

NDL: Development of National Digital Library of India –Towards Building a National Asset

**Metadata Standard for NDL**

**Version 2.0**

***Prepared by***

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**Introduction**

National Digital Library (NDL) Team has been continually trying to improve on different aspects and issues related to building National Digital Library of India. In this document, an attempt has been taken to bring out a consolidated document by incorporating all the possible relevant metadata from Qualified Dublin Core (QDC), IEEE LOM, Learning Resource Metadata Initiative (LRMI), MPEG-7 standard and Shodhganda.

1. **Generic Metadata**

Chapter 1 deals with generic metadata to describe the digital resources. Generic metadata are based on Qualified Dublin Core (QDC).

1. **Educational Metadata**

Chapter 2 deals with educational Learning Resource Metadata. Metadata elements are based on two metadata standards i.e. IEEE LOM and Learning Resource Metadata Initiative (LRMI).

1. **MPEG- 7 Metadata**

MPEG-7 is an ISO/IEC standard developed by MPEG (Moving Picture Experts Group). The MPEG-7 standard, formally named “Multimedia Content Description Interface”, provides a rich set of standardized tools to describe multimedia content. Chapter 3 deals with the MPEG- 7 standards.

1. **Theses & Dissertation Metadata**

Chapter 4 deals with Thesis and dissertation related metadata. For the case of Theses Metadata, Shodhganga of INFLIBNET metadata standard has been followed.

1. **Vocabulary for Educational Metadata**

Chapter 5 discusses the use of Vocabulary in some fields under educational metadata.

1. **Metadata Schema Used**
   1. **Qualified Dublin Core**

The Dublin Core Metadata Element Set is a vocabulary of fifteen properties for use in resource description. The name "Dublin" is due to its origin at a 1995 invitational workshop in Dublin, Ohio; "core" because its elements are broad and generic, usable for describing a wide range of resources.The DCMI recognizes two broad classes of qualifiers:

* **Element Refinement.** These qualifiers make the meaning of an element narrower or more specific.
* **Encoding Scheme.** These qualifiers identify schemes that aid in the interpretation of an element value. These schemes include controlled vocabularies and formal notations or parsing rules.

The qualifiers below are recommended for the Subject element.

* Library of Congress Subject Headings (LCSH)
* Medical Subject Headings (MESH)
* Dewey Decimal Classification (DDC)
* Universal Decimal Classification (UDC)
* Library of Congress Classification (LCC)
  1. **IEEE LOM**

**Learning Object Metadata**, usually encoded in XML, is used to describe a learning object and similar digital resources used to support learning. The purpose of learning object metadata is to support the reusability of learning objects, to aid discoverability, and to facilitate their interoperability, in the context of online learning management systems (LMS). The IEEE 1484.12.1–2002 Standard for Learning Object Metadata (LOM) is an internationally recognized open standard for the description of “learning objects”.  The IEEE defines a learning object as “**any entity, digital or not-digital, which can be used, re-used, or referenced during technology supported learning.”**

* 1. **LRMI**

The Learning Resource Metadata Initiative (LRMI) project had been initiated in July 2011 to make it easier for teachers and learners to find educational materials through major search engines and specialized resource discovery services (Barker and Campbell, 2014). In order to understand the approach of LRMI, Schema.org has been introduced. Schema.org is sponsored by Google, Microsoft, Yahoo and Yandex. Schema.org has two components; **an agreed ontology**, i.e. a hierarchy of resource types and **vocabulary for naming the characteristics** of resources.

* 1. **MPEG-7 Standard**

MPEG-7 has been developed by experts representing broadcasters, electronics manufacturers, content creators and managers, publishers, intellectual property rights managers, telecommunication service providers and academia. It offers a comprehensive set of audio-visual Description Tools to create descriptions to multimedia content. The description tools comprises metadata elements and their structure and relationships that are defined by the standard in the form of Descriptors and Description Schemes that enable the needed effective and efficient access (search, filtering and browsing)

* 1. **Shodhganga**

Shodhganga is a metadata standards developed by INFLIBNET India for Theses and Dissertation.

# Requirement Specification

As NDL focus primarily on building repository of educational materials, the specification will focus on describing educational materials. The requirements can be categorized into following classes:

* Generic Metadata
* Educational Metadata
* Audio- Visual Metadata
* Theses & Dissertation Metadata
* Legal Metadata

# Required Extensions

Most of the metadata fields specified above are covered in Dublin Core metadata standard. However, extension to the standard has to be made for the following data fields:

* **Prerequisite resources:** Resources that are required to understand content can be specified through this metadata field. The references to prerequisite resources can be made through specification of the associated URIs
* **Type of learning material:** Learning material type in form of animation, simulation, exercise, problem statement etc. can be specified through this field. IEEE-LOM metadata standard uses ‘learningResourceType’ to represent this metadata field.
* **Difficulty level:** For a given educational level or grade level, different difficulty levels can be attributed to content. This field marks the difficulty or ease of understanding content.
* **Board:** This metadata is used to specify educational board that uses a resource in its curriculum.
* **Source Organization:** This metadata refers to the organization from which a resource has been harvested.
* **Audio- visual Metadata:** detailed description of the audio visual material based on the MPEG 7 standard that has been mapped with Dublin Core Metadata elements.
* **Thesis related metadata:** This set of metadata is used to describe master’s and doctoral level thesis. Shodhganga metadata schema is adopted here.

# Application Profile for Metadata Extension

Dublin Core Application Profile (DCAP) provided a framework for defining application or domain specific metadata schema. DCAP for a metadata schema defines the data model suited for a particular domain or application to ensure semantic interoperability. DCAP is generic framework and does not require the use of specific metadata terms like DCMI. However, a DCAP specification has to be translated into specific schema specific term vocabulary before deploying it into a real application.

A DCAP specification consists of the following components:

* Functional Requirement: Describes what the community wants to achieve with an application
* Domain Model: Describes domain entities and their relationships
* Description Set Profile and Usage Guideline: Enumeration of metadata terms, constraints defines over terms and usage guidelines.
* Syntax Guideline: Encoding records in machine readable format

Each term in a metadata schema can be described using a template. This document follows DCAP template defined in ‘**Library Application Profile’ (**DC-Lib) (Guenther, 2004) with necessary extension and brevity. Template for defining items in application profile description is as follows:

|  |  |
| --- | --- |
| Name of Term | A unique token assigned to the term |
| Fully Specified Namespace | Full specification of namespace hierarchy for the term |
|  |  |
| Term URI | A Uniform Resource Identifier used to identify the term. |
| Defined By | An identifier of a namespace, pointer to a schema, or bibliographic reference for a document within which the term is defined. |
| Definition | The definition of the term in the namespace in which the term was originated. |
| Comments | Comments on the term from the namespace in which the term originated. |
| Type of term | The grammatical category of the term (e.g. "Element", "Element Refinement", or "Encoding Scheme"). |
| Encoding Scheme For | The described term, an encoding scheme, qualifies the referenced term. Using an encoding scheme will aid in the interpretation of an element value. These schemes include controlled vocabularies and formal notations or parsing rules. A value expressed using an encoding scheme will thus be a token selected from a controlled vocabulary (e.g., a term from a classification system or set of subject headings) or a string formatted in accordance with a formal notation (e.g., "2000-01-01" as the standard expression of a date). If an encoding scheme is not understood by a client or agent, the value may still be useful to a human reader.  In some cases, encoding schemes not yet registered are indicated. These will be registered and/or approved by the DCMI Usage Board as DC Encoding Schemes in the future. |
| Has Encoding Scheme | The described term is qualified by the referenced encoding scheme. |
| Obligation | Indicates whether the element is required to always or sometimes be present. In this application profile the obligation can be: mandatory (**M**), mandatory if applicable (**MA**), strongly recommended (**R**) or optional (**O**). Mandatory ensures that some of the elements are always supported and mandatory if applicable means that this element must be supported if the information is available. An element with a mandatory obligation must have a value. The strongly recommended and the optional elements should be filled with a value if the information is appropriate to the given resource but if not, they may be omitted. |
| Occurrence | Indicates any limit to the repeatability of the element. |
| Example Usage | Taken from NPTEL, CEC, INFLIBNET and other e-content projects of NMEICT |

