

**BOARD OF GOVERNORS
STATE UNIVERSITY SYSTEM OF FLORIDA
NEW DOCTORAL DEGREE PROPOSAL STAFF ANALYSIS**

Program: Ph.D. in Computer Science	CIP Code: 11.0101
Institution: University of Florida	Proposed Implementation Date: Fall 2015
Staffed By: D. Barbu	Initial Review Date: 3/31/15 Last Update: 4/14/2015

Projected program costs:

	Total	% & \$ Current Reallocated	% & \$ New Recurring	% & \$ New Non- Recurring	% & \$ C&G	Auxiliary Funds	E&G Cost per FTE	SUS 13-14 Average E&G Cost per FTE
Year 1	\$2,379,385	76.5% \$1,820,685	0% \$0	0% \$0	23.5% \$558,700	0% \$0	\$31,123	\$25,845 CIP 11*
Year 5	\$2,420,685	75.2% \$1,820,685	0% \$0	0% \$0	24.8% \$600,000	0% \$0	\$20,230	

* NOTE: The range of costs associated with the Average E&G Cost per FTE can vary considerably by university due to factors related to enrollment scale and diversity of programs in any particular CIP Code.

Projected FTE and Headcount are:

	Student Headcount	Student FTE
First Year	78	58.5
Second Year	95	71.25
Third Year	109	81.75
Fourth Year	125	93.75
Fifth Year	120	90

On March 29, 2007, the Florida Board of Governors approved Board Regulation 8.011, which sets forth criteria for implementation and authorization of new doctorates by the Board of Governors, as well as criteria for implementation and authorization of Bachelor's, Master's and Specialist degrees by Boards of Trustees. The following staff analysis is an assessment of how well the university meets Board Accountability and Readiness criteria for implementation of this degree program.

Proposal Page Numbers:

INTRODUCTION		ACCOUNTABILITY		READINESS				
Program Description	SUS Goals	Overall	Budget	Mission and Strength	Program Quality	Curriculum	Faculty	Resources
2	2	3	5	7	8	8	20	20

A. Program Description:

The University of Florida (UF) is proposing to offer a PhD in Computer Science. The program will be offered at UF's main campus. The new program is intended to serve as an alternative to the already existing PhD in Computer Engineering. No additional information is provided on employment options for graduates of this program or the program's overall focus.

The proposed UF doctoral program in Computer Science would be the fifth program to be offered by a public university in the state of Florida in the same CIP code (11.0101). The other doctoral programs in Computer Science are offered by Florida Atlantic University, Florida International University, Florida State University and University of Central Florida.

The proposed doctoral program is geared towards students with an undergraduate degree in Computer Science, Computer Engineering, or Electrical Engineering with an undergraduate GPA of 3.3/4.0 or higher. The program will require the completion of 90 credit hours beyond a bachelor's degree and up to 30 credit hours from a master's degree can be transferred into the PhD program.

B. System-Level Analysis and Evaluation in accordance with BOG Regulation 8.011:

The proposal does not reference the State University System (SUS) Strategic Plan. However, it notes that the "program will enhance the ability of UF to attract talented graduate students to support both teaching and research activities in Computer Science" (p. 2). The program would be included in the STEM area of strategic emphasis.

Need Analysis

The proposal notes that the Bureau of Labor Statistics lists the Computer and Information Research Scientists occupation as likely to grow by 15% between 2012-2022, with an annual median pay of \$102,190, and having a doctoral or professional degree as the entry-level educational credential.

A search for open academic positions in Computer Science conducted on April 1, 2015, by the Board staff revealed more than 700 positions, such as chair, faculty, and instructor, advertised through the www.HigherEdJobs.com and the Chronicle of Higher Education websites. The majority of these positions are requiring the completion of a PhD degree.

It is important to note that in the final report of the Board of Governors'

Commission on Higher Education Access and Attainment computer occupations were identified as having the greatest gap between workforce demand and degree production at the baccalaureate level in Florida, with projected unmet annual openings of 2,361 per year to the year 2020. Funding was provided by the 2014 Legislature to help address the need for more computer and information technology graduates, but continued growth in undergraduate programs is warranted. This in turn will create demand for more faculty at colleges and universities, which can be met in part by graduates of the Ph.D. in Computer Science.

Demand Analysis

With regard to student demand, the proposal notes that the department receives frequent inquiries in regards to a PhD program in Computer Science. However, no actual numbers were provided to substantiate this section. The proposal states that many students in the Computer Engineering program are studying in fields that are typically considered to be Computer Science, so offering a degree in computer science will align better with their interests.

The enrollment projections offered in Table 1 show that the two main sources of students will be the current PhD in Computer Engineering and international students. Specifically, the proposal notes that 2/3 of the students in the PhD in Computer Engineering are expected to change majors and enroll into the new PhD in Computer Science. Staff research shows that the PhD in Computer Engineering has been witnessing strong enrollments, with more than 100 students (new and returning) enrolling in the program every year over the last 10 years.

Substantially Similar Programs

Currently, four doctoral programs in computer science (CIP 11.0101) are offered in the State University System. These programs are offered by Florida Atlantic University, Florida International University, Florida State University and University of Central Florida. The program pre-proposal was presented to the CAVP group on 2/7/2014 and no university representative voiced concerns in regards to its development and implementation. Additionally, the proposal notes that the chairs of the universities offering these programs have been contacted and no objections were provided as well as no negative impact on the existing programs was expected.

Summary

The proposed Ph.D. in Computer Science is intended to serve as an alternative to the already existing PhD in Computer Engineering. The new program adds to the list of program offerings at UF and may enhance UF's competitiveness for students and research funding. Evidence exists that the number of computer science job openings in the academic and non-academic areas are increasing, so there should be a growing demand for graduates of the proposed program to fill faculty and research positions.

Dr. Bonnie J. Dorr, the Associate Director and Senior Research Scientist at the Florida Institute for Human and Machine Cognition and Professor (Emerita 3/2014), Department of Computer Science at the University of Maryland was invited to review the proposal for the program. Dr. Dorr expressed "whole-heartedly" support for the implementation of the proposed program.

C. Assessment of the University Review Process in accordance with BOG Regulation 8.011:

Due to the system of stair step accountability set in place by the Board of Governors in Regulation 8.011, it is now incumbent upon University Board of Trustees to verify that all doctoral programs coming before the Board of Governors have met the requirements of the regulation. The following is an assessment of the university review process to ensure that all criteria set forth have been considered by the university prior to submission to the Board of Governors office.

ACCOUNTABILITY

Check 'yes' or 'no' box, and make comments beneath criterion as appropriate.

1. Overall - *The proposal is in the correct format, includes all necessary signatures, and contains complete and accurate tables for enrollment projections, faculty effort, and the proposed budget.*

YES NO

The proposal has been approved by the university board of trustees and includes all required signatures.

University of Florida Board of Trustees approved the program on June 6, 2014.

The university has provided a proposal written in the standard SUS format which addresses new academic program approval criteria outlined in BOG Regulation 8.011.

The Board of Governors new degree proposal format is used, as expressed in the Board's Regulation 8.011.

The university has provided data that supports the need for an additional program in the State University System as well as letters of support or concern from the provosts of other state universities with substantially similar programs.

Four doctoral programs in Computer Science are offered in the State University System. The program pre-proposal was presented to the CAVP group and no concerns were expressed in regards to its implementation.

The university has provided complete and accurate projected enrollment, faculty effort, and budget tables that are in alignment with each other.

The university provides adequate information on enrollment (Table 1-B), budget (Table 2 & 3) and faculty effort (Table 4).

The university has included a statement in the proposal signed by the equity officer as to how this proposal will meet the goals of the university's equity accountability plan.

The program plan for achieving diversity has been reviewed and signed by the UF Equity Officer on October 3, 2013.

The program does not substantially duplicate programs at FAMU or FIU or, if it does, evidence was provided that consultations have occurred with the affected university on the impact of the new program on existing programs.

The proposed program does duplicate the program offered at FIU, however no concerns were expressed in regards to its implementation.

2. Budget - The proposal presents a complete and realistic budget for the program consistent with university and BOG policy, and shows that any redirection of funding will not have an unjustified negative impact on other needed programs.

YES NO

The University Board of Trustees has approved the most recent budget for this proposal.

The current budget was approved by the UF Board of Trustees on June 6, 2015.

The university has reviewed the budget for the program to ensure that it is complete and reasonable, and the budget appears in alignment with expenditures by similar programs at other SUS institutions.

The E&G cost per student FTE is projected to be \$31,123 in the first year and decrease to \$20,320 by the fifth year. The average SUS E&G cost per student credit hour for doctoral level CIP 11 is \$808 for a total of \$25,845 per student FTE. Therefore the UF calculated E&G cost per student FTE seems to be somewhat in line with the SUS average cost per student FTE.

In the event that resources within the institution are redirected to support the new program, the university has identified this redirection and determined that it will not have a negative impact on undergraduate education, or the university has provided a reasonable explanation for any impact of this redirection.

The proposal notes that other programs will not be impacted by the implementation of this program.

READINESS

Check 'yes' or 'no' box, and make comments beneath criterion as appropriate.

3. Program Quality – The proposal provides evidence that the university planning activities have been sufficient and responses to any recommendations to program reviews or accreditation activities in the discipline pertinent to the proposed program have been addressed.

