

Computer Science Department
Framingham State University
Year End Report - 2012/2013
June 2013

Strategic Plan Goals:

❖ Improve Student Success

- NEW: After a viewing a demonstration of a humanoid robot, the department made an unplanned purchase of a robot to be used in courses across our curriculum to engage students in programming. It was demonstrated in a couple of a courses in spring 2013 and was well received. During the summer faculty will participate in training and in the fall the plan is to incorporate the robot into Introduction to Information Technology to engage students, both majors and non-majors, in the art of programming. The enjoyment of creating programs to control a humanoid drives the student to succeed in ways not achievable with manipulating objects on a screen.
- NEW/ONGOING. The department expanded use of tutors to include more hours in HH318 to encourage student's seeking help from their peers.
- NEW. The new Programming and IT club encouraged it's member's to get a stronger grasp of course materials by tutoring those students in their classes who were struggling. Students identified times they were available for tutoring and gave it to the instructor to share with their classes.
- NEW. The programming team opened it's programming practice sessions to any students interested in coming. This developed stronger programming amongst those who came. A couple of sessions included pizza which seemed to be a draw. The department plans to continue pizza practice sessions next year.
- ONGOING: This year the department continued to review the success of students in our entry level programming course CSCI152 Programming with Java. Prof. Chen modified his course to introduce programming constructs before dealing with constructs of objects in an attempt to get them engaged in programming earlier in the course and to provide them with more programming practice.
- NEW/ONGOING: The department also decided to expand assessment of individual courses to review of progress between courses in the programming sequence from CS1 to CS2 this year, to which we will add Data Structures next year. Data was gathered via a pre and post survey in CS2 using questions from a final in CS1 to identify incoming skills retained from CS1 and learning achieved through CS2. This baseline will allow us to move forward with assessment of objectives across our curriculum and to identify areas in which students need more support or practice or emphasis.

- NEW/ONGOING: The department offered the new seminar CSCI 200 Pre-cooperative Experience Seminar in the spring, which is the first course in the new full-time cooperative experiences concentration. Fourteen students enrolled in the course, including a couple of seniors who were using the course to help prepare themselves for seeking a position after graduation. The goal of the seminar is to build self-confidence, help them identify their academic and professional experience and strengths on a resume, to provide them with opportunities to experience interviewing site visits to help them identify the types of environments in which they may eventually seek co-op positions. Students were placed at full-time positions at Lincoln Labs (1), UTC Aerospace Systems(2), Versatile Communications (1), Global Communications (1-parttime), and 2 took summer internships (Commonwealth of Mass).
- NEW/ONGOING: The pre-coop students participated in the IT and Programming club site visits to: MediTech, Google, CA Technologies and Intel. As a result, we will be incorporating Site Visits into the pre-cooperative seminar in the future as the site visits contributed to a better understanding of the variety of work environments and types of job opportunities available to the students.
- ONGOING: The department continues to work with faculty from Economics and Business Department and with Career Services to provide mentorship and activities for professional preparedness via a yearlong series of workshops, panel discussions, mentor round tables and speaker events. This program is known as B2F (Bridge to your Future). It is currently being rewritten as a certificate program.
- ONGOING: Three members of the department continued their work in a STEM grant to identify ways to improve student engagement in entry level courses by creating an inviting syllabus, making content relevant to the student, and trying different teaching methodologies and techniques.

❖ Increase Student Enrollment and Qualifications

➤ Recruiting from High Schools

- ONGOING In November we hosted our Annual “Careers, Technology and You” event which continues to enjoy attendance of over 350 high school students and teachers the last 3 years. This is our largest outreach/recruitment activity.
- ONGOING All full-time faculty members attend and participate in the accepted student open house and make our commitment to teaching and learning and dedication to helping our students succeed clear. This year we were able to highlight our new co-op program and it’s anticipated roll in gaining employment after graduation. We also gave a demonstration of the robot which received a loud round of applause. Both students and their parents were excited about both of these new options open to the students.