1. **List of Generic Metadata Elements**

Following table deals with the list of Generic Metadata Elements (based on QDC) present in version 1.0 and 2.0.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.N | Elements | Fully Specified Namespace | Version1.0 | Version 2.0 |
|  | Contributor | dc.contributor | yes | yes |
|  | Author | dc.contributor.author | yes | yes |
|  | Illustrator | dc.contributor.illustrator | yes | yes |
|  | Editor | dc.contributor.editor | yes | yes |
|  | Coverage | dc.coverage | Yes | Yes |
|  | Temporal | dc.coverage.temporal | No | Yes |
|  | Spatial | dc.coverage.spatial | No | Yes |
|  | Creator | dc.creator | yes | yes |
|  | Date | dc.date | yes | yes |
|  | Date-Created | dc.date.created | Yes | Yes |
|  | Date-Accessioned | dc.date.accessioned | Yes | No |
|  | Date-Issued | dc.date.issued | No | Yes |
|  | Date-Modified | dc.date.modified | No | Yes |
|  | Date-Valid | dc.date.valid | No | Yes |
|  | Date-copyright | dc.date.copyright | Yes | No |
|  | description | dc.description | Yes | Yes |
|  | Table of Content | dc.description.tableofcontent | Yes | Yes |
|  | Abstract | dc.description.abstract | Yes | Yes |
|  | Format | dc.format | Yes | Yes |
|  | Extent | dc.format.extent | Yes | Yes |
|  | Medium | dc.format.medium | Yes | Yes |
|  | Mimetype | dc.format.mimetype | Yes | Yes |
|  | Identifier | dc.identifier | Yes | Yes |
|  | Identifier-ISBN | dc.identifier.isbn | Yes | Yes |
|  | Identifier-ISSN | dc.identifier.issn | Yes | Yes |
|  | Identifier-URI | dc.identifier.uri | Yes | Yes |
|  | Identifier-bibliographicCitation | dc.identifier.bibliographicCitation | No | Yes |
|  | Language | dc.language | Yes | Yes |
|  | Publisher | dc.publisher | No | Yes |
|  | Relation | dc.relation | Yes | Yes |
|  | Is Referenced By | dc.relation.isreferencedby | Yes | Yes |
|  | Is Part Of | dc.relation.ispartof | Yes | Yes |
|  | Requires | dc.relation.requires | No | Yes |
|  | Has Format | dc.relation.hasformat | No | Yes |
|  | Has Part | dc.relation.haspart | Yes | Yes |
|  | Is Format Of | dc.relation.isformatof | No | Yes |
|  | Is Replaced By | dc.relation.isreplacedby | No | Yes |
|  | Is Version Of | dc.relation.isversionof | No | Yes |
|  | References | dc.relation.references | Yes | Yes |
|  | Replaces | dc.relation.replaces | No | Yes |
|  | Rights | dc.rights | No | Yes |
|  | Source | dc.source | Yes | Yes |
|  | Subject | dc.subject | Yes | Yes |
|  | Title | dc.title | Yes | Yes |
|  | Alternative title | dc.title.alternative | Yes | Yes |
|  | Type | dc.type | Yes | Yes |

1. **List of Educational Metadata**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.N | Elements | Metadata Standards Used | Version1.0 | Version 2.0 |
|  | educationalAlignment | LRMI | No | Yes |
|  | educationalAlignment [Board] | LRMI | Yes | Yes |
|  | typeoflearningmaterial | LRMI | Yes | Yes |
|  | educationalAlignment [Prerequisitetopic] | LRMI | Yes | Yes |
|  | alignmentType | LRMI | No | Yes |
|  | educationalRole | LRMI | No | Yes |
|  | educationalUse | LRMI | No | Yes |
|  | interactivityType | LRMI | No | Yes |
|  | typicalLearningTime | LRMI | Yes | Yes |
|  | Accessibility related fields | LRMI | No | Yes |
|  | Difficulty Level | IEEE LOM | Yes | Yes |

1. **List of ETD Metadata**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.N | Elements | Metadata Standards Used | Version1.0 | Version 2.0 |
|  | Advisor | Shodhganga | Yes | Yes |
|  | Keyword | Shodhganga | Yes | Yes |
|  | Place | Shodhganga | Yes | Yes |
|  | Researcher | Shodhganga | Yes | Yes |
|  | Type-Degree | Shodhganga | Yes | Yes |
|  | Date-Awarded | Shodhganga | Yes | Yes |
|  | Publisher-Department | Shodhganga | Yes | Yes |
|  | Publisher-Institution | Shodhganga | Yes | Yes |

## CHAPTER-1

## GENERIC METADATA

## Generic Metadata

This set of metadata describes general attributes of contents. Categories of generic content metadata are as follows:

**Chapter-1: Generic Metadata**

* 1. **Contributor**
     1. Author
     2. Illustrator
     3. Editor
  2. **Coverage**
     1. Temporal
     2. Spatial
  3. **Creator**
  4. **Date**
     1. Created
     2. Issued
     3. Modified
     4. Valid
     5. Copyright
  5. **Description**
     1. Table of Content
     2. Abstract
  6. **Format**
     1. Extent
     2. Medium
     3. Mimetype
  7. **Identifier**
     1. ISBN
     2. ISSN
     3. URI
     4. Bibliographic citation
  8. **Language**
  9. **Publisher**
  10. **Relation**
      1. Is Referenced By
      2. Is Part Of
      3. Requires
      4. Has Format
      5. Has Part
      6. Is Format Of
      7. Is Replaced By
      8. Is Version Of
      9. References
      10. Replaces
  11. **Rights**
  12. **Source**
  13. **Subject**
  14. **Title**
      1. Alternative title
  15. **Type**

1. **Application Profile for Generic Metadata**

**1.1 Contributor**

|  |  |
| --- | --- |
| Name of Term | **Contributor** |
| Fully Specified Namespace | dc.contributor |
| Term URI | http://purl.org/dc/elements/1.1/contributor |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | An entity responsible for making contributions to the content of the resource. |
| Comments | Examples of a Contributor include a person, an organization, or a service. Typically, the name of a Contributor should be used to indicate the entity. |
| Type of term | Element |
| Has Encoding Scheme | No |
| Obligation | MA |
| Occurrence | MIN=0, MAX=infinite |
| Example -1 | **Electronic Media Production Centre, IGNOU** |

**1.1.1 Author**

|  |  |
| --- | --- |
| Name of Term | **Author** |
| Fully Specified Namespace | dc.contributor.author |
| Term URI | |
| Defined By | |
| Definition | A set of entities who have authored the content of the resource. |
| Comments | Examples of Author include a person. Typically, the name of an Author should be used to indicate the entity. |
| Type of term | Element |
| Has Encoding Scheme | No |
| Obligation | MA |
| Occurrence | MIN=0, MAX=infinite |
| Example | Dr. Swaraj Basu (Script and Content Coordinator) |

**Example (Author):**

Indicates name(s) of author of the content. Entering one author name, pressing add button, another author name can be entered. In this fashion, more than one author name can be entered. It is not a mandatory field. The field may be left as blank.

**1.1.2 Illustrator**

|  |  |
| --- | --- |
| Name of Term | **illustrator** |
| Fully Specified Namespace | dc.contributor.illustrator |
| Term URI | |
| Defined By | |
| Definition | A person or group responsible for illustrations contained in an item. |
| Comments | Applicable to illustrations in books, learning materials etc |
| Type of term | element |
| Has Encoding Scheme | No |
| Obligation | MA |
| Occurrence | MIN=0, MAX=infinite |
| Example | NA |

**Explanation (Illustrator):**

Indicates name(s) of illustrator of the content. Illustrator in the case of videos will be those creating graphics, animations etc. Entering one illustrator name, pressing add button, another illustrator name can be entered. In this fashion, more than one illustrator name can be entered. It is not a mandatory field. The field may be left as blank.

