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Software and systems engineering — Certification of software and systems engineering professionals

Part 2:
Guidance regarding description of knowledge, skills, and competencies contained in schemes

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Partie 2: Recommandations relatives à la description des connaissances, aptitudes et compétences contenues dans les programmes

FDIS stage

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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.

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 or www.iec.ch/members_experts/refdocs).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

A list of all parts in the ISO/IEC 24773 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

The ISO/IEC 24773 series replaces and expands upon ISO/IEC 24773:2008.

The ISO/IEC 24773 series consists of the following parts.

— ISO/IEC 24773-1 serves as the basis for the ISO/IEC 24773 series. It contains terminology, concepts, and requirements which are common to the remaining parts.

— This document contains guidance which can be used by certification bodies regarding the definition of knowledge, skills and competencies that are to be incorporated into a certification scheme for professionals in software and systems engineering.

— ISO/IEC 24773-3 provides specific requirements for certification schemes for professionals in systems engineering.

— ISO/IEC 24773-4 provides specific requirements for certification schemes for professionals in software engineering.

— ISO/IEC 24773-1 serves as the basis for the ISO/IEC 24773 series. It contains terminology, concepts, and requirements which are common to the remaining parts.

— This document contains guidance which can be used by certification bodies regarding the definition of knowledge, skills and competencies that are to be incorporated into a certification scheme for professionals in software and systems engineering.

— ISO/IEC 24773-3 provides specific requirements for certification schemes for professionals in systems engineering.

— ISO/IEC 24773-4 provides specific requirements for certification schemes for professionals in software engineering.

The ISO/IEC 24773 series is applicable across all organizations and for conducting assessments using a variety of methods, techniques and tools.

This document also contains additional discussion and guidance concerning the requirements for certification schemes defined in ISO/IEC 24773-1. It contains general guidance concerning the elements of a certification scheme, particularly as they apply within the domain of software and systems engineering. It contains guidance for the description of several key elements of certification schemes which are generated or referenced by the certification body:

— body of knowledge (BOK);

— skills;

— competency.

In addition to addressing technical skills, knowledge and competence, ISO/IEC 24773-1:2019, 6.3.1 requires that a conformant certification scheme address other aspects of professionalism, such as professional

skills/attributes and a code of ethics. This document provides additional descriptions and guidance regarding these other aspects of professionalism to be addressed by a conformant scheme.

This document is useful to certification bodies offering schemes for the certification of professionals in the domain of systems or software engineering. It offers guidance for certification bodies when defining or designing the various elements of their respective certification schemes, as well as guidance for description of these scheme elements.

Annex AAnnex A contains further explanation about the distinction between certification and professional licensure. Annex AAnnex A also contains additional guidance to encourage harmonization between a certification scheme and the requirements of regulators.

By considering the guidance contained in this document, certification bodies can provide a clearer and more precise description of their certification schemes. This in turn benefits the other stakeholders (potential certificants, accreditation bodies, professional and technical groups, and employers), allowing them to more accurately assess the certification scheme and compare to other schemes. This document is also useful to (potential) applicants or candidates of certification schemes, in that they can obtain additional background information concerning the requirements for certification schemes claiming conformance to the ISO/IEC– 24773 series. Understanding the requirements for a certification scheme (as expressed in ISO/IEC– 24773-1, ISO/IEC 24773-3, and ISO/IEC 24773-4) along with the guidance contained in this document, helps the candidate to compare various schemes, and understand where/how such guidance is reflected in and incorporated into the various schemes. Similarly, employers; evaluators of professional personnel who are certificants; and evaluators of certification schemes in the domain of software and systems engineering can also use the contents of this document to better understand the requirements, as well as the differences between various schemes.

Software and systems engineering — Certification of software and systems engineering professionals —

Part 2: Guidance regarding description of knowledge, skills, and competencies contained in schemes

1 Scope

This document contains guidance for certification that can be used by certification or qualification bodies regarding the description of knowledge, skill and competence within their particular schemes based on ISO/IEC 24773-1.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 17024, *Conformity assessment — General requirements for bodies operating certification of persons*

ISO/IEC 24773-1:2019, *Software and systems engineering — Certification of software and systems engineering professionals — Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO/IEC 24773-117024, ISO/IEC 1702424773-1, and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obphttps://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/https://www.electropedia.org/

3.1
KA
knowledge area
sub-area or grouping of related topics within a body of knowledge (BOK)

Note 1 to entry: See 5.25.2 and 5.35.3.

4 Major elements of certification and qualification scheme

This clause introduces the major elements of a certification and qualification scheme as listed in ISO/IEC 24773-1.

Clauses 5 to 8Clauses 5 to 8 discuss the various elements in greater detail.

Conforming certification schemes have the following major elements at a minimum: