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Software Engineering — Guide to the Software Engineering Body of Knowledge (SWEBOK)

Ingénierie du logiciel — Guide du corps de connaissance de l'ingénierie du logiciel (SWEBOK)

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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This corrected version of ISO/IEC TR 19759:2015 incorporates the following corrections:

- corrupted paragraphs of text within the document have been replaced.

ISO/IEC TR 19759 was prepared by the IEEE Computer Society and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

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Introduction

The purpose of the Guide to the Software Engineering Body of Knowledge is to provide a consensually validated characterization of the bounds of the software engineering discipline and to provide a topical access to the Body of Knowledge supporting that discipline. The Body of Knowledge is subdivided into fifteen software engineering Knowledge Areas (KA) providing an outline of topics. The descriptions in the KAs are designed to discriminate among the various important concepts, permitting readers to find their way quickly to subjects of interest. Upon finding a subject, readers are referred to key papers or books selected because they succinctly present the knowledge.

Publication of the 2004 version of this Guide to the Software Engineering Body of Knowledge (SWEBOK 2004)—adopted as ISO/IEC TR 19759:2005—was a major milestone in establishing software engineering as a recognized engineering discipline. The goal in developing this update to SWEBOK is to improve the currency, readability, consistency, and usability of the Guide. All knowledge areas (KAs) have been updated to reflect changes in software engineering since publication of SWEBOK 2004. Four new foundation KAs and a Software Engineering Professional Practices KA have been added. The Software Engineering Tools and Methods KA has been revised as Software Engineering Models and Methods. Software engineering tools is now a topic in each of the KAs. Three appendices provide the specifications for the KA description, an annotated set of relevant standards for each KA, and a listing of the references cited in the Guide.

An emphasis on engineering practice leads the Guide toward a strong relationship with the normative literature. Most of the computer science, information technology and software engineering literature provides information useful to software engineers, but a relatively small portion is normative. A normative document prescribes what an engineer should do in a specified situation rather than providing information that might be helpful. The normative literature is validated by consensus formed among practitioners and is concentrated in standards and related documents. From the beginning, the SWEBOK project was conceived as having a strong relationship to the normative literature of software engineering. The two major standards bodies for software engineering (IEEE Computer Society Software and Systems Engineering Standards Committee and ISO/IEC JTC1/SC7) cooperated in the project.

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The Guide is oriented toward a variety of audiences, all over the world. It aims to serve public and private organizations in need of a consistent view of software engineering for defining education and training requirements, classifying jobs, developing performance evaluation policies or specifying software development tasks. It also addresses practicing, or managing, software engineers and the officials responsible for making public policy regarding licensing and professional guidelines. In addition, professional societies and educators defining the certification rules, accreditation policies for university curricula, and guidelines for professional practice will benefit from the SWEBOK Guide, as well as the students learning the software engineering profession and educators and trainers engaged in defining curricula and course content.

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Software Engineering — Guide to the Software Engineering Body of Knowledge (SWEBOK) — Version 3.0

1 Scope

This Technical report characterizes the boundaries of the software engineering discipline and provides topical access to the literature supporting that discipline.

2 Recommendations

As a Technical Report, this document does not make technical recommendations. The information provided is that contained in the following publication (reproduced on the following pages), which is adopted as a Technical Report:

Guide to the Software Engineering Body of Knowledge (SWEBOK) V3.0, IEEE Computer Society

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3 Revision of the IEEE Computer Society Publication

It has been agreed with the IEEE Computer Society that ISO/IEC JTC 1/SC 7 will be consulted in the event of any revision or amendment of this IEEE Computer Society publication. Consultation will be accomplished by the existing Category A liaison relationship between SC 7 and IEEE Computer Society.

4 Publication

The report of the IEEE Computer Society appears on the following pages.

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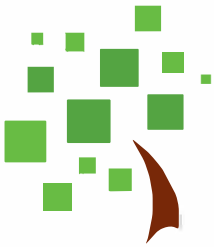

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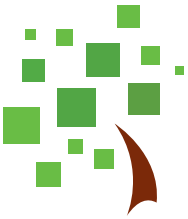

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