**1.1.3 Editor**

|  |  |
| --- | --- |
| Name of Term | **Editor** |
| Fully Specified Namespace | dc.contributor.editor |
| Term URI | |
| Defined By | |
| Definition | A person or group responsible for editing of an item. |
| Comments | Applicable to editing in books, learning materials etc |
| Type of term | element |
| Has Encoding Scheme | No |
| Obligation | MA |
| Occurrence | MIN=0, MAX=infinite |
| Example | Vijay Gupta (Non-linear Editor of the video) |

**Explanation** (Editor):

Indicates name(s) of editor of the content. In the case of A/ V resources it will be the technical editor of the programme. Entering one editor name, pressing add button, another editor name can be entered. In this fashion, more than one editor name can be entered. It is not a mandatory field. The field may be left as blank. Selecting one editor name and using ‘**Remove selected’** button, one can remove selected editor name. May be left as blank.

**1.2 Coverage**

|  |  |
| --- | --- |
| Name of Term | Coverage |
| Fully Specified Namespace | dc.coverage |
| Term URI | http://purl.org/dc/elements/1.1/coverage |
| Label | Coverage |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The extent or scope of the content of the resource |
| Source Comments | Coverage will typically include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity). Recommended best practice is to select a value from a controlled vocabulary (for example, the Thesaurus of Geographic Names [TGN]) and that, where appropriate, named places or time periods be used in preference to numeric identifiers such as sets of coordinates or date ranges. |
| DC-Lib Comments | Use Coverage with qualifier Spatial or Temporal; use of unqualified Coverage is discouraged in qualified DC. |
| Type of term | Element |
| Refines |  |
| Refined By | Spatial, Temporal |
| Has Encoding Scheme | See Source Comments above. |
| Obligation | O |
| Occurence |  |
| Example | Bengal, 1887-1964 |

**1.2.1 Coverage- Temporal**

|  |  |
| --- | --- |
| Name of Term | Temporal |
| Fully Specified Namespace | dc.coverage.temporal |
| Term URI | http://purl.org/dc/terms/temporal |
| Label | Temporal |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | Temporal characteristics of the intellectual content of the resource. |
| DC-Lib Definition |  |
| Source Comments | Coverage will typically include temporal period. Recommended best practice is to select a value from a controlled vocabulary. |
| DC-Lib Comments | The value of this element may also be included in Subject if desired. Prefer standard representation of date/time values in both DC.Date and dc.coverage.temporal, although textual descriptions may also be used. |
| Type of term | element refinement |
| Refines | Coverage |
| Refined By |  |
| Has Encoding Scheme | DCMI Period - http://purl.org/dc/terms/Period W3C-DTF - http://purl.org/dc/terms/W3CDTF |
| Obligation | MA |
| Occurence |  |
| Example | 1887-1964 |

**1.2.2 Coverage- Spatial**

|  |  |
| --- | --- |
| Name of Term | Spatial |
| Fully Specified Namespace | dc.coverage.spatial |
| Term URI | http://purl.org/dc/terms/spatial |
| Label | Spatial |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | Spatial characteristics of the intellectual content of the resource. |
| DC-Lib Definition |  |
| Source Comments | Coverage will typically include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity).  Recommended best practice is to select a value from a controlled vocabulary (for example, the Thesaurus of Geographic Names [TGN]) and that, where appropriate, named places or time periods be used in preference to numeric identifiers such as sets of coordinates or date ranges. |
| DC-Lib Comments | Use this element for geographic coverage. The value of this element may also be included in Subject if desired.  There is a need to evaluate DCMI Box and DCMI Point as for their usefulness for libraries and how they relate to current library practices for recording cartographic data. |
| Type of term | element refinement |
| Refines | Coverage |
| Refined By |  |
| Has Encoding Scheme | DCMI Point - http://purl.org/dc/terms/Point ISO 3166 - http://purl.org/dc/terms/ISO3166 DCMI Box - http://purl.org/dc/terms/Box TGN - http://purl.org/dc/terms/TGN  Use Library of Congress URI for MARC Geographic Area Codes, MARC Country Codes e.g. http://www.loc.gov/MARC.GAC |
| Obligation | MA |
| Occurence |  |
| Example -1 | ii for India (MARC Country Codes) |

* 1. **Creator**

|  |  |
| --- | --- |
| Name of Term | **Creator** |
| Fully Specified Namespace | dc.creator |
| Term URI | http://purl.org/dc/elements/1.1/creator |
| Label | Creator |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | An entity primarily responsible for making the content of the resource. |
| DC-Lib Definition | An entity with a primary role in the creation of the intellectual or artistic content of the resource. |
| Source Comments | Examples of a Creator include a person, an organisation, or a service. Typically, the name of a Creator should be used to indicate the entity. |
| DC-Lib Comments | This term should not be refined with a role. A subset of terms taken from the Library of Congress list of Relators have been approved as role refinements for Contributor (<http://www.loc.gov/marc/sourcecode/relator/relatorlist.html>). URIs will be provided when available. The DCMI Usage Board has disapproved the idea of structured values to provide more information about the creator - it should be in a description for another resource.  Creator and Contributor may be conflated with Creator being used as a refinement of Contributor. |
| Type of term | Element |
| Refines |  |
| Refined By |  |
| Has Encoding Scheme |  |
| Obligation | **O** |
| Occurrence |  |
| Example-1 | **Ashok Nishes (Producer and Director)** |

Note: Examples of a Creator include a person, an organization

* 1. **Date**

|  |  |
| --- | --- |
| Name of Term | Date |
| Fully Specified Namespace | dc.date |
| Term URI | http://purl.org/dc/elements/1.1/date |
| Label | Date |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | A date associated with an event in the life cycle of the resource. |
| DC-Lib Definition |  |
| Source Comments | Typically, date will be associated with the creation or availability of the resource. Recommended best practice for encoding the date value is defined in a profile of ISO 8601 [W3CDTF] and follows the YYYY-MM-DD format. |
| DC-Lib Comments | Recommend use of an element refinement for type of Date. Recommend that dates be encoded: 1) using W3C-DTF (a profile of ISO 8601 structured with hyphens), 2) using ISO 8601 (structured without hyphens), or 3) supplied as free text that does not take the form of a string of numerals (with or without hyphens). The second option, ISO 8601 (without hyphens), is preferred.  It is acceptable to use widely-recognised practice such as day-month-year where the day and year are represented with numerals and month with a name or standard abbreviation (e.g., "1 January 2002" or "1 Jan 2002"). Avoid the use of potentially ambiguous date representations such as DD/MM/YY or MM/DD/YY (e.g., "04/05/05")  It may be desirable to establish a DC-Lib encoding scheme or profile of ISO 8601 to cover B.C.E. dates, questionable and approximate dates. A date working group has been established to progress these issues. |
| Type of term | Element |
| Refines |  |
| Refined By | Created, Valid, Available, Issued, Modified |
| Has Encoding Scheme | ISO 8601(without hyphens) - http://purl.org/dc/terms/ISO8601  W3C-DTF (with hyphens) - http://purl.org/dc/terms/W3CDTF |
| Obligation | MA |
| Occurence |  |
| Example -1 | 2002-05-09 |

**Note: Date should be like: YYYY-MM-DD format**

* + 1. **Created**

|  |  |
| --- | --- |
| Name of Term | Created |
| Fully Specified Namespace | dc.date.created |
| Term URI | http://purl.org/dc/elements/1.1/date |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | Date of creation or manufacture of intellectual content if different from date. issued. Used for graduation date for theses/dissertations. |
| Comments |  |
| Type of term | Element |
| Has Encoding Scheme | ISO 8601 - <http://purl.org/dc/terms/ISO8601>  W3C-DTF - http://purl.org/dc/terms/W3CDTF |
| Obligation | MA |
| Occurrence | This qualified element should not be repeated except when giving date created using more than one encoding scheme. |
| Example | 2008-06-04 |

* + 1. **Issued**

|  |  |
| --- | --- |
| Name of Term | **Issued** |
| Fully Specified Namespace | dc.date.issued |
| Term URI | http://purl.org/dc/terms/issued |
| Label | Issued |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | Date of formal issurance (e.g. publication) of the resource. |
| DC-Lib Comments | Use for the instantiation. |
| Type of term | element refinement |
| Refines | Date |
| Refined By |  |
| Has Encoding Scheme | ISO 8601(without hyphens) - http://purl.org/dc/terms/ISO8601  W3C-DTF (with hyphens) - http://purl.org/dc/terms/W3CDTF |
| Obligation | **MA** |
| Occurence |  |
| Example | 2008-06-04 |

Note: For the case of PhD Thesis /Dissertation, date of submission of the thesis may be treated as **Date of Creation** of the intellectual output of the content and Date of Publication may be treated as **Date of Issue**.

