

The Software Engineering Body of Knowledge and the Guidelines

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There is a joint effort underway from the ACM and The Computer Society (the Software Engineering Coordinating Committee) to establish a Software Engineering Body of Knowledge and a Software Engineering Curriculum, among other activities. We are the co-editors of the Guide to the Software Engineering Body of Knowledge project: SWEBOK (we use SWE instead of SE to avoid any possible confusion with Systems Engineering). From that viewpoint, we will comment on what role the WGSEET could play and where the guidelines could be most useful.

The general issue is that of translating the guide to the SWEBOK and the standard curriculum into practical curricula, teaching practices, tools, etc.

The Computer Society/ACM initiative should result in a widely accepted Guide to the Software Engineering Body of Knowledge (www.swebok.org) and a Standard Curriculum. There is a clear distinction between the two: the SWEBOK project covers only the Knowledge and not the Curriculum itself. The list of knowledge areas and components included in the guidelines would have to be adapted to the results of both these groups. So far, we know that the contents of the SWEBOK will be somewhat similar to the list included in the guidelines. This is not surprising. We can expect these lists to share a large overlap. So, there is no major problem on this point.

The SWEBOK will include, in its first version, the core knowledge, the 'generally accepted' that is expected from a graduate with four years of experience. That leaves out what can be labeled as 'advanced' knowledge, but also 'specialized' knowledge (knowledge used mainly in a field like real-time systems) and application domains. In these two categories, much has to be done to determine what should be included in the teaching.

But, assuming that these efforts are successful and the expected results are published, the problems of teaching Software Engineering re far from over. It seems to us that the main problem is the translation of all these standards, Body of Knowledge, best practices into knowledge and more importantly, competencies for graduates. That is where a group such as the WGSEET becomes necessary. In the spirit of the more open rules of accreditation of the ABET, we, as teachers, have to try various solutions to these problems, but these experiences are useless if we cannot value them and share them.

A second problem is: how do we distribute within the curriculum what is called the 'recurring' knowledge components in the guidelines? For instance, 'tools', 'metrics' and the like have to be covered somewhere. But part of it is general, and deserves a separate section, while some aspects are so specific to some life-cycle steps for example, that they have to be discussed there. This problem is not clearly resolved in the guidelines. A solution will be adopted for the guide to the SWEBOK. What is needed then is a solution at the curriculum and teaching level. We believe the guidelines should develop discussion of that problem.

A third problem comes from the treatment of 'related disciplines', called 'Foundation Areas' in the guidelines. The SWEBOK and Curriculum projects will propose a list of such disciplines, along with knowledge areas to be covered within each. These will be chosen from well established list of knowledge areas. For Computer Science, the list will be taken from the Curriculum 2001 project. For Project Management, the document is the Project Management's Institute Guide to the Project Management BOK (available at www.pmi.org). We think that the guidelines should address this issue.

We think that the Working Group on Software Engineering Education and Training, because of its interest and experience in the field, can very well fill that gap between the theoretical curriculum and the implementation considered by individual universities.