
**Software engineering — Certification of
software engineering professionals —
Comparison framework**

*Ingénierie du logiciel — Certification des professionnels de l'ingénierie
du logiciel — Cadre comparatif*

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction.....	v
1 Scope.....	1
1.1 Purpose.....	1
1.2 Field of application.....	1
2 Normative references	1
3 Terms and definitions.....	1
4 Requirements for a Certification Scheme	2
5 Knowledge and skills.....	3
5.1 Body of knowledge	3
5.1.1 Software engineering body of knowledge	3
5.1.2 Other technical knowledge requirements.....	3
5.1.3 Knowledge of appropriate standards	3
5.1.4 Domain knowledge.....	3
5.2 Cognitive levels	3
5.3 Skills	3
5.3.1 Software engineering skills	3
5.3.2 Generic professional skills	3
5.4 Performance levels	4
6 Evaluation of competence	4
7 Delegation.....	4
8 Code of ethics and professional practice	4
9 Maintenance of certification	5
9.1 Renewal of certification.....	5
9.2 Continuing professional development	5
Bibliography.....	7

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 24773 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

Introduction

Over the past several decades, software systems have become critical components of most aspects of life. At the same time, these systems have become increasingly complex. One response to this situation has been the recognition and codification of effective practices for software development processes and products. This effort has led to the development of systems and software engineering standards by ISO and IEC, by professional societies, and by national standards bodies. It has also led to the definition of an internationally recognized body of knowledge for software engineering [1].

At the same time, there has been a broad-based effort to increase the professionalism of developers of software systems. This effort has included the extension of professional engineering qualifications (e.g. licensed or chartered status) to software engineers and the creation of certification schemes for software engineering professionals. All certifications assess candidates' competencies, either by examination or by review of a candidate's competencies, including education, experience, and mastery of specific skills.

The increasing globalization of the software industry implies that a software engineering professional is likely to work in different countries over the course of a career. It is therefore important to develop ways to increase the portability of professional certifications in this domain. This International Standard will respond to the needs of multi-national organizations or suppliers for developing software for a foreign customer (including offshoring) that requires software engineering professional certifications.

This International Standard will facilitate the portability of software engineering professional certifications between different countries. At present, different countries have adopted different approaches on the topic that are implemented by means of regulations and bylaws. The intention of this International Standard is to be open to these national approaches by providing a framework for expressing them in a common scheme that can lead to understanding between different countries.

This International Standard refines and supplements the processes for certification of individuals included in ISO/IEC 17024:2003, *Conformity Assessment – General requirements for bodies operating certification of persons*. The management and implementation of the Scheme developed under this International Standard can also take into account the processes and definitions of ISO/IEC 17024.

A **certification body** for software engineering professionals seeking accreditation as such will be required to demonstrate conformance to ISO/IEC 17024 and to this International Standard. This does not preclude a certification body for software engineering professionals from using this International Standard alone to compare its Scheme with other certification bodies as a basis for a mutual recognition agreement.

In some countries, governments and other bodies assess the qualifications of software engineering professionals by evaluating candidates' knowledge, skills and job experience and issuing certificates of qualification to those demonstrating competence as defined by an assessing organization. Such an organization is defined as **qualification body** in this International Standard. A qualification body can use appropriate components of Clauses 4.1 to 4.6, 5 and 6 of this standard for comparison with other such schemes or as a delegated qualification body under Clause 7 of this International Standard. Educational organisations can also use a Scheme developed under this International Standard for comparison purposes.

The Guide to the body of knowledge, ISO/IEC TR 19759:2005, *Software Engineering – Guide to the Software Engineering Body of Knowledge* [1] is utilized in this International Standard for comparison of software engineering bodies of knowledge. Education bodies, qualification or examination bodies and certification bodies are not required to use, or comply with, SWEBOK, but are required to map a software engineering body of knowledge to SWEBOK. This will enable comparisons between the software engineering component (Clause 5.1.1) of the body of knowledge in the Scheme.

This International Standard is not intended to discourage or diminish the role of universities and other educational bodies in developing and offering diverse and innovative software engineering programs. Rather, it encourages universities and other educational bodies to participate in the initial and continuing development of software engineering professionals. At the same time, certification bodies are encouraged to consult with and work with universities and other educational bodies in establishing schemes under this International Standard.

This document is a preview generated by EVS

Software engineering — Certification of software engineering professionals — Comparison framework

1 Scope

1.1 Purpose

This International Standard establishes a framework for comparison of schemes for certifying software engineering professionals. A certification scheme is a set of certification requirements for software engineering professionals. This International Standard specifies the items that a scheme is required to contain and indicates what should be defined for each item.

1.2 Field of application

This International Standard has a number of intended users, as follows:

- **Educators, academics and course developers:** will use Clauses 4.1 to 4.6, 5 and 6 of this International Standard to map their course structure and design against another course or educational requirement; develop new courses; make decisions about mutual recognition.
- **Examining bodies:** will use Clauses 4.1 to 4.6, 5 and 6 of this International Standard to construct examination and/or evaluation schemes; make decisions about mutual recognition.
- **Industry and professional bodies:** will use this International Standard to develop and maintain certification schemes; make decisions about mutual recognition.
- **Government bodies:** will use this International Standard for policy development; funding decisions; skills assessment; regulation of professionals; facilitation of trade agreements between countries.

2 Normative references

The following referenced documents are indispensable for the application 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 17024:2003, *Conformity assessment — General requirements for bodies operating certification of persons*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 17024:2003 and the following apply.