* + 1. **Modified**

|  |  |
| --- | --- |
| Name of Term | Modified |
| Fully Specified Namespace | dc.date.modified |
| Term URI | http://purl.org/dc/terms/modified |
| Label | Modified |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | Date on which resource was changed. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments |  |
| Type of term | element refinement |
| Refines | Date |
| Refined By |  |
| Has Encoding Scheme | ISO 8601(without hyphens) - http://purl.org/dc/terms/ISO8601  W3C-DTF (with hyphens) - http://purl.org/dc/terms/W3CDTF |
| Obligation | O |
| Occurrence |  |
| Example-1 | NA |
| Example-2 | NA |

* + 1. **Valid**

|  |  |
| --- | --- |
| Name of Term | Valid |
| Fully Specified Namespace | dc.date.valid |
| Term URI | http://purl.org/dc/terms/valid |
| Label | Valid |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | Date (often a range) of validity of the resource. |
| DC-Lib Comments |  |
| Type of term | element refinement |
| Refines | Date |
| Refined By |  |
| Has Encoding Scheme | ISO 8601(without hyphens) - http://purl.org/dc/terms/ISO8601  W3C-DTF (with hyphens) - http://purl.org/dc/terms/W3CDTF |
| Obligation | O |
| Occurence |  |
| Example | NA |

Note: **Date- Valid** may be implied to those documents, which are created for a particular period of time i.e. dates range e.g. 2000 to 2010. Example of such type of document may be Patent document.

* + 1. **Copyright**

|  |  |
| --- | --- |
| Name of Term | Copyright |
| Fully Specified Namespace | dc.date.copyright |
| Term URI | http://purl.org/dc/elements/1.1/date |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | Date of copyright. |
| Comments |  |
| Type of term | Element |
| Has Encoding Scheme | ISO 8601 - <http://purl.org/dc/terms/ISO8601>  W3C-DTF - http://purl.org/dc/terms/W3CDTF |
| Obligation | MA |
| Occurrence | MIN=1, MAX=1 |
| Example | 2002 |

**Note: It is applicable for the case of copyrighted material.**

* 1. **Description**

|  |  |
| --- | --- |
| Name of Term | **description** |
| Fully Specified Namespace | dc.description |
| Term URI | http://purl.org/dc/elements/1.1/description |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | An account of the content of the resource. |
| Comments | Description may include but is not limited to: an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content. |
| Type of term | Element |
| Has Encoding Scheme |  |
| Obligation | R |
| Occurrence | MIN=0, MAX=3 |
| Example | Trade in Bengal with the coming of Europeans from 15th to 18th Century. |

* + 1. **Table of Content**

|  |  |
| --- | --- |
| Name of Term | **tableOfContents** |
| Fully Specified Namespace | dc.description.tableofcontents |
| Term URI | http://purl.org/dc/terms/tableOfContents |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | A list of subunits of the content of the resource |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme |  |
| Obligation | R |
| Occurrence | MIN=0, MAX=1 |
| Example | Portuguese trade area  Dutch Trade Area  French trade Area  Danish Trade Area  English Trade Area |

**Explanation (Table of Content):**

In a text based content the TOC may be at a course level, unit level, module level or at a section level depending on the level of granularity which is being addressed. In this example the TOC represents topics that are covered in a 18.15 minute video which is timeline based.

* + 1. **Abstract**

|  |  |
| --- | --- |
| Name of Term | **abstract** |
| Fully Specified Namespace | dc.description.abstract |
| Term URI | http://purl.org/dc/terms/abstract |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | A summary of the resource. |
| Comments | Examples include summary of article, book etc. |
| Type of term | element |
| Has Encoding Scheme |  |
| Obligation | R |
| Occurrence | MIN=0, MAX=1 |
| Example | The video explains chronologically the coming of traders from European countries and their settlement in different areas of Bengal from 15th to 18th Century. |

* 1. **Format**

|  |  |
| --- | --- |
| Name of Term | **format** |
| Fully Specified Namespace | dc.format |
| Term URI | http://purl.org/dc/elements/1.1/format |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | The physical or digital manifestation of the resource. |
| Comments | Typically, Format may include the media-type or dimensions of the resource. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource. Examples of dimensions include size and duration. Recommended best practice is to select a value from a controlled vocabulary |
| Type of term | element |
| Has Encoding Scheme | IMT - http://purl.org/dc/terms/IMT  The Internet media type of the resource.  See also: http://www.isi.edu/in-notes/iana/assignments/media-types/media-types |
| Obligation | MA |
| Occurrence | MIN=0, MAX=1 |
| Example | YouTube Video |

* + 1. **Extent**

|  |  |
| --- | --- |
| Name of Term | **extent** |
| Fully Specified Namespace | dc.format.extent |
| Term URI | http://purl.org/dc/elements/1.1/format |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | Size, duration or number of pages of a file associated with an item. |
| Comments | This metadata field will be used to specify size. The duration information applicable to audio and video type recourses. This duration is not to be confused with ‘typicalLearningTime’ in educational metadata category. |
| Type of term | element |
| Has Encoding Scheme | IMT - http://purl.org/dc/terms/IMT  The Internet media type of the resource.  See also: http://www.isi.edu/in-notes/iana/assignments/media-types/media-types |
| Obligation | O |
| Occurrence | MIN=0, MAX=1 |
| Example | **18:15 (duration of the video)** |

**Explanation (Format-Extent):**

In Format (extent) metadata field you may include the media-type or dimensions of the resource. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource. Examples of dimensions include size and duration.

* + 1. **Medium**

|  |  |
| --- | --- |
| Name of Term | **medium** |
| Fully Specified Namespace | dc.format.medium |
| Term URI | http://purl.org/dc/terms/medium |
| Label | Medium |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The material or physical carrier of the resource. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | Used to specify the medium of the physical carrier of a resource. Format without an element refinement qualifier should be used to specify the electronic format of the resource, using the encoding scheme IMT. Format should be repeated if both are applicable (e.g. a PDF file on CD). |
| Type of term | element refinement |
| Refines | Format |
| Has Encoding Scheme | IMT - http://purl.org/dc/terms/IMT The Internet media type of the resource. See also: [http://www.isi.edu/in-notes/iana/assignments/media-types/media-types](http://www.isi.edu/in-notes/iana/assignments/media-types/media-types%20) |
| Obligation | **O** |
| Occurence |  |
| Example | Video |

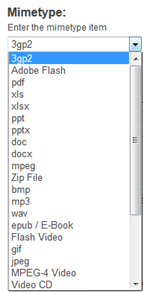
**1.6.3 Mimetype**

|  |  |
| --- | --- |
| Name of Term | **mimetype** |
| Fully Specified Namespace | dc.format.mimetype |
| Term URI | http://purl.org/dc/elements/1.1/format |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | MIME type associated with a file contained in the item. Information regarding the format of a file contained in the item. |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | IMT - http://purl.org/dc/terms/IMT  The Internet media type of the resource.  See also: http://www.isi.edu/in-notes/iana/assignments/media-types/media-types |
| Obligation | MA |
| Occurrence | MIN=0, MAX=1 |
| Example | FLV, MP4, WebM, and 3GP |

**Explanation (Mime type):**

Format of that particular file may be written under Mime type metadata field. **Annex. 1.6.3 Vocabulary for Mime Type is being placed in chapter 4.**

**Example- Solution**

****

* 1. **Identifier**

|  |  |
| --- | --- |
| Name of Term | **identifier** |
| Fully Specified Namespace | dc.identifier |
| Term URI | http://purl.org/dc/elements/1.1/identifier |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | An unambiguous reference to the resource within a given context. |
| Comments | Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. Examples of formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator (URL)), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN). |
| Type of term | element |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier). To be registered as encoding schemes, URIs will be provided when available. |
| Obligation | M |
| Occurrence | MIN=1, MAX=1 |
| Example | https://www.youtube.com/watch?v=tpfxetzbv8c |

**Explanation (Identifier):**

Identifier is an unambiguous reference to the resource within a given context. You can identify the resource by means of a string or number conforming to a formal identification system. Examples of formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator (URL)), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN). In this case the YouTube Video URL has been used.

