ACTION ITEM #11
Proposal for New Master's Degree
(Erica Weintraub Austin)

May 6, 2016

TO ALL MEMBERS OF THE BOARD OF REGENTS

SUBJECT: Proposal for New Master of Science Degree

PROPOSED: That the Board of Regents approve a Master of Science Degree in Software Engineering

SUBMITTED BY: Erica Weintraub Austin, Interim Co-Provost

SUPPORTING
INFORMATION: The demand for software engineers, especially in state of Washington, is at an all-time high. The Washington state government and legislator as well as Washington industries are making huge investments in education and training of computer scientists and software engineers as demonstrated by the recent state's engineering expansion investments. With faculty expertise in computer science and engineering and adding new expertise in software engineering, the School of Electrical Engineering and Computer Science (EECS) is well positioned to establish the proposed program and address one of the state's highest workforce needs. The demand for software engineers is expected to continue to grow till 2020 and beyond.

Software engineering graduates are rare and easily demand 6-figure salaries upon graduation. While other states such as California, Massachusetts, Pennsylvania, Illinois, and Indiana have committed to building software engineering programs and producing SE graduates, the State of Washington is lagging in this area. To the best of our knowledge, currently there is no online Master of Science in Software Engineering degree offered at any of the 4-year institutions of higher education in the State. University of Washington has a face-to-face, evening professional Master's degree in Computer Science and Engineering and UW-Bothell offers a face-to-face Master of Science program in Computer Science and Software Engineering. Western Governors University offers competency-based online MS degrees in Information Technology, but not in Software Engineering.

Therefore, the proposed new online Master of Science in Software Engineering (MSSE) program will be unique and will help the State and its computing/IT industries meet their needs by producing highly skilled and trained graduates in software engineering.

The proposed online Master's degree in Software Engineering is intended to be a complementary, sister program to already existing MS Computer Science program at WSU. As sister disciplines, computer science and software engineering share the fundamentals of a computer science curriculum. Where they differ is in advanced, graduate level courses—CS focuses on topics in machine learning, data science, algorithm design, distributed and networked systems, human computer interfacing, pervasive computing, bioinformatics, and other topics of interest to the students. In contract, a MSSE program focuses on advanced courses in software design and development, software testing and validation, software maintenance, software security, and software management and integration—all specialties of high demand among the State's computing and IT industries.

In addition, the proposed online MSSE program will utilize two existing courses from the MS Engineering Management program that are related to professional ethics and project management.

It should be noted that software engineering and software design principles play fundamental and supporting roles in application development in many domains, including those served by computational and data sciences, such as health or environmental informatics, business analytics, and bioinformatics. Therefore, several of the advanced elective courses in software engineering will be of interdisciplinary nature with applications in business, biology, health, and environmental sciences.

The proposed MSSE courses and degree program will be offered entirely online (distance-learning) through the WSU Global Campus. The online, asynchronous delivery mode makes the program equally desirable for working professionals looking for part-time, slower-pace participation as well as full-time graduate students seeking a quicker-pace to completion for a professional MS degree.

The online MSSE degree will be a terminal, non-thesis, degree designed to address the needs of professionals seeking advanced degrees or those seeking employment in industry/commercial sector right after graduation.

At a meeting on March 23, 2016, the Graduate Studies Committee approved the proposal to create a new degree, the Master of Science in Software Engineering, to be offered on the WSU Global campus.

The proposal has support from the Provost, Budget Committee, Catalog Subcommittee, and the Library Committee. The proposal recommends an effective date of fall 2016. This recommendation was passed by the Faculty Senate on April 14, 2016.