



# Software Engineering Technical Council NEWSLETTER

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September 1994 - Vol. 13 No. 1

Editor: Samuel T. Redwine Jr.

including newsletters on: **Software Reliability Engineering / Reverse Engineering / Quantitative Methods / Technology Transfer / Software Process / Software Engr Education**

## THE IEEE-ACM INITIATIVE ON SOFTWARE ENGINEERING AS A PROFESSION

Barry Boehm

The IEEE Computer Society and the ACM have established a joint initiative to plan and execute actions relative to establishing software engineering as a profession. I expect that most of you in TCSE are convinced of software's current and future importance, and of the utility to society of advancing software engineering as a profession. But you may not be fully aware of the current status of software engineering as a profession, and of the significance and timeliness of the IEEE-ACM initiative.

The current situation is that if you call yourself a software engineer, you could be breaking the law in 48 of the 50 U.S. states. In general, these laws have been established in concert with the National Society of Professional Engineers. They serve to prevent anyone other than people educated and licensed in one of 36 recognized engineering disciplines from using the words "engineer" or "engineering" to describe their occupation [Computerworld, May 30, 1994].

Some states, such as Tennessee, have begun enforcing these laws, with the result that individuals and companies in Tennessee have had to drop all mention of the term "software engineering" from their titles and business literature. Other states, such as Texas, have prohibited universities from establishing masters' degree programs in software engineering.

What should we do about this situation? Should we back off and rename ourselves to avoid controversy? Should we pick up the challenge of defining the necessary body of knowledge and set of recommended practices to establish ourselves as the 37th recognized engineering discipline? (For example, electrical engineering includes electromagnetic theory in its body of knowledge and the National Electrical Safety Code in its recommended practices.) Should we ally ourselves with a related recognized area such as systems engineering?

One thing is clear. If we adopt a passive approach, we won't have the opportunity for choice. The choices will be made for us by various combinations of legislators and lobbying groups.

The IEEE-ACM initiative is embarking on a pro-active but carefully sequenced approach. The initiative is currently defined by the charter of the joint steering group, to "consider and document the issues associated with software engineering as a profession, including, but not limited to:

- The factors involved in, and the value thereof, of establishing software engineering as an approved program including the associated accreditation issues.
- The factors involved in, and the value thereof, of establishing a separate set of software engineering ethics.
- The factors involved in, and the value thereof, of establishing software engineering as a certified or registered field."

The steering group is chaired by Mario Barbacci of IEEE-CS. The vice-chair is Dennis Frailey of ACM. The two society presidents, Laurel Kaleda and Stu Zweben, are ex-officio members. The other IEEE-CS members are Fletcher Buckley, Elliot Chikofsky, and Larry Druffel. The other ACM members are Mary Shaw and myself, and another person to be determined. I am also serving as the Sigsoft liaison to the steering committee. Chuck Howell of Mitre Corporation is the IEEE-CS TCSE liaison to the steering committee.

The initiative currently involves three primary activities. A task force on "Defining the Body of Knowledge and Recommended Practices," led by Patricia Douglas, has developed an initial draft taxonomy of the topics involved in software engineering. This is being used as the basis of a survey to determine practitioners' views of the relative importance of each taxonomy element to software engineering practice. The taxonomy and survey have gone an initial dry-run, and are being refined and prepared for wide-scale distribution.

A second task force, led by Robert Melford and Don Gotterbarn, is chartered with "Defining the Code of Ethics and Professional Standards." Several working groups are addressing these issues in the areas of privacy, security, testing and reliability, competence, duties to society, and intellectual property. A third task force, led by Doris Carver and John Werth, is chartered with "Defining the Curriculum," but it is deferring major action until results are available from the body-of-knowledge task force.

Defining this core body of knowledge is proving to be considerably more difficult than the electrical engineers' counterpart. Software engineers specialize in a variety of areas, from vehicle and industrial controls through user interface management, operating systems, and networked information systems, to distributed financial systems. Given this diversity, what is the relative importance to "software engineering practice" of knowledge in queueing theory, numerical analysis, reliability analysis, formal verification, information theory, decision theory, network protocol analysis, parallel processing, window management, requirements analysis, object modeling, configuration management, intellectual property rights, etc?

The task forces are making a strong effort to work these and other issues, but a fully successful effort will require more extensive participation of the software engineering community. The Steering Group would like to obtain broad review of the task forces' incremental results. Thus, I would like to invite each of you to participate in such reviews, and to use the TCSE Newsletter and SEN as a forum for comments you may have on the initiative's current issues, or any others you believe are important and relevant. If you would like to participate, please send me an e-mail to that effect via boehm@usc.edu. [Ed: TCSE members can contact Chuck Howell at howell@mitre.com or +1-703-883-6080.]



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## INITIATIVE CONTINUES ON SOFTWARE ENGINEERING AS A PROFESSION

### Initiative Now Cosponsored by IEEE-CS and ACM

In May 1993, the IEEE-CS Board of Governors approved a motion to establish a steering committee for evaluating, planning, and coordinating actions related to establishing software engineering as a profession. The steering committee, chaired by Mario Barbacci of SEI, was charged is to "consider and document the issues associated with software engineering as a profession, including, but not limited to:

- "The factors involved in, and the value thereof, of establishing software engineering as an approved program including the associated accreditation issues.
- "The factors involved in, and value thereof, of establishing a separate set of software engineering ethics.

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In March 1994, the IEEE Computer Society's President, Laurel Kaleda, agreed with ACM President Gwen Bell to make the steering committee a joint IEEE-CS/ACM activity. To this end, the steering group was restructured for joint IEEE-CS and ACM participation. That committee is now continuing and expanding the original effort.

### TCSE's Role: Dissemination and Resourcing

Out of TCSE's meetings on this topic at ICSE 1993 in Baltimore, TCSE has established a Task Force on Software Engineering Profession to support the larger effort and to ensure communication and dissemination of information. TCSE will also serve as a major resource vehicle for the larger effort, locating people to participate at all levels of the work. Chuck Howell of Mitre is chairing our Task Force and coordinate communication. He can be reached at howell@mitre.org.

You can join, like any TCSE subcommittee, to be on the interest list for projects and updates. There is a box for joining the Task Force list on the TCSE membership form, or send your request to the tcse@computer.org address.

## CHIKOFSKY REELECTED AS CHAIR OF NEW TECHNICAL COUNCIL ON SOFTWARE ENGINEERING

Elliot Chikofsky was reelected as TCSE Chair for the 1994-1996 term in the June election by TCSE members, as reported by Jack Barnard (TCSE Secretary). The start of the new term of the TCSE Chair this year coincided with TCSE's becoming the Technical COUNCIL on Software Engineering on July 1, 1994.