresher Courses
- SPAWAR - NPS as Educational Broker and Content Source
- JFCOM - Multinational Virtual Learning Environment
- Articulation Agreements - Cal State

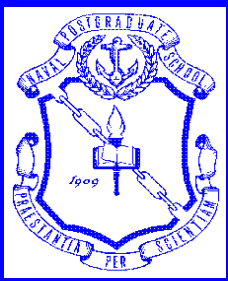


# Video

# Tele-Education (VTE)



- **Degree programs (n=225)**
  - PD21- MPD (NAVSEA, NAVAIR, SPAWAR, ONR, ANG) (n=39)
  - MS Program Mgmt. (Army DACM) (n=44)
  - MS Contract Mgmt. (Navy DACM) (n=41)
  - MS and PhD in Software Engineering (n=36)
  - MSEE (NSWC- Port Hueneme) (n=53)
  - MSME - Reactors (n=15)
  - MBA (NAVSEA 09) (n=12)



# Interactive Videoconferencing

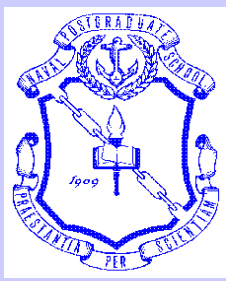
**Picture Tel 4000 VTC System**

**Distance Education Tool**

**Two-way Video and Audio**

**High Capacity Integrated  
Services Digital Networks  
(ISDN)**

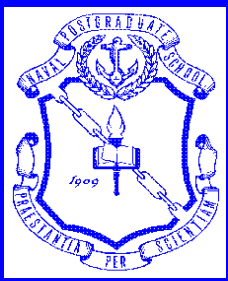
**Multipoint Capability**



# Training for VTE Faculty

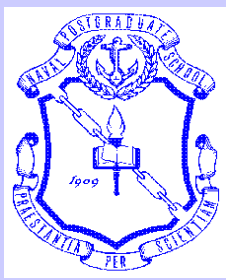
- **Need hands-on experience**
- **Dialing distance sites**
- **Controlling Cameras**
- **Adjusting Audio**
- **Using all multimedia equipment**
- **Creating a Balanced Design**





# Web-based Online Courses

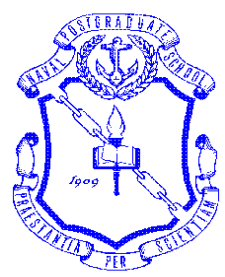
- **NPS Distributed Learning Resource Center provides knowledge, know-how and tutorials**
- **BlackBoard Course Management**
- **Faculty take online development courses**
- **Faculty workload adjusted accordingly**
- **Asynchronous with milestone gates**



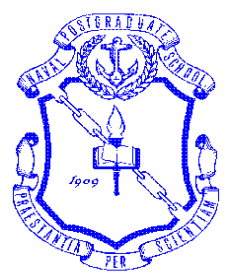
# Training for Online Faculty

- **Need to learn course management system**
  - **Course Information**
  - **Course Documents**
  - **Assignments**
  - **Discussion board**
  - **Quizzes/exams**
  - **Grading criteria**
- **Need to experience Cyberspace**
- **Creating a Balanced Design**

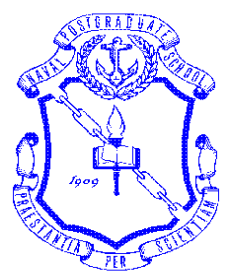




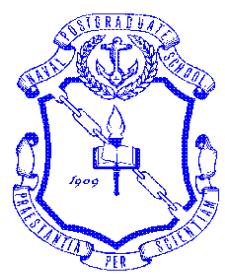
- **Designed for organizations with a strategic vision to be a world-class systems engineering & integration organization**
- **2 year distance education program using blended approach (mix of onsite, VTE and Online courses)**
- **2 three hour courses each quarter for eight consecutive quarters (16 total)**



- **2 SE certificates plus MSSE degree**
  - **Military SE Fundamentals**
  - **Military SE & Integration**
- **DAWIA SPRDE level III built into core**
  - **ACQ101/201 & PMT250**
  - **SYS201 & SYS301**
- **Capstone Team Design Project replaces the thesis requirement**



- **Entrance requirements:**
  - Undergraduate degree in engineering or related technical field
  - 2.5 GPA with strong references and command endorsement
  - Other as set by sponsoring organization
- **Curriculum tailored to meet an organizations' specific needs.**
- **SE CORE consists of 10 courses leaving 6 additional course slots for tailoring**



# Master of Science in Systems Engineering

## MSSE

Naval Postgraduate School - Monterey, CA



### Masters of Science in Systems Engineering (MSSE)

CORE curriculum lineup with DAWIA SPRDE III as of 11/06/02

SPRDE level III courses \*\*:SE Core courses ###

Two 3-hour courses a week (all on one day or split on two days)

#### QTR 1-

##### Course

##### Faculty

\*\* MN3221- Principles of Systems Acquisition & Program Mgmt- I ###

GB

\*\* SI4007 - Fundamentals of Systems Engineering ###

SE

#### QTR 2-

##### Course

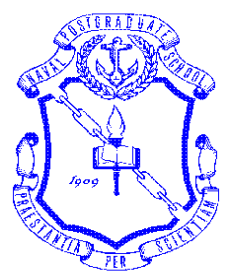
##### Faculty

\*\* MN3222- Principles of Systems Acquisition & Program Mgmt- II

GB

Focused Course- Determined by your specific needs

TBD



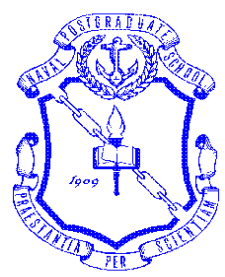
# Master of Science in Systems Engineering

## MSSE

Naval Postgraduate School - Monterey, CA



<b>QTR 3-</b>		
<b>Course</b>		<b>Faculty</b>
*** SI4008 - Systems Engineering & Integration ###		SE
Focused Course- Determined by your specific needs		TBD
<b><i>NPS- Military Systems Engineering Fundamentals Certificate Award</i></b>		
<b>QTR 4-</b>		
<b>Course</b>		<b>Faculty</b>
*** SI4009 - Systems Architecture for Systems Engineering ###		SE
Focused Course- Determined by your specific needs		TBD
<b>QTR 5-</b>		
<b>Course</b>		<b>Faculty</b>
SI4100- Systems Analysis ###		OR
Focused Course- Determined by your specific needs		TBD



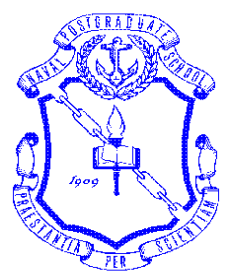
# Master of Science in Systems Engineering

## MSSE

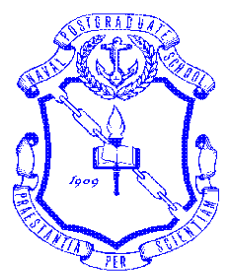
Naval Postgraduate School - Monterey, CA



<b>QTR 6-</b>		
<b>Course</b>		<b>Faculty</b>
SI0810- Capstone Design Project- Requirements Generation ###		SE
Focused Course- Determined by your specific needs		TBD
<b><i>NPS- Military Systems Engineering Integration Certificate Award</i></b>		
<b>QTR 7-</b>		
<b>Course</b>		<b>Faculty</b>
SI0810- Capstone Design Project- Synthesis of Alternatives ###		SE
SI3011- Eng Economics and Cost Estimation ###		DRMI
<b>QTR 8-</b>		
<b>Course</b>		<b>Faculty</b>
SI0810-Capstone Design Project- Concept Definition ###		SE
Focused Course- Determined by your specific needs		TBD
<b><i>NPS Graduation- Master of Science in Systems Engineering</i></b>		



- **On Behalf of the Superintendent of NPS and the Director of the Meyer Institute of SE- Welcome Aboard!**
- **Any Questions?**
- **Any Comments?**
- **Any Concerns?**



# ***For More Information about the MSSE Program***

**Visit our MSSE website:**

**<http://ocl.nps.navy.mil/msse> or contact one of  
the following at:**

- **Prof. Wally Owen, Senior Lecturer, Meyer Institute of Systems Engineering, serves as MSSE Academic Associate and Program Manager**
  - **(831) 656-2048 at NPS/ (636) 925-2982 in St. Louis Office**
  - **[wowen@nps.navy.mil](mailto:wowen@nps.navy.mil)**
- **Prof. Ben Roberts, Ph.D., Director of Distributed Learning, Meyer Institute of Systems Engineering, serves as MSSE Program Manager for Instruction**
  - **(831) 656-2792 at NPS**
  - **[broberts@nps.navy.mil](mailto:broberts@nps.navy.mil)**