Final Report

2008-09 Information Technology Committee

College of Engineering

University of Iowa, Iowa City, IA

Committee Members

Prof. Asghar Bhatti, Chair
Prof. Xiaodong Wu
Prof. Geb Thomas

May 5, 2009

Charges for 2008-09 College of Engineering Information Technology Committee

Members	Term Expiring
Prof. Asghar Bhatti, Chair	May 2010
Prof. Xiaodong Wu	May 2009
Prof. Geb Thomas	May 2011

General Charge

The Information Technology Committee shall be responsible for reviewing and evaluating policies governing hardware, software, and computing services within the college, and for making appropriate recommendations regarding computer resources to the dean and the faculty.

Specific Charges

1. Assist CSS with implementation of the new policy, "Software Funding and Management Policies," and review this policy on a regular basis.

2. Find solutions to the schedule conflict issues with 1245 SC, and discuss alternatives for classes that require in-class use of educational software.

3. Consider the notion that every undergraduate student be issued his/her own laptop for classroom use.

4. Review and compile Policies and Practices of CSS with respect to purchase of equipment, software, and charges to departments and faculty for computer related services. If necessary, recommend new policies or suggested modifications to the current policies and practices of CSS.

5. The IT committee should monitor any planned changes in teaching technology so that faculty are aware of planned changes. This should include communicating the nature of the changes, an assessment of what they would allow us to do better, what they would allow us to do that we cannot do now, possible down sides, and how well they meet faculty needs.

6. Recommend specific charges for the 2009-10 Information Technology Committee.

7. Submit an interim report by January 15, 2009, and a final report by April 1, 2009.

Response to charges

Charge 1:

Assist CSS with implementation of the new policy, "Software Funding and Management Policies," and review this policy on a regular basis.

The 2007-08 IT committee worked with the director of CSS Doug Eltoft to develop a policy allowing for all educational software requests to be fully supported with savings achieved by terminating support of under-utilized software packages. To implement this policy the committee recommended that the software usage statistics (see attachment #1) be compiled by CSS and the results reviewed by the IT committee in conjunction with the CSS annual budget. However CSS has decided to delay compilation of this data until after the switch to the Vista operating system that is scheduled for this summer. Doug Eltoft indicates that there are superior tools available in the new system that will make it much easier to collect the software usage statistics. The data collection will begin in Fall 2009. Thus earliest action that can be taken based on this model will be in the Spring 2010.

Recommendations:
   (1) The committee recommends that the software usage statistics be compiled by CSS as soon as practical.
   (2) The committee recommends that DEOs be provided with reports of software usage statistics and be consulted prior to the IT committee's decision to terminate software support.

Charge 2:

Find solutions to the schedule conflict issues with 1245 SC, and discuss alternatives for classes that require in-class use of educational software.

The committee met with Jill and Diana who are in charge of scheduling this room. The current policy allows instructors to reserve 1245 SC for the entire semester. This causes conflict for those who need to use the room for only a few demonstration/hands-on sessions. With the availability of laptops in several classrooms in the Seamans center it perhaps is time to make a change in the policy so that 1245 SC is available for occasional use and for those instructors who cannot use the other facilities.
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Recommendations:
   (3) The committee recommends that the Associate Dean Alec Scranton's office formulate a new policy regarding the use of 1245 SC. In the new policy priority should be made to accommodate classes needing computer access into the laptop

or other classrooms. The 1245 Sc should be reserved primarily for those who need to use it for only a few hands-on sessions. .

Charge 3:

Consider the notion that every undergraduate student be issued his/her own laptop for classroom use.

The committee met with Doug Eltoft on this issue. He came up with a list of items that we need to consider.

Cost
- Number of students per year: ~340 freshmen per year
- Per portable $400 to $3,000 depending upon capability required.
- The capability required depends upon what we expect from the students:
- Would there be a one time issue of a computer per student?
- Software licenses $0 - $?? ? per portable
- Who will provide the funding?

If the program went with low end netbooks for $400 each it would cost $136,000 per year for the portables, maybe $80,000 per year in support services, and minimal cost for application software as these would not run high power software. If the program went with a high performance portable the cost would be about $3,000 per unit or $1,020,000 per year. The software costs would depend upon the software load used by each student and could easily be a couple of hundred per student per year. Many more staff hours would be required to help manage portables running College software.

Administrative
CSS
- What back end server infrastructure would be required and what would it cost?
- Who will administer the program?
- Would any general assignment classrooms require additional power outlets?

Student
- Warranty work from the manufacturer only?
- What to do with students that already have a portable?
- What to do when a student's computer dies or is stolen?

Faculty
- Would students be required to have their portable for every class?

