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# Information technology — Learning, education and training — Metadata for learning resources —

## Part 4: Technical elements

*Technologies de l'information — Apprentissage, éducation et formation — Métadonnées pour ressources d'apprentissage —*

*Partie 4: Éléments techniques*

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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.

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 19788-4 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 36, *Information technology for learning, education and training*.

ISO/IEC 19788 consists of the following parts, under the general title *Information technology — Learning, education and training — Metadata for learning resources*

— *Part 1: Framework*

— *Part 2: Dublin Core elements*

— *Part 3: Basic application profile*

— *Part 4: Technical elements*

— *Part 5: Educational elements*

— *Part 6: Availability, distribution, and intellectual property elements*

— *Part 8: Data elements for MLR records*

— *Part 9: Data elements for Persons*

The following files are under preparation:

— *Part 7: Bindings*

— *Part 10: Application profile for access, distribution and intellectual property (WIPO compliant) elements*

— *Part 11: Migration from LOM to MLR*

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# Introduction

### Overall purpose of this International Standard

The primary purpose of this International Standard is to facilitate: (1) the description of a learning resource by providing a standards-based approach to the identification and specification of the metadata elements required to describe a learning resource, e.g. as a metadata learning resource (MLR) record; and (2) the search, discovery, acquisition, evaluation, and use of learning resources, for instance by learners, instructors, or automated software processes. The interoperability of these functions can be achieved through harvesting or federated search processes, among other technologies and solutions. This International Standard is based on identified user requirements.

This International Standard has a modular structure with all subsequent parts corresponding to a specified set of user requirements for the identification and specification of metadata elements having a particular focus and intended use in the description of a learning resource. This includes categories of metadata elements focused on technical perspectives, pedagogical aspects, availability accessibility, and intellectual property aspects, bindings, etc.

### Purpose and overview of this part of ISO/IEC 19788

Learning resources, like any others, can have technical characteristics that affect or limit how the resource can be used. These technical metadata elements describing learning resources are illustrated in a conceptual model in Annex B. Some characteristics of significance in educational contexts have not yet been defined in metadata standards. This part of ISO/IEC 19788 defines how such characteristics should be described. These metadata elements can be used in combination with metadata elements from other parts of this International Standard. They can also be used in combination with elements from other metadata specifications, IEEE 1484.12.1-2002 Learning Object Metadata (LOM) or other metadata schemas. More detailed media format can be extracted from the media file(s) for example information about the codec required, bandwidth, resolution, and other technical information.

In particular, metadata elements in this part of ISO/IEC 19788 anticipate technical characteristics for emerging technologies such as tablets and mobile phones. This part of ISO/IEC 19788 metadata elements can be refined, conforming to this International Standard, by particular communities according to their needs.

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# Information technology — Learning, education and training — Metadata for learning resources —

# Part 4: Technical elements

## 1 Scope

This International Standard specifies, in a rule-based manner, metadata elements and their attributes for the description of learning resources. This includes the rules governing the identification of metadata elements and the specification of metadata attributes.

These metadata elements are used to form the description of a learning resource, i.e. as a metadata learning resource (MLR) record.

This part of ISO/IEC 19788 specifies, using ISO/IEC 19788-1, technical aspects of learning resources, i.e., requirements for use, location, size, etc.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 19788-1:2011 *Information technology — Metadata for Learning Resources (MLR) — Part 1: Framework*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19788-1:2011 and the following apply.

**3.1**
**attribute**
characteristic of an object or entity

[SOURCE: ISO/IEC 19788-1:2011, 3.4]

**3.2**
**attribute value**
information recorded as the *attribute* (3.1) in a *data element* (3.4)

[SOURCE: ISO/IEC 19788-1:2011, 3.5]

**3.3**
**content value**
information recorded as the content of the *data element* (3.4), in compliance with its *data element specification* (3.5)

[SOURCE: ISO/IEC 19788-1:2011, 3.10]

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