
Donald P. Shiley School of Engineering
University of Portland

May 2011

Donald P. Shiley School of Engineering Computer Committee:
Peter Osterberg (Chair)
Paul Disbury (IS)
Kevork Isikbay (IS)
Matthew Kuhn
Andrew Nuxoll
Deborah Schenberger
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Tammy VanDeGrift
Aaron Carlson (Student Representative, fall semester)
Zach Stroh (Student Representative, spring semester)
Jamie Strohecker (Recording Secretary)

1. Introduction and scope
This report presents our plan for computing facilities used by the Donald P. Shiley School of Engineering (SOE). The plan is for equipment, software, and infrastructure improvements over five academic years, 2011 to 2016. The plan was prepared by the School of Engineering Computer Committee (ECC) chair, Peter Osterberg, based on the results of seven monthly ECC meetings during the 2010-2011 academic year. The ECC is comprised of the following members: Peter Osterberg (chair), Paul Disbury, Kevork Isikbay, Matthew Kuhn, Andrew Nuxoll, Deborah Schenberger, Eliot Sluyter, Tammy VanDeGrift, Aaron Carlson (student representative, fall semester), and Zach Stroh (student representative, spring semester), with the assistance of Jamie Strohecker (recording secretary). Paul Disbury served as the Information Services (IS) representative on the committee with assistance from Eliot Sluyter and Kevork Isikbay.

The School of Engineering cannot accomplish its mission or remain accredited without the reliable availability of modern technology (Section 2). It is essential that IS, working with SOE, ensure that these technologies are provided to the students, faculty, and staff.

During the 2010-2011 academic year, IS completed significant changes and improvements to the engineering computer network and infrastructure in the new Shiley Hall Engineering Building. IS has completed all the computer network upgrades and changes that were planned for the new Shiley Hall building which was completed in July, 2009. During the past academic year, new computer hardware was purchased and installed in all the Shiley Hall classroom and laboratories. These accomplishments are summarized in Section 3.

The report includes our recommendations for the next year (Section 4) and plans for the following four years (Section 5).

2. Role of the computing facility
The primary purpose of the SOE computing facility is to assist in teaching modern engineering and computer science methods on a contemporary computing facility in laboratory and classroom settings. SOE must sustain computing facilities that will assure continued accreditation of its programs by the Engineering Accreditation Commission and the Computing Accreditation Commission of ABET. Support must also be provided for faculty scholarship and staff productivity.
In addition to other requirements for ABET accreditation, SOE must demonstrate that its students meet the following outcomes:

1. Students should be able to use the computer analysis and design tools generally expected of graduates in their discipline and on platforms that are typical of those used in industry.

2. Computer science and electrical engineering students should be exposed to a variety of programming languages and operating systems and become proficient in at least one higher level language. The operating systems include Windows, Linux, and OS/X.

3. Computer science and electrical engineering students should be able to modify and experiment with computer hardware, software, and networks; to modify the operating system, operating system internals, and the interaction of the operating system with hardware; to modify hardware configurations; to modify the network configuration and monitor network traffic; and to explore and analyze computer security.

4. Students should be familiar with general personal productivity tools and specialized software for numerical methods, matrix computations, statistical analysis, symbolic and numerical math computations, and computer-aided graphics and graphing.

5. Students should know how to effectively communicate ideas through written, oral, and graphical means with computer tools (e.g., Microsoft Office Suite, Matlab, AutoCAD, etc).

6. Students should know how to find, share, and evaluate information through the Internet.

These abilities should be developed and implemented in all engineering computer classrooms, open computer laboratories, specific engineering laboratories, and computer science laboratories.

3. Accomplishments for the 2010-2011 academic year

The following changes, upgrades, and improvements were accomplished by IS and SOE during the 2010-2011 academic year:

- SOE added a student representative to the ECC (Zach Stroh) during the spring 2011 semester to replace the previous student representative (Aaron Carlson) who served during the fall 2010 semester.

- IS designated a permanent representative to the ECC (Paul Disbury). IS also designated two additional temporary representatives to the committee to help Paul Disbury address specialized issues (Eliot Sluyter and Kevork Isikbay).

- IS has adopted a “make-before-break” philosophy for all future Engineering computer software and hardware changes.

- IS successfully installed new computer projection systems in Shiley 104, 106, and 312 labs.

- IS successfully tech-refreshed the computers of three engineering faculty (Ward, Nuxoll, and VanDeGrift).

- IS successfully tech-refreshed the out-dated PC’s in the two adjunct faculty offices (Shiley 243 and 224).