The committee proposed a CSS Managed Low-end Netbooks Model for Discussion.
- Capability required: Document preparation using Microsoft Office/ OpenOffice. Problem solving using Mathematica/ Matlab/ MathCAD/ Maple. ICON, Email, Web access. Remote access to Ansys, Abaqus, ProE, AutoCAD and other advanced engineering software
- Number of students per year: ~340 freshmen per year

- Per portable $400. One time issue of a computer per student. Warranty work from the manufacturer only. Students can choose to use the portable that they already have, if they want. However they'll not get a refund on the associated program fees. Student's can purchase another unit if their computer dies or is stolen.
- Funding from student computing fee. Possible to offset cost by reducing computing labs?
- Software licenses: Mathematica/ Matlab? Low cost student versions available. Possible to negotiate better licensing arrangements?
- Back end server infrastructure and its cost?
- More help-desk hours.

Doug Eltoft looked at this model and provided the following comments.

> We had several staff discussions regarding the use of netbooks. It was clear that there is nothing at a $400 price that would be of any real worth for running engineering applications. A survey of the top ten netbooks as rated by CNET reveled that the $400 price point they are underpowered and with only 512 Mbyte to 1GByte of RAM, small 60GByte hard drives, and no built in wireless they are sold with windows XP. These netbooks are not able to run Vista. XP is an increasingly difficult support issue with Microsoft. The warranties are typically one year. The best netbooks had three hour battery life but students would still have to carry the power brick. The $400 target for 340 students per year is about equal to the replacement cost for all of the windows and Linux desktop computers for all of the CSS student computer labs plus most of the departmental teaching labs that use computers. The screens are too small to effectively run engineering applications via remote desktop because not enough information will fit on the small screen. ProE and AutoCAD, gambit, and several other engineering applications will not run at all through a remote desktop connection. Some of the larger netbooks have keyboards that are large enough to support word processing. An external USB mouse would improve the usability of these netbooks. They all support browsers and should be able to run the Office applications and Mathematica/ Matlab/ MathCAD/ Maple. It is not clear how effective these small screens will be in supporting these applications. Our analysis is that each user has to manage their own computer. There is no effective way to centrally manage student portable computers. Because Windows is a single user OS there is no way to provide a remote desktop for the students with out having a individual computer instance running the Windows OS for the maximum number of students that need to connect remotely at any given time. We currently peak out around 190 students using Windows computers. If we estimate that half of those are doing email or Office or non- engineering work, that

gives us some 95 Windows OS computers that need to be available in the server room for remote desktop access. It will take a significant effort to determine the actual cost of providing this service but I suspect it will be at least $50,000 - $70,000 per year. In addition there would have to be additional server resources and possibly a change in the help desk staffing. With out a more detailed plan it is not possible to estimate the costs. If these costs hold up the student computer fee would have to be increased to cover the cost of this program.

From these comments and the discussions that the committee has had it appears that the idea of students using laptops for majority of their work is technically feasible. Informal discussions with some engineering students indicate that a significant percentage of students already are using laptops. The college also has equipped several classrooms with laptops. Thus the trend definitely is towards using laptops and other hand-held devices for communication and productivity applications.

Recommendations:
> (4) The committee recommends exploring the issue further with few specific alternatives to pin down associated cost and administrative issues. The committee should also obtain student feedback on the use of laptops in classrooms and as their primary means of interacting with CSS computers.

Charge 4 & 5:

Review and compile Policies and Practices of CSS with respect to purchase of equipment, software, and charges to departments and faculty for computer related services. If necessary, recommend new policies or suggested modifications to the current policies and practices of CSS.

The IT committee should monitor any planned changes in teaching technology so that faculty are aware of planned changes. This should include communicating the nature of the changes, an assessment of what they would allow us to do better, what they would allow us to do that we cannot do now, possible down sides, and how well they meet faculty needs.

The committee met with Steve Fleagle, UI associate vice president and chief information officer. The discussion focused primarily on how to split IT services between the local and the central models. Steve provided the committee the "guiding principles" document that ITS uses in determining the optimum balance for the provision of IT services between the two models. It was decided that Steve will initiate discussion with Doug Eltoft and form an advisory group to look into the possibility of centrally managing email, active directory, and some other network services. The CSS staff can then focus more on services that address specific needs of the Engineering College faculty and students.
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Recommendations:

    (5) The committee recommends to monitor the activities of the advisory group and look towards developing a plan to implement their recommendations that make CSS more efficient.

Proposed charges for 2009-10 College of Engineering Information Technology Committee

General Charge

The Information Technology Committee shall be responsible for reviewing and evaluating policies governing hardware, software, and computing services within the college, and for making appropriate recommendations regarding computer resources to the dean and the faculty.

Specific Charges

1. Develop specific laptop-based alternative models for student computing with details of associated costs. Obtain student feedback on the use of laptops in classrooms and as their primary means of interacting with CSS computers.

2. Review and compile Policies and Practices of CSS with respect to purchase of equipment, software, and charges to departments and faculty for computer related services. If necessary, recommend new policies or suggested modifications to the current policies and practices of CSS.

3. Monitor the activities of the ITS advisory group and look towards developing a plan to implement their recommendations that make CSS more efficient.

4. Recommend specific charges for the 2009-10 Information Technology Committee.

5. Submit an interim report by January 15, 2010, and a final report by April 1, 2010.