The Software Engineering Master's Program

1. Introduction

The Software Engineering program at the U.S. Naval Postgraduate School provides military and government graduate students with an opportunity to learn all aspects of software development and the skills needed to efficiently and reliably plan and create large-scale software systems using the best available tools. These skills are essential for officers and civilians responsible for acquisition, development or maintenance of military software. The M.S. degree program may be completed either on campus by students carrying a full-time course load, or part-time through the distance learning option.

2. Requirements For Entry

Any military or civilian personnel sponsored by the US Government, holding an accredited Bachelor's degree in computer science, computer engineering, or related field, resulting in an Academic Profile Code (APC) of at least 325, and at least two years of software development or maintenance experience is eligible to apply. (An APC of 325 means student has "a GPA ≥ 2.2 and at least one calculus course with C or better".)

3. Admission Procedures

3.1 Resident Students

The point of contact for requests for Naval Postgraduate School catalogs and admission to all residence degree programs is:

> Admissions Officer
> Code 01C3
> Naval Postgraduate School
> 1 University Circle, He-022
> Monterey, CA 93943
>
> Telephone: (831) 656-3093 / DSN 756-3093
> E-mail: grad-ed@nps.edu

3.2 Distance Learning Students

The distance learning program is a reimbursable-based education program. Every distance learning student must have a government sponsor who will pay for the student's tuition via SF-182, MIPR DD448 or NC2276A. The tuition is $2500 per course. Distance learning students should fill out the online application at

> http://www.nps.edu/Academics/Admissions/ApplyOnline/ApplyNow.html

4. Degree Requirements

Students enrolled in the Software Engineering curriculum must successfully complete the twelve quarter-length Software Engineering courses. Completion of a master's thesis is required.
4.1 Course Requirements

Complete the following five courses:
___SW3460 Software Methodology (3-1)
___SW4500 Introduction to Formal Methods in Software Engineering (3-1)
___SW4591 Requirements Engineering (3-1)
___SW4592 Software Risk Assessment in DoD (3-1)
___IS4300 Software Engineering and Management (3-2)

Choose seven courses from the following:
___SW4530 Software Engineering Research and Development in DOD (3-1);
___SW4540 Software Testing (3-1)
___SW4560 Software Evolution (3-0);
___SW4570 Software Reuse (3-0);
___SW4580 Design of Embedded Real-time Systems;
___SW4581 Software Reliability (3-1);
___SW4582 Weapons System Software Safety (3-1);
___SW4583 Principles of Software Design (3-1)
___SW4590 Software Architecture (3-1)
___SW4600 Automata, Formal Specification & Verification (3-1);
___SW4920 Advanced Topics in Software Engineering (3-0);
___CS3004 Human-Computer Interaction (3-2);
___CS3600 Information Assurance: Introduction to Computer Security (4-2);
___CS3610 Information Ethics, Crime, and Law (4-0);
___IS4031 Information Systems Economics (4-0),
    or MN3309 Acquisition of Embedded Weapon Systems Software (4-0),
    or MN3331 Principles of Systems Acquisition and Program Management (5-1),
    or SE4011 Systems Engineering for Acquisition Managers (4-2).

5. Thesis Guidelines

The Master's thesis is the capstone achievement of the student's academic endeavor at NPS. A challenging research thesis, requiring students to apply their focused graduate education, is one of the most effective methods for both solving Fleet/Joint force problems and instilling the life-long capability for applying basic principles to the creative solution of complex problems.

A Software Engineering thesis should either demonstrate the use of Software Engineering principles and techniques in solving existing software problems, or develop new theory, models, methods, or tools for building/maintaining software systems. A thesis must have some kind of scientific contribution, not just manufacturing of a lot of source code. This is why students must specify their expected scientific contributions in their thesis proposal.
It is very important for a student to pick the right project and define the scope of the thesis work. The student's thesis advisor will help him/her define the scope of the thesis work and identify its scientific contributions.

Every student conducting thesis research will enroll in (0-8) units of the course SW0810 Thesis Research.

6. M.S. Program Point of Contact

Bret Michael, Ph.D.
Academic Associate
Code CS/Mi, Glasgow East, Room 335
Telephone: (831) 656-2655, DSN 756-2655
Fax: (831) 656-2814
E-mail: bmichael@nps.edu

Man-Tak Shing, Ph.D.
Distance Learning Program Director
Code CS/Sh, Glasgow East, Room 334
Telephone: (831) 656-2634, DSN 756-2634
Fax: (831) 656-2814
E-mail: shing@nps.edu