* + 1. **ISBN**

|  |  |
| --- | --- |
| Name of Term | **isbn** |
| Fully Specified Namespace | dc.identifier.isbn |
| Term URI | http://purl.org/dc/elements/1.1/identifier |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | International Standard Book Number/ International Standard Serial Number/URI |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme |  |
| Obligation | MA |
| Occurrence | MIN=1, MAX=1 |
| Example | Not Applicable for a video programme. |

***Note:***

***T****he* International Standard Book Number *(*ISBN*) is a unique numeric commercial book identifier.* The 10-digit ISBN format was developed by the International Organization for Standardization (ISO) and was published in 1970 as international standard ISO 2108. The ISBN is 13 digits long if assigned on or after 1 January 2007. Ex: 978-3-16-148410-0. It is not applicable for video resources.

* + 1. **ISSN**

|  |  |
| --- | --- |
| Name of Term | **issn** |
| Fully Specified Namespace | dc.identifier.issn |
| Term URI | http://purl.org/dc/elements/1.1/identifier |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | International Standard Book Number/ International Standard Serial Number/URI |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme |  |
| Obligation | MA |
| Occurrence | MIN=1, MAX=1 |
| Example | Not Applicable for a video programme. |

**Note: ISSN is applicable for journal / serial only**

* + 1. **URI**

|  |  |
| --- | --- |
| Name of Term | **Uri** |
| Fully Specified Namespace | dc.identifier.uri |
| Term URI | http://purl.org/dc/elements/1.1/identifier |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | International Standard Book Number/ International Standard Serial Number/URI |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme |  |
| Obligation | MA |
| Occurrence | MIN=1, MAX=1 |
| Example |  |

**Note:**

A **uniform resource identifier** (**URI**) is a string of characters used to identify a name of a resource. The most common form of URI is the uniform resource locator (URL).

* + 1. **Bibliographic citation**

|  |  |
| --- | --- |
| Name of Term | **bibliographicCitation** |
| Fully Specified Namespace | dc.identifier.bibliographicCitation |
| Term URI | http://purl.org/dc/terms/bibliographicCitation |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | A bibliographic citation of the resource. |
| Comments | http://dublincore.org/documents/dc-citation-guidelines/ |
| Type of term | element |
| Has Encoding Scheme |  |
| Obligation | R |
| Occurrence | MIN=0, MAX=1 |
| Example | Not Applicable for a video programme. |

* 1. **Language**

|  |  |
| --- | --- |
| Name of Term | **language** |
| Fully Specified Namespace | dc.language |
| Term URI | http://purl.org/dc/elements/1.1/language |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | A language of the intellectual content of the resource. |
| Comments | Recommended best practice is to ISO 639 [ISO639], defines two- and three-letter primary language tags with optional subtags. Examples include "en" or "eng" for English, "akk" for Akkadian, and "en-GB" for English used in the United Kingdom |
| Type of term | element |
| Has Encoding Scheme | ISO693-2. Mapping is available at http://lcweb.loc.gov/standards/iso639-2/englangn.html. |
| Obligation | MA |
| Occurrence | MIN=0, MAX=1 |
| Example | en (English) |

**Explanation:**

All recognized Indian languages are covered under Annex 1.8 in chapter 4.

* 1. **Publisher**

|  |  |
| --- | --- |
| Name of Term | **publisher** |
| Fully Specified Namespace | dc.publisher |
| Term URI | http://purl.org/dc/elements/1.1/publisher |
| Label | Publisher |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | An entity responsible for making the resource available. |
| DC-Lib Definition |  |
| Source Comments | Examples of a Publisher include a person, an organisation, or a service. Typically, the name of a Publisher should be used to indicate the entity. |
| DC-Lib Comments | A subset of terms taken from the Library of Congress list of Relators has been approved for use as role refinements of Publisher if applicable (<http://www.loc.gov/marc/sourcecode/relator/relatorlist.html>). URIs will be provided when available. The DCMI Usage Board has disapproved the idea of structured values to provide more information about the publisher - it should be in a description for another resource.  Although some applications may wish to conflate Creator, Contributor and Publisher, DC-Lib maintains the distinction between Creator and Contributor (which may be conflated) and Publisher. If the elements are conflated and Publisher used as an element refinement for Contributor, the resulting element would be mapped to DC.Publisher. |
| Type of term | element |
| Refines |  |
| Refined By |  |
| Has Encoding Scheme | Role list (http://www.loc.gov/...) |
| Obligation | **O** |
| Occurence |  |
| Example | IGNOU |

* 1. **Relation**

|  |  |
| --- | --- |
| Name of Term | **relation** |
| Fully Specified Namespace | dc.relation |
| Term URI | http://purl.org/dc/elements/1.1/source |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | This is used to link this resource to related resources |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | NIL |
| Obligation | O |
| Occurrence | MIN=0, MAX=infinite |
| Example | https://www.youtube.com/watch?v=tpfxetzbv8c |

* + 1. **IsReferencedBy**

|  |  |
| --- | --- |
| Name of Term | **isReferencedBy** |
| Fully Specified Namespace | dc.relation.isreferencedby |
| Term URI | http://purl.org/dc/terms/isReferencedBy |
| Label | Is Referenced By |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource is referenced, cited, or otherwise pointed to by the referenced resource. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | May be of limited use in terms of later resources referencing the initial resource, but may be useful to link to a major review or assessing essay. |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **O** |
| Occurence |  |
| Example | https://www.youtube.com/user/ignousoss/videos  (part of video collection under School of Social Sciences of IGNOU channel on YouTube) |

**Note: If the resource document X is being hyperlinked or in linked by document Y, URL of document Y may be mentioned here. For instance a pdf file may have links to reading lists, video resources**

**1.10.2 Is Part Of**

|  |  |
| --- | --- |
| Name of Term | **isPartOf** |
| Fully Specified Namespace | dc.relation.ispartof |
| Term URI | http://purl.org/dc/terms/isPartOf |
| Label | Is Part Of |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource is a physical or logical part of the referenced resource. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | Recommended use when documents in hand are parts of "host documents" (e.g. journal, monographic series) and when there is no citation information in DC identifier (if used by Citation WG). |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **R** |
| Occurence |  |
| Example | https://www.youtube.com/user/ignousoss/videos  (part of video collection under School of Social Sciences of IGNOU channel on YouTube) |

**Explanation (Relation is Part of:):**

**1.10.3 Requires**

|  |  |
| --- | --- |
| Name of Term | **requires** |
| Fully Specified Namespace | dc.relation.requires |
| Term URI | http://purl.org/dc/terms/requires |
| Label | Requires |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource requires the referenced resource to support its function, delivery, or coherence of content. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments |  |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **R** |
| Occurence |  |
| Example | HTML5 player |

**Note:**

The described resource requires the referenced resource to support its function, delivery, or coherence of content. A song/ music cannot be listened without music player or required software. Therefore, this metadata field may be applicable to such kind of resources.

