Teaching Philosophy

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I believe that through enthusiasm and competence in ones field, along with a commitment for enhancing learning, faculty members in technology can effectively guide student work. By using a mix of traditional lecture and active learning techniques in the classroom and laboratory, I try to prepare students for solving challenging issues, transforming theoretical concepts into concrete applications.

The computer electronics program classes I teach requires students to develop a progressively deeper understanding of technology concepts. These concepts are needed for designing, implementing and managing complex systems. With this in mind, my lectures are tightly integrated with laboratory activities giving form and function to theoretical concepts. I endeavor to provide an appropriate mix of foundational through advanced material for meeting the needs of students at various skill levels. Using visual representations of the topics makes it possible to break down larger problems into manageable interlinked blocks. These abstractions which don't introduce details until needed can be helpful in revealing the beauty of the underlying ideas. Examples and applications drawn from recent advances in technology are interspersed along with the required math and theory. I link the material with prior and future classes, and also the field of work they will enter as professionals. Students expand their learning about these concepts by designing, simulating and building computer electronic networking systems, incorporating realistic constrains such as availability of parts, priorities and timelines.

Recognizing that we have preferred learning styles, the material is presented and reinforced in several ways. I use learning strategies for keeping the students actively engaged with the material, especially using small-group activities. Even though group work takes up class time, it also provides a great learning opportunity for students, by helping them learn from and teach each other. I like to hear the buzz of activity that surrounds the tables with students in the huddle, trying to figure out how to work out the problem that's been posed on the board. By circulating between groups it is possible for me to offer guidance and encouragement. I call students or groups to the board for working on parts of a problem, usually after noting that they're on the right track. By getting different groups to fill in other parts of the information the rest of the class joins in. Everyone is invited to contribute, and I use incorrect answers as building blocks towards the correct one. In the classroom I serve as a guide, facilitating student learning making students, their ideas and ideals welcome. When forming student groups I match students who have a strong background in the subject with those who are new to it. I work with students individually as well helping them identify and overcome roadblocks in the path of their learning. Extra-credit sections are included in several assignments and laboratory activities for students who enjoy the extra challenge. Prior to exams I offer extended reviews of the material, touching on aspects which students often have trouble with. Students learn about the latest advances in computer electronics and networking using online databases, and summarize their findings by writing paragraphs related to the topic being discussed. All the classes I teach have a web enhanced component so students can access class materials at their convenience and interact with each other online as well. In this way it is possible to immerse the students in the topic.

The importance of adapting to the changing technological landscape cannot be overstated, especially in the field of computer networking. Students need to develop skills that are transferable even as the field changes. These include competency with fundamental theoretical and laboratory techniques, problem solving using creative and critical thinking, as well as strong communication skills. Over the course of the entire semester and indeed as they progress through the major, students learn the importance of regular practice for building these key skills. By working on scaled down versions of real-world problems students practice recommended laboratory techniques, problem solving and safety procedures. As new materials, equipment, and technologies become available students should also be able to integrate these into existing systems. Through laboratory activities in which they are required to identify, rank and experiment with software, students download, install, test and troubleshoot several competing software applications. In doing so they learn about proprietary and open-source software solutions, judge the quality of the products and select the one best suited for the job under specified constraints. This also teaches students the importance of documenting their work, downloading and interpreting technical datasheets, as well as technical articles, which are often referenced in future laboratory activities.

For assessing student work I use a mix of assignments, papers, objective, design, performance based exams, and portfolios. These provide students with an opportunity to demonstrate their understanding of the material. I am flexible about timelines as long as the learning objectives are being met. Individual or group projects offer an avenue for identifying challenging problems, and synthesizing technical solutions often in creative ways. I encourage students to work on progressively harder problems and come up with alternate ways for verifying the validity of the solutions. Students organize all their class work in portfolios, under different tabbed sections, including their corrections for all graded work. In my comments to students I include a generous dose of praise while directing them about how to do even better. I aim for improving the feedback I give students by acting fairly and with compassion especially in difficult situations. In class I let students know I trust them to work diligently, apply themselves and help each other succeed in learning the material as best they can.

Lifelong learning picks up where the traditional boundaries of the classroom end. I believe that students who are being trained to enter technology oriented professions have to keep learning about new hardware and software constantly. The same is true for faculty members as well, and I try to make the time, even if it is for a few hours each week to see which technological innovations are appearing on the horizon, while urging students to do so themselves. By stepping out of my comfort zone, and not be unduly concerned about revealing gaps in my understanding of the subject in order to learn its' finer points, I hope students too will continue learning long after they have left the classroom. Professional credentials are valued in the field and I hope to serve as a role model for the students having obtained several certifications in computer electronics and networking such as CompTIA's Network+, Cisco's CCNA, Microsoft's Office User Specialist, Sun's Java programmer. For improving my teaching I read articles and books on the subject, seek advice from colleagues, as well as access online teaching and learning blogs. When things do not go as planned in the classroom I make it a point to reexamine my teaching methods directing personal growth. The experiences and struggles to develop appropriate learning strategies earlier on as a student, help define my teaching now. I look forward to spending time turning the material over in my mind, finding better ways to understand and teach

it to others. I enjoy making connections, finding similarities in different, apparently unrelated situations, so the tools of one realm can be applied in others.

I hope as faculty members we can play an integral part in helping our students' discover what their life's work is meant to be, and to spark in them a desire to learn as much as they can about their chosen field. At the end of the semester I want all students to take pride in having done their best, and to confidently apply what they have learned, for solving practical problems. In the final analysis, I trust that by giving ones best in the class and showing students how they can do so themselves, we are all likely to get better – us at teaching and students at learning.

- Vigs