Workshop on Revisions to SE 2004

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Abstract

We shall conduct a half-day workshop on needed revisions to Software Engineering 2004: Curriculum Guidelines for Undergraduate Degree Programs in Software Engineering (SE 2004). A brief overview of the current guidelines and their revision status will be presented. Workshop attendees will share their experience using the current guidelines and suggest needed changes. We will provide a summary report from the workshop to other CSEE&T attendees at a Birds Of a Feather meeting later during the conference.

This half-day interactive workshop will provide the most significant input to the next version of the curriculum guidelines for undergraduate software engineering programs. Attendees will be able to:

- review the current status of curriculum guidelines in software engineering and computer science
- help set the direction for the next version of the guidelines for undergraduate software engineering programs
- compare their current courses and curricula with the revised guidelines
- network with other leading educators in software engineering

Software Engineering 2004: Curriculum Guidelines for Undergraduate Degree Programs in Software Engineering (SE 2004) was the first recognized set of recommendations for undergraduate software engineering programs. It was created at a time when few such programs existed. Since then software engineering practice has evolved and many undergraduate software engineering programs have been created. There are now 22 ABET-accredited programs in the United States alone. The ACM and the IEEE Computer Society are sponsoring an effort to revise the recommendations this year.

The workshop will start with a brief overview of SE 2004 and its relationship to other computing curricula, such as Computer Science Curricula 2013 (CS 2013), and to other software engineering standards, such as the Guide to the Software Engineering Body of Knowledge (SWEBOK). The workshop organizers will also describe the current revised draft, based on the results of a recent survey of needed changes.
Workshop attendees will discuss expected outcomes of undergraduate software engineering programs, including the roles that graduates play in the software industry. Attendees will then discuss needed updates to Software Engineering Education Knowledge (SEEK), the body of knowledge at the core of the curriculum, to meet those outcomes. Attendees will also consider new ways of teaching that have emerged since SE 2004 was written.

The revised curriculum guidelines will include examples of courses and program curricula, to be posted on the Ensemble Computing web portal. We plan to collect examples from workshop attendees as part of the workshop. Attendees will also have an opportunity to share suggested changes to other parts of the guidelines.

The results of the workshop will be summarized in a report to be shared later during CSEE&T at a Birds Of a Feather session. They will also be a primary input to the SE 2004 Revision Task Force.

**Brief Biographies of Presenters:**

Mark Ardis is a Distinguished Service Professor in the School of Systems and Enterprises at Stevens Institute of Technology. In his career Mark has helped create academic programs in software engineering at 5 schools (Wang Institute of Graduate Studies, Carnegie Mellon University, Rose-Hulman Institute of Technology, Rochester Institute of Technology and Stevens Institute of Technology). Mark is the chair of the ACM and IEEE-CS task force to revise SE 2004, the guidelines for undergraduate software engineering programs. He received a PhD in computer science from the University of Maryland and is a member of the ACM and the IEEE Computer Society.

David Budgen is a Professor of Software Engineering in the School of Engineering & Computing Sciences at the University of Durham, UK. He received BSc and PhD degrees in theoretical physics from the University of Durham in 1969 and 1973 respectively. His current research interests include software design, design of service based systems, software development environments, and empirical software engineering, with a particular emphasis upon evidence-based software engineering. He is the author of *Software Design* (2nd edition, Pearson Addison Wesley) and of over 100 refereed publications on software engineering topics. He is a member of IEEE, ACM and IET.

Gregory W. Hislop is on the faculty of the iSchool at Drexel University where he has worked extensively on curricula for Software Engineering, Information Systems, and Information Technology degree programs. Prior to that he spent about 20 years as a computing professional. His current work includes exploring ways for students to learn computing by participating in humanitarian free and open source software projects.

Dr. Jeff Offutt is Professor at George Mason University, and visiting professor at the University of Skovde, Skovde Sweden and at Linkoping University, Linkoping Sweden. For the last ten years he has led the 25-year old MS program in Software Engineering at Mason, and has recently led the effort to create PhD and BS programs in Software Engineering. He received the Best Teacher Award from the Volgenau School in 2003 and was named a GMU Outstanding Faculty member in 2008 and 2009. He is co-author of the textbook *Introduction to Software Testing* and teaches classes in testing, usability, maintenance, web application development, and experimental software engineering. Offutt has invented numerous test strategies, published over 145 refereed research papers (h-index of 51 on Google Scholar), is editor-in-chief of Wiley's journal of Software Testing, Verification and Reliability, and co-
founded the IEEE International Conference on Software Testing, Verification, and Validation. He has consulted with numerous companies on software testing, usability, and software intellectual property issues. Offutt received the PhD in computer science in 1988 from the Georgia Institute of Technology and is on the web at http://www.cs.gmu.edu/~offutt/

Mark Sebern is a professor in the EECS Department at the Milwaukee School of Engineering (MSOE), which he joined after twenty years in industry practice, and founding program director of MSOE's undergraduate software engineering (SE) program, which produced its first graduates in 2002. He is a member of the ABET Engineering Accreditation Commission, the CSAB Board, and the task force charged with revision of the ACM/IEEE-CS SE2004 SE curriculum guidelines. He received a PhD in electrical engineering from Marquette University and is a senior member of the ACM and IEEE.

Willem Visser is a professor in Computer Science at Stellenbosch University, South Africa. Before joining Stellenbosch in 2009, he spent 8 years at NASA Ames Research Center, where he was one of the research leads for the Java PathFinder project. His research interests include model checking, testing, and symbolic execution for test generation. He has been co-chair of ASE in 2008 and the ICSE Experience Report track in 2010, is currently on the steering committee for ASE and SPIN, on the executive committee of ACM SIGSOFT and is a member of the editorial board of TOSEM. More information can be found on his webpage at: http://www.cs.sun.ac.za/~wvisser/