**1.10.4 Has Format**

|  |  |
| --- | --- |
| Name of Term | **hasFormat** |
| Fully Specified Namespace | dc.relation.hasformat |
| Term URI | <http://purl.org/dc/terms/hasFormat> |
| Label | Has Format |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource pre-existed the referenced resource, which is essentially the same intellectual content presented in another format. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | Use only when the described resource references alternative physical formats. Example is the metadata for a home page for a dissertation that references that dissertation in various alternative formats (e.g. PDF, Postscript, etc.) |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **R** |
| Occurence | NA |
| Example Usage | NA |

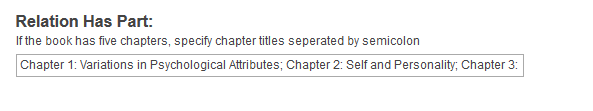
Note: If a particular document (.html) is available in different format with same intellectual content, all formats (.pdf, ,.ps, .pptetc are to be mentioned here)

**1.10.5 Has Part**

|  |  |
| --- | --- |
| Name of Term | **hasPart** |
| Fully Specified Namespace | dc.relation.haspart |
| Term URI | http://purl.org/dc/terms/hasPart |
| Label | Has Part |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource includes the referenced resource either physically or logically. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments |  |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **O** |
| Occurence |  |
| Example-1 | French trade Area in Bengal |

**Explanation**

You will fill up this field, **only when you fill- up a content page/document of a book**. In this metadata field, you have to write all the chapters’ name (without page number) of that particular book. This field is **not applicable** when you create metadata of **chapter part** of a particular document.

**Example:** If a book of Psychology has three (3) chapters- Chapter 1: Variation in Psychological Attributes, Chapter 2: Self and Personality, Chapter 3: Meeting Life Challenges then you have to write this way: Chapter---Give a space----Chapter Number-----Give a colon mark----Write the name of chapter--------Give a semi colon mark

**IF a video is chunked then each chunk has to be mentioned.**

**1.10.6 isFormatOf**

|  |  |
| --- | --- |
| Name of Term | **isFormatOf** |
| Fully Specified Namespace | dc.relation.isformatof |
| Term URI | http://purl.org/dc/terms/isFormatOf |
| Label | Is Format Of |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource is the same intellectual content of the referenced resource, but presented in another format. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | Use when there are alternative formats and it is not clear which preceded the other. |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **R** |
| Occurence |  |
| Example-1 | NA |
| Example-2 | NA |

**1.10.7 isReplaced By**

|  |  |
| --- | --- |
| Name of Term | **isReplacedBy** |
| Fully Specified Namespace | dc.relation.isreplacedby |
| Term URI | http://purl.org/dc/terms/isReplacedBy |
| Label | Is Replaced By |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource is supplanted, displaced, or superseded by the referenced resource. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | Used for succeeding version. |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **O** |
| Occurence |  |
| Example-1 | Latest version of the video link to be provided |
| Example-2 | NA |

**Note:** If a video gets replaced by a updated version then the link of updated version will need to be added.

## 1.10.8 isVersionOf

|  |  |
| --- | --- |
| Name of Term | **isVersionOf** |
| Fully Specified Namespace | dc.relation.isversionof |
| Term URI | http://purl.org/dc/terms/isVersionOf |
| Label | Is Version Of |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource is a version, edition, or adaptation of the referenced resource. Changes in version implies substantive changes in content rather than differences in format. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | Do not include qualifier HasVersion, since this implies that it is clear which came first.  Future work includes possibly identifying a need for HasVersion. |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **R** |
| Occurence |  |
| Example | NA |

**Note:** For “isVersionOf” may be applicable for the document of higher version (say e.g Metadata manual version 2.0) with substantial change in comparison with old version of Metadata Manual (ver 1.0.)

**1.10.9 References**

|  |  |
| --- | --- |
| Name of Term | **references** |
| Fully Specified Namespace | dc.relation.references |
| Term URI | http://purl.org/dc/terms/references |
| Label | References |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource references, cites, or otherwise points to the referenced resource. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | May be of limited use except for other resources that are far reaching or thorough criticisms. Not appropriate, for example, to include all references from the bibliography of the described resource in repeated Relation. References tags |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **O** |
| Occurence |  |
| Example | NA |

**1.10.10 Replaces**

|  |  |
| --- | --- |
| Name of Term | **replaces** |
| Fully Specified Namespace | dc.relation.replaces |
| Term URI | http://purl.org/dc/terms/replaces |
| Label | Replaces |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | The described resource supplants, displaces, or supersedes the referenced resource. |
| DC-Lib Definition |  |
| Source Comments |  |
| DC-Lib Comments | Used for preceding version. |
| Type of term | element refinement |
| Refines | Relation |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI  If not expressed by URI - [SICI](http://sunsite.berkeley.edu/SICI/) (Serial Item and Contribution Identifier), [ISBN](http://www.isbn.org/standards/home/isbn/international/index.asp) (International Standard Book Number), [ISSN](http://www.issn.org:8080/pub/) (International Standard Serial Number), [DOI](http://www.doi.org/) (Digital Object Identifier). To be registered as encoding schemes (these may also be expressed as URIs). http://dublincore.org/usage/terms/dc/current-schemes/ |
| Obligation | **O** |
| Occurence |  |
| Example | Provide link of the earlier version |

* 1. **Rights**

|  |  |
| --- | --- |
| Name of Term | rights |
| Fully Specified Namespace | dc.rights |
| Term URI | http://purl.org/dc/elements/1.1/rights |
| Label | Rights |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | Information about rights held in and over the resource. |
| DC-Lib Definition |  |
| Source Comments | Typically, a Rights element will contain a rights management statement for the resource, or reference a service providing such information. Rights information often encompasses Intellectual Property Rights (IPR), Copyright, and various Property Rights. If the Rights element is absent, no assumptions can be made about the status of these and other rights with respect to the resource. |
| DC-Lib Comments | Need to determine how to use for library applications; there is ongoing discussion on rights metadata in various applications. |
| Type of term | element |
| Refines |  |
| Refined By |  |
| Has Encoding Scheme | URI - http://purl.org/dc/terms/URI |
| Obligation | R if applicable (if there are encumbrances) |
| Occurence |  |
| Example | © IGNOU |

* 1. **Source**

|  |  |
| --- | --- |
| Name of Term | **source** |
| Fully Specified Namespace | dc.source |
| Term URI | http://purl.org/dc/elements/1.1/source |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | An organization from which this resource has been harvested. |
| Comments | Value for this field is picked up from a list of institutions. |
| Type of term | element |
| Has Encoding Scheme | NIL |
| Obligation | O |
| Occurrence | MIN=0, MAX=1 |
| Example-1 | **www.youtube.com** |

* 1. **Subject**

|  |  |
| --- | --- |
| Name of Term | **subject** |
| Fully Specified Namespace | dc.subject |
| Term URI | http://purl.org/dc/elements/1.1/subject |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | The topic of the content of the resource. |
| Comments | Typically, a Subject will be expressed as keywords, key phrases or classification codes that describe a topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme. A subject entry will be used for specifying free keywords whereas another will be specified using a classification scheme. |
| Type of term | element |
| Has Encoding Scheme | Library of Congress Subject Headings - http://purl.org/dc/terms/LCSH  Medical Subject Headings - http://purl.org/dc/terms/MESH  Dewey Decimal Classification -http://purl.org/dc/terms/DDC  Library of Congress Classification - http://purl.org/dc/terms/LCC  Universal Dewey Classification - http://purl.org/dc/terms/UDC |
| Obligation | MA |
| Occurrence | MIN=0, MAX=inifinite |
| Example | History, India; Foreign Trade, India |

**Explanation**

Standard subject heading list is to be used. Library of Congress Subject Heading List is to be used.

* 1. **Title**

|  |  |
| --- | --- |
| Name of Term | **Title** |
| Fully Specified Namespace | dc.title |
| Term URI | http://purl.org/dc/elements/1.1/title |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | A name given to the resource |
| Comments | Typically, a title will be a name by which the resource is formally known. |
| Type of term | Element |
| Has Encoding Scheme | No |
| Obligation | M |
| Occurrence | MIN=1, MAX=1 |
| Example | Coming of European Bengal |

**Explanation:** In this metadata field, please write the title of the document. The document may be a book or a chapter of a book, a video or any other multimedia object .