- Recruiting from Middle Schools
 - NEW: Also in an attempt to draw more students to our program, we participated in a grant to introduce middle school students into STEM areas via a series of 3 robot workshops held on May 28, 29 and June 12. The “dancing” robot was a huge success and this provided encouragement to us to consider participation in yet more of these opportunities. We hope that this workshop will plant a seed on interest in attending FSU and that word will spread to their peers and other institutions.
- Recruiting from the Undeclared student body
 - With the new General Education Model, the department was able to include courses in multiple domains which provides multiple opportunities for undeclared students to “sample” computer science and perhaps declare it as their major. We hope that revitalizing our gateway courses with flipped classroom techniques, use of the robot, and a promise of co-op opportunities will all be recruiting tools to our major.
 - Prof. Chen worked tirelessly on CCC this year to ensure that our introductory Computer Science course, “Introduction to Information Technology” would fit in the new model and that the cross curricular skills would include a place for problem solving and programming.
 - Prof. Krishnamoorthy continued work on another new course for general education “IT across the curriculum” which he is hopeful will be another means of recruiting new students into the curriculum.
 - Use of our robot in some of these gateway courses will hopefully not only attract more students into the program, but hopefully more women.
- ❖ Develop New Academic Programs
 - The new concentrations including full-time co-op are now in place, and the first course of the new program, pre-co-op seminar was developed and offered in Spring 2013.
 - The department completed an extensive search for a tenure-track faculty position in Fall 2012 and hired a candidate who would have been instrumental in developing a new network and security lab as well as in assisting in accreditation efforts. However, after accepting the offer in Dec. he declined the position in February and after somewhat lengthy negotiation with our runner-up candidate it was determined to start a new search in fall 2013/2014 with an emphasis on security, web and mobile application courses.
 - Continued discussion of a web development and/or mobile applications certificate
- ❖ Enhance Quality of teaching and Learning
 - All of the CS faculty continue to attend conferences and workshops and read articles to remain abreast of the changes in their respective areas and to keep appraised of alternate teaching methods and styles
 - Professors Keil, Chen and Breuning continued participation in a STEM grant to learn how to engage students in their courses.

- ❖ Enhance and Improve the College Environment
 - All of our faculty members are involved in committees on campus, and are interested in maintaining relationships with colleagues in other departments and identifying ways to collaborate on curriculum and to participate in events on campus
 - Professor Chen
 - worked with CCC and subcommittees of CCC on the further clarifications of the new general education model
 - Served on the ITB advisory board
 - Served on the Computer Science advisory board
 - Met with Information Technology Group
 - Prof. Breuning
 - served on ACC
 - met every other week with the B2F voluntary committee, together with Karen Druffel, Bev Soriano, Patricia Thomas, Robin Robinson, and Dawn Ross, to provide interested students with information to improve their readiness for seeking and acquiring an internship or coop or summer or post-graduation career opportunity.
 - Served on ITB advisory board
 - Met every other week with ITB committee, together with Prof. Druffel, Prof. Krishnamoorthy
 - Met with Information Technology Group
 - Served on Computer Science advisory board
 - Prof. Krishnamoorthy
 - continued to enhance his new “Information Technology and the Environment” course and to seek collaboration with faculty and departments in the new Environmental Science program.
 - Met every other week with ITB committee
 - Meet with Computer Science Advisory Board
 - Member of security advisory board on campus
 - Met with Information Technology Group
 - Presenting papers with the following titles at the following conferences:
 - ◆ **Publication:** “IT and Environment General Education Course Design and Teaching – Lessons Learned”, ICISA 2013 – International Conference on Information Systems and Applications, Pattaya, Thailand, June 24-26, 2013
 - Prof. Gao
 - Met with Computer Science Advisory Board
 - Chair of faculty search committee Fall 2012
 - Coached and took programming team to spring competition
 - Publications:
 - ◆ Triangular Numbers in the Jacobsthal Family, Accepted by Integers for publication

- ◆ "A combinatorial identity with Catalan byproducts", accepted by Mathematical Scientists for publication
- Prof. Keil
 - Met with Information Technology Research Group
 - Met with Computer Science Advisory Board
 - Member of campus-wide assessment committee
- We consider our advisory board a mechanism to get input from local industry into our curriculum, as well as to establish contacts and relationships that will help our students with internships and jobs after graduation as well as establish connections between industry and our university.
- ❖ Enhance Budget Understanding and Diversity of Income Streams
 - Our department dipped into our trust fund this year in order to buy the robot which was not in our budget or original 5-year plan but which has now opened doors to new ideas in: recruitment, engagement, new ways of teaching current curriculum in existing courses, potential for new courses, and student competitions.
 - We still need to investigate alternate revenue streams

