Program Assessment:

SPRING 2009
Status Report

Computer Sciences and Computer Information Sciences

Division of Natural Sciences and Mathematics

Chaminade University

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1. Status of Program Assessment in CS/CIS

The Divisional Exit Instrument was not administered to any graduating seniors in SD09 because there were no graduating seniors in that semester. However at the faculty retreat in August 2009 CS/CIS faculty engaged in the following:

- Participation in workgroups reviewing Divisional Exit Instrument Data;
- Review of action points arising from 2007-2008 assessment in CS/CIS
- Review of current program initiatives related to these action points.

2. Action Points Arising from 2007-2008 Assessment Cycle in CS/CIS

Reflection and Action Points prepared by Bro. Robert Maruyama

Summary of Discussion among CS Faculty at the Faculty Retreat (Day 1 @ East-West Center, UH)

Present at the Meeting:

Paolo Martins, Robert Maruyama, Helen Turner, Tom Wesselkamper

Topics Discussed

1. **Capstone Course**

   Everyone was in agreement on the need for some type of a capstone course for the CS/CIS majors. There are two possible ways to offer such a course.
   o Internship
   An internship in a CS/CIS related area offers a practical experience for a student. Some students find such an opportunity locally on their own initiative, but many do not. If internship is made a requirement, the CS/CIS program needs to guarantee such an opportunity for all senior students. This would be a difficult task at this time.

   o CS 499
   A directed research course (CS 499) can be offered as an alternative to internship. There are a number of ways in which such a course can be designed.

   A. Under the supervision of CS faculty at Chaminade
   B. Under the supervision of faculty from other science discipline at Chaminade
   C. Teamed with another science major (e.g., Biology), under a joint supervision of more than one faculty
   D. Under the supervision of Computer Engineering faculty at University of Hawaii

2. **Laboratory**

   The Computer Science laboratory needs to be used more effectively, but in order to take advantage

of the facilities, a lab manager is needed. This will become especially true if the number of students who are involved in CS 499 grows. Possible sources for a lab manager are: 1) CS student; 2) Chaminade IT member on part-time basis; 3) graduate student from UH; 4) part-time faculty. The first type is not completely reliable. The second type causes a conflict of interest. The third type is a distinct possibility, depending on the financial need of a graduate student. The last type requires a budget increase.

3. **CS Curricula**

The current view of the Computer Science education by curriculum experts from the ACM (Association of Computing Machinery) and IEEE (Institute of Electrical and Electronics Engineers) consists of the following areas of specialization as distinct disciplines:

A. *Computer Science* (much theory, less application)
B. *(Computer) Information Systems* (little theory, business applications, organization structure)
C. *Computer Engineering* (much hardware, theory)
D. *Software Engineering* (large-scale software development, project management)
E. *Information Technology* (less theory, emphasis on applications)

Historically, the first three disciplines in the US universities often grew out of Mathematics, Business, and Electrical Engineering departments, respectively. Chaminade's programs are based on this old model, in which the CS program and CIS programs were distinguished by the amount of mathematics (emphasis on theory) requirements and business (emphasis on application) courses. However, today's computer applications have grown to such a degree (e.g., data communications, network security, Web applications) that *Information Technology* has emerged as a distinct discipline.

The (Computer) Information Systems discipline belongs more properly to a Business program. It seems that the intent of Chaminade's CS programs, and the needs of the students, would be more accurately reflected by the Computer Science and the Information Technology disciplines. A review of the CS curricula with this view is an urgent task.

3. Summary of Progress Related to Action Points Arising from 2007-2008 Assessment Cycle

Action Point	Progress
Capstone Course/Experience	• Grant obtained from Clarkson Aerospace (PI: Turner) in the amount of $30,000 (2008-2009) and $55,000 (2009-2010) to fund research internships for CS seniors at hi-tech locations on Maui;
	• Research grant obtained from Clarkson Aerospace (PI: Martins) in the amount of $90,000 (2009-2010) to enable research at CUH by CS undergraduates;
	• Students enrolled in CS499 or CS487 averaging 2-3 per semester;
	• Students participating in paid research internships at CUH averaging 2-3 per semester;
	• Three students performed funded research internships on Maui in Summer 2009 at Akimeka, LLC and HNu Photonics LLC;
	• No plans to make this a REQUIREMENT for graduation as funding for

	capstone experiences is still 'soft' i.e. external money, because program performance in CS does not yet allow us to provide institutional funding for these efforts.
Laboratory Facilities	• Henry 123 opened in FD09, this is a newly renovated 24 student laptop lab that has been provided using funding from the Nursing program; • H123 to be shared between Nursing and CS; • Laboratory is equipped with 30 new laptops, state-of-the-art teacher's station and wireless capability; • CS faculty offices have been relocated to newly renovated space adjacent to H123; • CS faculty now have a dedicated research laboratory (250 sq.ft) adjacent to H123, providing a separate and secure location for student/faculty research on the Wireless Sensor Network project under the supervision of Dr Martins; • Planning on hiring a part-time technician for the H123 laboratory effective Nov 2009 using grant funding.
Curriculum/Program Review	• Major topics are (1) the revitalization of the major, (2) the articulation of CS courses with support need for the Biology, FS and Nursing majors, (3) the future of the pre-engineering program and (4) the potential separation of CS and CIS with the former becoming an academic computing major properly located in NSM, and the latter a possible 'track' within the business program; • Sabbatical visits from Dr Virginia Teller (Chair, Department of CS, Hunter College, NY) and Dr Don Moon (Chair Computer and Electrical Engineering Dept, University of Dayton, OH) are ongoing 2009-2010; • Drs Hunter and Moon are charged with (1) assisting CS faculty at CUH with comprehensive program review and identification of future directions, and (2) solicitation of external funds to assist in program revitalization in the absence of significant extra internal (tuition) revenue); • A $110,000 planning grant has been submitted to the NSF (Broadening Participation in Computing program) which will be reviewed in late 2009; • Having received promotion and Tenure in 2009, Dr Paulo Martins is now assuming a leadership role in the CS program, and developing the proposed new directions for the program.