- IS successfully made adjustments to improve the “slow boot” problem on the computers in the two Shiley computer classrooms.
- IS successfully fixed the projector image height problem in all the Shiley classrooms.
- IS successfully increased Engineering faculty and staff email quota to from 0.5GB to 1GB.
- IS successfully replaced the two older Xerox copy machines in the Engineering mailroom and the Engineering Dean’s Suite with two new Pacific Automation copy machines.
- IS successfully migrated SOE to its own “U-drive” SAN memory server in order to avoid memory conflicts with other campus departments. As a result, SOE’s total new U-drive disk space quota is now 2TB.
- SOE successfully completed a Moodle survey of the Engineering faculty and submitted to IS. This feedback will help IS and SOE better utilize the new Moodle 2.0 software. Additionally, IS and SOE successfully discussed all the details regarding the new Moodle 2.0 launch scheduled for August, 2011.
- IS successfully added 3 Lenovo PC’s and 2 iMAC’s in the Shiley Open Computer Lab in order to increase capacity for engineering student use.
- IS successfully installed a new Lenovo PC in Shiley first-floor Mechanical Lab for Allen Hansen.
- IS successfully installed a high-end PC in the Shiley Student Club room.
- IS successfully provided the necessary hardware and software infrastructure for Tanya Crenshaw’s “computer network sand-box” in support of her Computer Security class.
- IS successfully installed the full Engineering Software Build on the two instructor computers in Shiley 301 and 319, instead of only the old Courseware Build which was insufficient for SOE’s needs.
- IS successfully tech-refreshed the computers in the Shiley Open Computer Lab.
- IS began an investigation of providing a Shiley weather station capability for Dr. Jim Male.
- IS and SOE completed the annual Engineering Software Build and Test in May, 2011.
- SOE is now sending all large print jobs to the Print Shop (through Jamie Strohecker). Small print jobs continue to go through the Engineering copying machine.

4. Plans for the 2011-2012 academic year

The following action items and improvements should be made during the 2010-2011 academic year:

- IS will tech-refresh the following 13 computers of engineering faculty and staff: Strohecker, Doughty, Kennedy, Hoffbeck, Harmon, Osterberg, Spir, Khan, Male, Lulay, O’Halloran, Henry, and Shiley 117 Toolroom.
- IS will create and install the annual Engineering Software Build (May, 2011) on all Shiley Hall Engineering computers in time for the start of the fall 2011 semester. This new Engineering Build will contain the latest versions of all faculty-requested software. All Engineering Build Software will now run on Windows7 (with a few exceptions which will run on the Virtual Windows XP emulator contained within Windows7).
• IS will replace the current dual-boot MAC’s in Shiley 301 and 319 with PC’s in order to permanently fix the chronic “slow-boot” problems, U-drive access problems, and other software problems.

• IS and SOE will investigate replacing all dual-boot MAC’s in the two Shiley computer classrooms with PC’s in order to permanently fix the “slow-boot” problems and other software issues including Autodesk and Algor software problems.

• IS will tech-refresh any other computers in the Shiley labs and classrooms which are scheduled for refresh during the summer, 2011.

• IS and SOE will work together ensure the smooth transition to Moodle 2.0.

• IS will investigate fileUP limitations and the option of adding sftp capability.

• IS will complete the installation of a Shiley weather station for Dr. Jim Male.

• IS will perform the annual Engineering Software Build and Test in May, 2012.

• IS will provide SOE with the new faculty/staff/classroom/lab tech-refresh schedule for summer 2012.

5. Future plans
The School of Engineering Computer Committee recommends the following improvements in succeeding years.

• IS should continue a three year cycle for upgrading laboratory and classroom computers in Shiley Hall.

• SOE should continue to budget the replacement of 1/3 of its office DeskJet printers. Also, SOE should consider standardizing all future desk-top printer purchases in order to save money on the purchase of replacement ink cartridges.

• SOE will consider purchasing new, replacement computer “mice” in the two Shiley Hall computer classrooms. The current mice are clumsily designed, difficult to use, the cables are too short, and they lack a “real” three-button mouse configuration.

• IS will investigate various novel “virtualization” solutions in order to make the Engineering Software Build more portable and available in all classrooms on the UP campus.

• IS and SOE will investigate the feasibility for on-line remote learning and teaching capability.

• IS will investigate maintaining UP student email addresses beyond graduation in order to facilitate easier and continual alumni contact, going forward.

• IS and SOE will continue to monitor both the copy machine needs and laser printer needs for all of Engineering in order to ensure optimum operation and utilization, and make adjustments as necessary.

• IS will investigate the possibility of adding a “print-on-both-sides” student default selection “pop-up” notification to inform/remind students whenever they attempt to print.
• SOE will investigate sending computer print jobs to the new mailroom printer, as an alternative to the laser printer.