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**Information technology for learning,  
education and training — Catalogue  
model for virtual, augmented and  
mixed reality content**

*Technologies de l'information pour l'apprentissage, l'éducation et  
la formation — Modèle de catalogue pour les contenus en réalité  
virtuelle, augmentée et mixte*



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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](http://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](http://www.iso.org/patents)) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

This document was prepared by Joint Technical Committee ISO/IEC JTC1, *Information technology*, Subcommittee SC 36, *Information technology for learning, education and training*.

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](http://www.iso.org/members.html).

## Introduction

Effective use of the characteristics of virtual, augmented and mixed reality (VR, AR and MR, respectively) content in education has growing importance. There are increasing numbers of VR/AR/MR educational resources and there are also VR/AR/MR resources that have been aligned with curriculum documents. One of the main challenges is to search for and find content that is appropriate for the curriculum. However, lack of adequate description of such characteristics in a standard way makes it difficult for users to find suitable content.

This document describes a catalogue model for virtual, augmented and mixed reality content that can be linked to curriculum and achievement standards information. The curriculum catalogue metadata is designed to support search and retrieval of VR/AR/MR content in activities in education.

For teachers and learners, it supports:

- searching and selecting VR/AR/MR content related to curriculum;
- exploring specific features of the content (type, price, etc.) at a glance;
- finding technical information for the effective use of the VR/AR/MR content.

For the institution, it supports:

- managing the VR/AR/MR content related to the curriculum;
- adopting the VR/AR/MR content with priority based on the catalogue model.

For curriculum developers, it supports:

- comparing and identifying VR/AR/MR content for review to determine relevance to the curriculum.

For content providers, it supports:

- exploring and reviewing content to determine relevance and potential usefulness of content development initiatives;
- providing tools to gather reviews and feedback regarding content developed.

For device vendors, it supports:

- providing support for feedback regarding performance, technical configuration (e.g. platform, infrastructure), accessibility/usability information, and other improvements needed.

This document provides related catalogue models and specific elements of the catalogue model to use VR/AR/MR content for activities in education. However, specification of the catalogue model using the ISO/IEC 19788 series is not in the scope of this document.



# Information technology for learning, education and training — Catalogue model for virtual, augmented and mixed reality content

## 1 Scope

This document describes how to search for virtual reality (VR), augmented reality (AR) and mixed reality (MR) content through a curriculum catalogue based on curriculum and achievement standards information. The curriculum catalogue metadata is defined in order to search for educational VR and MR content information.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1 curriculum

formally structured statement describing learning outcomes aligned to specific topics or units of learning, typically spanning all subject areas offered by an educational entity

### 3.2 virtual reality VR

artificial environment presented using computer technologies

Note 1 to entry: Virtual reality has a high level of immersiveness, fidelity of information representation, and degree of active learner participation compared to other forms of mixed reality.

[SOURCE: ISO/IEC TR 18121:2015, 3.6]

### 3.3 augmented reality AR

virtual objects superimposed upon or composited with the real world

Note 1 to entry: Virtual and real-world objects co-exist in augmented reality systems.