* + 1. **Alternative Title**

|  |  |
| --- | --- |
| Name of Term | **alternative** |
| Fully Specified Namespace | dc.title.alternative |
| Term URI | http://purl.org/dc/terms/alternative |
| Label | Alternative |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Source Definition | Any form of the title used as a substitute or alternative to the formal title of the resource. |
| Source Comments | This qualifier can include Title abbreviations as well as translations. |
| DC-Lib Comments | Assigned title such as uniform or key title is Alternative.  Best practice is to use this element refinement for titles other than the main title. Retain initial articles and use local sorting algorithms based on language. A language qualifier may be used to indicate language of title if appropriate. (For example, see: [Initial Definite and Indefinite Articles](http://lcweb.loc.gov/marc/bibliographic/bdapp-e.html) for a list of articles in various languages) |
| Type of term | element refinement |
| Has Encoding Scheme |  |
| Obligation | **R** |
| Occurence |  |
| Example | Trade: Coming of European in Bengal |

**Explanation:** Any form of the title used as a substitute or alternative to the formal title of the resource.

* 1. **Type**

|  |  |
| --- | --- |
| Name of Term | **type** |
| Fully Specified Namespace | dc.type |
| Term URI | http://purl.org/dc/elements/1.1/type |
| Defined By | http://dublincore.org/documents/dcmi-terms/ |
| Definition | The nature or genre of the content of the resource. |
| Comments | Type includes terms describing general categories, functions, genres, or aggregation levels for content. Recommended best practice is to select a value from a controlled vocabulary (for example, the list of DCMI Types). This is not to be confused with ‘learningMaterialType’ which is used to specify pedagogic type. |
| Type of term | element |
| Has Encoding Scheme | Recommended that at least one value from DCMI-Type (Collection, Dataset, Event, Image, InteractiveResource, MovingImage, PhysicalObject, Service, Software, Sound, StillImage, or Text) be supplied. |
| Obligation | M |
| Occurrence | MIN=0, MAX=1 |
| Example | Moving image (documentary) |

**Explanation**

* Please see the Annex 1.15: Vocabulary for Type
* **Value**:collection , Dataset , Event , Image , InteractiveResource , MovingImage , PhysicalObject , Service , Software , Sound , Still Image , Text]

**References**

1. **Application Profile Generic Metadata. http://dublincore.org/documents/2004/09/10/library-application-profile/**

**CHAPTER 2**

**EDUCATIONAL METADATA**

**Contents Page No**

**2. Educational Metadata**

**2.1 alignmentType**

**2.2 educationalAlignment (Board)**

**2.3 educationalRole**

**2.4 educationalUse**

**2.5 interactivityType**

**2.6 learningResourceType**

**2.7 timeRequired**

**2.8 typicalAgeRange**

**2.9 useRightsUrl**

Application Profile for Educational Metadata

This document is an up-to-date draft specification in RDF of the LRMI 1.1 metadata terms maintained by the Dublin Core Metadata Initiative. In the following term tables, each term is specified with the following minimal set of attributes:

|  |  |
| --- | --- |
| Name: | A token appended to the URI of the LRMI namespace to create the URI of the term. |
| Label: | The human-readable label assigned to the term. |
| URI: | The Uniform Resource Identifier used to uniquely identify a term. |
| Definition: | A statement that represents the concept and essential nature of the term. |
| Type of Term: | The type of term—class or property. |
| Date Issued/Modified: | The date the term was created or modified. |

Where applicable, the following attributes provide additional information about a term:

|  |  |
| --- | --- |
| Description: | Additional information about the term or its application. |
| Subproperty Of: | A property of which the described term is a subproperty. |
| Equivalent Property: | A property to which the described term is equivalent ([owl:equivalentProperty](http://www.w3.org/TR/owl-ref/#equivalentProperty-def)). |
| Subclass Of: | A class of which the described term is a subclass. |
| Equivalent Class: | A class to which the described term is equivalent ([owl:equivalentClass](http://www.w3.org/TR/owl-ref/#equivalentClass-def)). |
| Has Domain: | Any resource that has a given property is [inferred to be] an instance of one or more classes ([rdfs:domain](http://www.w3.org/TR/rdf-schema/#ch_domain)). |
| Has Range: | The values of a property are [inferred to be] instances of one or more classes. ([rdfs:range](http://www.w3.org/TR/rdf-schema/#ch_range)) |
| Domain Includes: | Relates a property to a class that is (one of) the type(s) the property is expected to be used on. (<https://schema.org/domainIncludes>). |
| Range Includes: | Relates a property to a class that constitutes (one of) the expected type(s) for values of the property. (<https://schema.org/rangeIncludes>). |
| Usage Note: | A reference to a resource that provides information on how this resource is to be used. (<http://purl.org/vocab/vann/usageNote>). |
| Name: | alignmentType |
| Label: | Alignment Type |
| URI: | [http://purl.org/dcx/lrmi-terms/alignmentType](http://dublincore.org/dcx/lrmi-terms/alignmentType) |
| Definition: | A category of alignment between the learning resource and the framework node. |
| Description: | Recommended values include: 'assesses', 'teaches', 'requires', 'textComplexity', 'readingLevel', 'educationalSubject', and 'educationLevel'. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | [http://purl.org/dcx/lrmi-terms/AlignmentObject](http://schema.org/AlignmentObject) <http://schema.org/AlignmentObject> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#string> |
| Equivalent Property: | <http://schema.org/alignmentType> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |

**2.1 alignmentType**

|  |  |
| --- | --- |
| Name: | alignmentType |
| Label: | Alignment Type |
| URI: | [http://purl.org/dcx/lrmi-terms/alignmentType](http://dublincore.org/dcx/lrmi-terms/alignmentType) |
| Definition: | A category of alignment between the learning resource and the framework node. |
| Description: | Recommended values include: 'assesses', 'teaches', 'requires', 'textComplexity', 'readingLevel', 'educationalSubject', and 'educationLevel'. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | [http://purl.org/dcx/lrmi-terms/AlignmentObject](http://schema.org/AlignmentObject) <http://schema.org/AlignmentObject> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#string> |
| Equivalent Property: | <http://schema.org/alignmentType> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |
| Authority list | Ref. Annex-2.1: Vocabulary for Alignment type |

**2.2 educationalAlignment (Board)**

|  |  |
| --- | --- |
| Name: | educationalAlignment |
| Label: | Educational Alignment |
| URI: | [http://purl.org/dcx/lrmi-terms/educationalAlignment](http://dublincore.org/dcx/lrmi-terms/educationalAlignment) |
| Definition: | An alignment to an established educational framework. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | <http://schema.org/CreativeWork> |
| Range Includes: | [http://purl.org/dcx/lrmi-terms/AlignmentObject](http://schema.org/AlignmentObject) <http://schema.org/AlignmentObject> |
| Equivalent Property: | <http://schema.org/educationalAlignment> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |
| Authority list | Ref. Annex-2.2: Vocabulary for Educational Alignment –Board |

**2.3 educationalRole**

|  |  |
| --- | --- |
| Name | educationalRole |
| Label | Educational Role |
| URI: | [http://purl.org/dcx/lrmi-terms/educationalRole](http://dublincore.org/dcx/lrmi-terms/educationalRole) |
| Definition: | The role that describes the target audience of the content. |
| Description: | [The educational function assumed or part played by the group for whom the resource is intended.] |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | [http://purl.org/dcx/lrmi-terms/EducationalAudience](http://dublincore.org/dcx/lrmi-terms/EducationalAudience) <http://schema.org/EducationalAudience> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#string> |
| Equivalent Property: | <http://schema.org/educationalRole> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |
| Authority list | Ref. Annex-2.6: Vocabulary for Educational Role |

