



## Computer Science Industry Advisory Board Meeting Minutes 12 April 2002

Those present: Bill Ivanich from EchoStar, Davis Almanza from Computers Unlimited, Mary Schonsberg from EDS, Rajeev Pandey from Hewlett Packard, Shane Clifford from Micron, Peter Sprague from Proclarity, Jason Lund from Qwest, Jim Palakovich from Zoot Enterprises and Rita Spear formerly of Touch America. Those representing Montana Tech: Celia Schahczenski, Gary Mannix, Jeff Braun, Chris Boroni, Jim VanDeventer, Michael Grinder, Doug Coe and Donna Huntoon. Gloria Carter was taking photos before the meeting started.

Introductions were made. The new CS faculty members told a bit about themselves. Susan Patton gave a welcome to the board members.

Doug Coe gave an accreditation update. Changes were that Keith Olson and Russ Lewis have left. The new faculty members were again mentioned. The ABET Accrediting Board were here for the accreditation last fall. Keith Olson did the Accreditation Report. We had three deficiencies, which is a serious thing. Those deficiencies were: there was no assurance given that all students were given the chance for oral presentations, that all students were given the chance for written communications and that ethics was not taught. The accreditation board wanted proof immediately. The changes that were made to accommodate the accreditation board's request were: a freshman seminar for computer science and software engineering students. The Computer Science number is CS 1006 and the SE number is SE 1000. This seminar is to introduce freshmen to what Computer Scientists and Software Engineers are and to distinguish between them. 11 courses have been changed.

One of our guests suggested that we create a class that dealt specifically with oral presentations, writing and ethics. One person should be designated to teach so the responsibility isn't on the whole CS faculty.

Other deficiencies were: unstable faculty, which is now stable. We have three active searches going on right now for tenure track positions. The department head search should be ended soon. We are interviewing two candidates.

Jeff Braun is on the curriculum committee and he gave a report on curricular changes in the CS department. We have added the freshman seminar I mentioned earlier. This will be a one- credit class and held the first semester. CS 2106 has been split. 2106 is for majors and 2126 is for non-majors. C for Engineers has been split. CS 2146 is for majors and CS 3126 is for non-majors. CS 3316, which is the database class, now has a pre-requisite of Discrete Structures. The networking class has been split. CS 4516 is for business majors and CS 4526 is for CS majors. The networking class has been added to Software Engineering. 3 credits of electives have been removed. Matrices and Linear Algebra have now been added.

Each of our guests went around the table and told a bit about their companies:

Jason Lund from Qwest reported that his company has changed from U.S. West to Qwest. The company is not hiring and people are leaving every day.

Peter Sprague reports that ProClarity has grown a lot. They are planning on increasing over the next 12 – 18 months. They are planning on hiring 3 SE people. Strong communication skills are needed. They have opened a business overseas.

Davis Almanza said Computers Unlimited has about 135 people. They are planning on hiring 2-3 programmers. They are looking for developers. Programmers are not hired for quality assurance.

Bill Ivanich from EchoStar reported there is a hiring freeze since 11 September 2001. There has also been a budget freeze. They will add about 13 people in 2003. They are planning on hiring from South Dakota, Wyoming and Montana. A background in hardware is preferred. They are supposed to merge with Direct TV.

Mary Schonsberg from EDS said they are not hiring. There is a lot of global competitiveness. A lot of jobs and projects have moved overseas. Programmers may be needed later for project management and design.

Rita Spear formerly from Touch America. Customer service is important. Portlock Software is their competition. MSETA is a new division. They are IT oriented. The chance for a relationship is good.

Shane Clifford said Micron develops its own software and that it is for Micron only. There has been a hiring freeze for about a year. But it is starting to come out of it a bit. There will be some upgrading done soon and some hiring may be done also. So far they have avoided lay-offs in the parent company but some of the subsidiary companies have gone under. Things are looking better for the future but no date for rehiring yet.

Jim Palakovich from Zoot Enterprises said his company is in a good position. Credit lenders are the primary customers for Zoot. There are about 140 people in Zoot. There have been no lay-offs. Since 11 September 2001, the average daily transactional volume has doubled and stayed up. There hasn't been any hiring done.

Rajeev Pandey said that Hewlett Packard has about 86,000 employees and that they do about \$50 billion a year. They have 26,000 products ranging from Palm devices to super computers. They are in transition since they just merged with Compaq. They are looking at the market. Devices, things you can add to your computer, are becoming commoditized. Printers are their most selling devices. Hewlett Packard has acquired Indigo. They are investing in global things. They are hiring. People are hired for their potential not for their skills. They want employees for the long run. Rajeev said we should think about an internship for next summer. The internships for this summer are already taken. Rajeev said that students need to learn to take control of their own careers.

There was some discussion about CS vs. SE. Software Engineers cannot call themselves engineers because they aren't engineers. Hewlett Packard has Software Engineers, Design Engineers and Software Scientists. Software Engineering is less technical. Is it less programming? Software Engineers work at a higher level of abstraction. Computer Science is the lower level and SE is the higher level. How do you view SE? There is time to market pressure and a "license to be sloppy". There are 15 credits in math. Computer Science has 12.

Who would you hire first? Some of our guests said they would hire Software Engineers but removing operating systems and theory of comp could pose a problem. Some said it would depend on the person's ability rather than what degree they have. A question would be could they learn? Some said they would hire CS people with business options. Software skills are important. All agreed that they would hire someone who has good writing and communication skills. They would look for someone who could communicate well with clients and with each other.

Celia went over the packet that everyone got. Seniors in high school get the letter and an application. Juniors in high school get the periodic table and a letter. The suggestion was made that the board members call those who have applied. The number of interested students is up. The board members were asked for suggestions for recruiting. They all said that the industry is made up mostly of men. What can the alumni do? The suggestions were: someone in industry could make a phone call; a picture of the alumni could be put on the web with an email address. An email-mentoring program could be instituted. This would put a student in touch with an alumnus in industry. This would take place after the student is already at Montana Tech. One of our guests pointed out that the students may not respond well to having someone from industry talk to them. Students may not know what they want to do.

The question was raised as to whether the students know they can get financial aid? One barrier is Butte's reputation. Is competition on a statewide level useful? It would present a positive view on Butte and Tech. The alumni and professors should be involved. The competitions should be fun. There should be a Java class at Butte High. The Industry Advisory Board members should be involved in recruiting.

We should push the ACM club to keep students here. The freshman seminar should be good for pushing the ACM. Freshmen need to understand the workings of a computer. There should be a basic course for this. They need to know where a file is saved, etc. We need to figure out their level of knowledge before putting them in CS 2106. We need to get decent resumes and get them signed up with Career Services. The students could gain points for extra curricular activities such as presenting a resume, attend the science fair. They would have to bring proof of this attendance. They could attend seminars with proof. They could visit the American Computer Museum in Bozeman.

Our guests were asked for suggestions on fund raising. They said that each company could give donations. We would have to have a specific reason for raising money. We would need a campaign with targets, etc. We should send a newsletter to the alum with specific reason for requesting money. We also need to have a newsletter that will help in recruiting from the alum. The money should go for scholarships, a computer cluster just for CS majors that would have Linux and UNIX on them. Again our guests specified a need to be specific.

We decided that we needed a sub-committee for help in this recruiting. Rita Spear came up with the idea to have a postcard wherein the alumnus could send it back in with his/her email address. The post card should ask personal questions such as, do you have kids, are you married, do you have an email address, can we have your regular address? Rita Spear and Gary Mannix are going to work on the postcard and newsletter.

Respectfully submitted,

Donna Kay Huntoon