YES NO

The university has followed a collaborative planning process for the proposed program in accordance with policies and procedures adopted by the University Board of Trustees.

An external consultant has reviewed the proposal and supports the department's capability of successfully implementing this new program.

Dr. Bonnie J. Dorr, the Associate Director and Senior Research Scientist at the Florida Institute for Human and Machine Cognition and Professor (Emerita 3/2014), Department of Computer Science at the University of Maryland was invited to serve as the external consultant for the program. Dr. Dorr expressed "whole-heartedly" support for the implementation of the proposed program.

The university has found the level of progress that the department has made in implementing the recommendations from program reviews or accreditation activities in the discipline pertinent to the proposed program to be satisfactory.

According to the proposal, the Department of Electrical and Computer Engineering is accredited by ABET and the most recent accreditation review occurred in 2012. No deficiencies or weaknesses were indicated in the review.

The university has analyzed the feasibility of providing all or a portion of the proposed program through distance learning.

The proposal notes that the program will be delivered at UF's main campus.

4. Curriculum - The proposal provides evidence that the university has evaluated the proposed curriculum and found that it describes an appropriate and sequenced course of study, and that the university has evaluated the appropriateness of specialized accreditation for the program.

YES NO

The university has reviewed the curriculum and found that the course of study presented is appropriate to meet specific learning outcomes and industry driven competencies discussed in the proposal.

The proposed doctoral program is geared towards students with an undergraduate degree in Computer Science, Computer Engineering, or Electrical Engineering with an undergraduate GPA of 3.3/4.0 or higher. The program will require the completion of 90 credit hours beyond a bachelor's degree and up to 30 credit hours from a master's degree can be transferred into the PhD program.

The university anticipates seeking accreditation for the proposed doctoral program, or provides a reasonable explanation as to why accreditation is not being sought.

The proposal notes and the BOG staff verified that no specialized accreditation is available for this program, since the Accreditation Board for Engineering and Technology, Inc. (ABET) does not accredit for PhD level programs.

5. Faculty - The proposal provides evidence that the university is prepared to ensure a critical mass of faculty will be available to initiate the program based on estimated enrollments, and that faculty in the aggregate have the necessary experience and research activity to sustain a doctoral program.

YES NO

The university has reviewed the evidence provided and found that there is a critical mass of faculty available to initiate the program based on estimated enrollments.

The proposal notes that there are 37 full-time faculty members in the Department of Computer and Information Science and Engineering and all of them will be directly involved in the new program.

The university has reviewed the evidence provided and found that the faculty in aggregate has the necessary experience and research activity to sustain the program.

The proposal explains in table 4 that all faculty members hold terminal degrees in their fields.

The university has reviewed the evidence provided and found the academic unit(s) associated with this new degree to be productive in teaching, research, and service.

The proposal provides evidence of faculty productivity. The department has been ranked #31 among 199 Engineering schools in the US that grant doctoral degrees. Faculty members received numerous awards such as Fulbright Scholars (2), National Science Foundation Career Awards (12), IEEE Fellows (4), etc. Additionally, the research expenditures of the 2012-13 academic year exceeded \$5.2 million.

If appropriate, the university has committed to hiring additional faculty in later years, based on estimated enrollments.

The initial proposal was submitted for BOG consideration during the fall of 2014. At that time the proposal noted that starting fall 2014 three (3) more faculty members would be hired to serve in the program. In terms of faculty effort for this program no additional details were provided for the June 2015 BOG meeting and it is expected that these faculty vacancies have been filled. Therefore, it is unlikely that new faculty lines are needed in the first five years to support this program.

6. Resources – The proposal provides evidence that the university has ensured the available library volumes and serials; classroom, teaching laboratory, research laboratory, office space, equipment, clinical and internship sites, fellowships, scholarships, and graduate assistantships will be sufficient to initiate the program, and that if applicable, funding has been

secured to make more resources available as students proceed through the program.

YES NO

The university has provided a signed statement from the Library Director verifying that the library volumes and serials available are sufficient to initiate the program.

The university has ensured that the physical space necessary for the proposed program, including classrooms, laboratories and office space, is sufficient to initiate the program.

According to the proposal, instructional space is sufficient.

The university has ensured that necessary equipment is available to initiate the program.

According to the proposal, all the necessary equipment is available.

The university has ensured that fellowships, scholarships, and graduate assistantships are sufficient to initiate the program.

The proposal notes that most of the students in the program will receive assistantship and fellowship appointments. Education and General (E&G) and C&G are the main sources of funds for these appointments, as provided in table 2.

If applicable, the university has ensured that the department has arranged a suitable number of clinical and internship sites.

This section is not applicable.