**2.4 educationalUse**

|  |  |
| --- | --- |
| Name | educationalUse |
| Label: | Educational Use |
| URI: | [http://purl.org/dcx/lrmi-terms/educationalUse](http://dublincore.org/dcx/lrmi-terms/educationalUse) |
| Definition: | The purpose of a work in the context of education. |
| Description: | For example, 'assignment', 'group work'. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | <http://schema.org/CreativeWork> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#string> |
| Equivalent Property: | <http://schema.org/educationalUse> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |
| Authority list | Ref. Annex 2.7: Vocabulary for Educational Use |

**2.5 interactivityType**

|  |  |
| --- | --- |
| Name | interactivityType |
| Label | Interactivity Type |
| URI: | [http://purl.org/dcx/lrmi-terms/interactivityType](http://dublincore.org/dcx/lrmi-terms/interactivityType) |
| Label: | Interactivity Type |
| Definition: | The predominant mode of learning supported by the learning resource. |
| Description: | Acceptable values are 'active', 'expositive', or 'mixed'. |
| Description: | Based on, and mappable from, IEEE LOM 5.1: Interactivity Type. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | <http://schema.org/CreativeWork> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#string> |
| Equivalent Property: | <http://schema.org/interactivityType> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |
| Authority list | Ref. Annex-2.8: Vocabulary for Interactivity Type |

**Note that Active, Expositive, and Mixed are attributes of the resource, rather than "modes of learning**

* **Active:** Existing in action, working, effective, having practical operation or results.
* **Expositive :**Tending to set forth or describe in detail; descriptive; serving to explain
* **Mixed:** Consisting of different or dissimilar elements or qualities; not of one kind, not pure or simple; composite

**2.6 learningResourceType**

|  |  |
| --- | --- |
| Name | learningResourceType |
| Label | Learning Resource Type |
| URI: | [http://purl.org/dcx/lrmi-terms/learningResourceType](http://dublincore.org/dcx/lrmi-terms/learningResourceType) |
| Definition: | The predominant type or kind characterizing the learning resource. |
| Description: | For example, 'presentation', 'handout'. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | <http://schema.org/CreativeWork> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#string> |
| Equivalent Property: | <http://schema.org/learningResourceType> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |
| Authority list | Ref. Annex-2.3: Vocabulary for Learning Resource Type |

Indicate the potential educational use(s) or type(s) of content associated with the learning resource. **Best Examples:** "presentation" and "handout"

**Examples:**

* **exercise:** An exercise is "the use of or method of using; a task prescribed or performed for the sake of attaining proficiency, for training either body or mind, or as an exhibition or test of proficiency or skill.
* **simulation:** A simulation is "the technique of imitating the behaviour of some situation or process (whether economic, military, mechanical, etc.) by means of a suitably analogous situation or apparatus
* **questionnaire:** A questionnaire is "a list of questions by which information is sought from a selected group, usually for statistical analysis”
* **diagram:**A diagram is "an illustrative figure which, without representing the exact appearance of a resource, gives an outline or general scheme of it, so as to exhibit the shape and relations of its various parts; a set of lines, marks, or tracings which represent symbolically the course or results of any action or process, or the variations which characterize it”.
* **Figure:** A figure is "the image, likeness, or representation of something material or immaterial” (OED).
* A **graph** is "a kind of symbolic diagram (used in Chemistry, Mathematics, etc.)
* in which a system of connections is expressed by spots or circles, some pairs of which are colligated by one or more lines " (OED);
* **Index:**  An index is " a reference list; an alphabetical list" (OED).
* **Slide**: A slide is "a photographic transparency for use in a slide projector "(OED)
* **Table:**  " an arrangement in columns and lines...as the multiplication table, tables of weights and measures, a table of logarithms, astronomical tables, insurance tables, time-tables, etc." (OED)
* **narrative text:** A narrative text is " an account or narration; a history, tale, story, recital (of facts, etc.) that is a portion of the contents of a manuscript or printed book, or of a page, which constitutes the original matter, as distinct from the notes or other critical appendages"( OED)
* **Exam:** An exam is " the process of testing, by questions oral or written, the knowledge or ability of pupils, or of candidates for office, degrees, etc." (OED)
* **problem statement:** A problem statement is "a written or oral communication setting forth... A difficult or puzzling question proposed for solution "( OED).
* **self assessment**: A self-assessment is an " assessment or evaluation of oneself, one's actions or attitudes by oneself " (OED)
* **lecture** A lecture is " a discourse given before an audience upon a given subject, usually for the purpose of instruction" (OED).

**2.7 timeRequired**

|  |  |
| --- | --- |
| Name | timeRequired |
| Label | Time Required |
| URI: | [http://purl.org/dcx/lrmi-terms/timeRequired](http://dublincore.org/dcx/lrmi-terms/alignmentType) |
| Definition: | Approximate or typical time it takes to work with or through this learning resource for the typical intended target audience. |
| Description: | Based on, and mappable from, IEEE LOM 5.9: Typical Learning Time. |
| Description: | For example, 'PT30M' and 'PT1H25M' |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | <http://schema.org/CreativeWork> |
| Range Includes: | <http://schema.org/Duration> |
| Equivalent Property: | <http://schema.org/timeRequired> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |

**2.8 typicalAgeRange**

|  |  |
| --- | --- |
| Name | typicalAgeRange |
| Label | Typical Age Range |
| URI: | [http://purl.org/dcx/lrmi-terms/typicalAgeRange](http://purl.org/dcx/lrmi-terms/alignmentType) |
| Definition: | The typical range of ages the content's intended end user. |
| Description: | For example, '7-9', '18-'. |
| Description: | Based on, and mappable from, IEEE LOM 5.7: Typical Age Range. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Domain Includes: | <http://schema.org/CreativeWork> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#string> |
| Equivalent Property: | <http://schema.org/typicalAgeRange> |
| Is Defined By: | [http://purl.org/dcx/lrmi-terms/](http://dublincore.org/dcx/lrmi-terms/) |
| Date Issued: | 2015-01-12 |

**2.9 useRightsUrl**

|  |  |
| --- | --- |
| Name | useRightsURL |
| Label | Use Rights URL |
| URI: | [http://purl.org/dcx/lrmi-terms/useRightsUrl](http://dublincore.org/dcx/lrmi-terms/useRightsUrl) |
| Definition: | The URL where the owner specifies permissions for using the resource. |
| Description: | For example: 'http://creativecommons.org/licenses/by/3.0/, & 'http://publisher.com/content-use-description'. |
| Type of Term: | [rdf:Property](http://www.w3.org/1999/02/22-rdf-syntax-ns#Property) |
| Subproperty Of: | <http://schema.org/license> |
| Domain Includes: | <http://schema.org/CreativeWork> |
| Range Includes: | <http://www.w3.org/2001/XMLSchema#anyURI> |
| Date Issued: | 2015-01-12 |

**2.10 Accessibility related fields**

The Accessibility Metadata Project contributed a set of four properties to the schema.org CreativeWork type:

* accessibilityFeature
* accessibilityHazard
* accessibilityControl
* accessibilityAPI

The above properties to the accessibility element in the schema.org hierarchy, covers all the content specializations that are commonly sought out for compatibility, such as Book, Article, Blog and Movie. These properties provide a basis for augmenting web content with accessibility information. Their use is not limited only to what lives on the web; These properties may be used to describe any resource that is referenced from a web page, for instance the metadata can be used to enhance an online library catalogue of available works, even though the works themselves may only be available physically.

**Accessibility terms**

|  |  |  |  |
| --- | --- | --- | --- |
| **Property** | **Expected Type** | **Expected Values** | **Description** |
| accessibilityFeature | [Text](http://schema.org/Text) | * alternativeText * annotations * audioDescription * bookmarks * braille * captions * ChemML * describedMath * displayTransformability * highContrastAudio * highContrastDisplay * index * largePrint * latex * longDescription * MathML * none * printPageNumbers * readingOrder * signLanguage * structuralNavigation * tableOfContents * taggedPDF * tactileGraphic * tactileObject * timingControl * transcript * ttsMarkup * unlocked | Content features of the resource, such as accessible media, supported enhancements for accessibility and alternatives. |
| accessibilityHazard | [Text](http://schema.org/Text) | * flashing * noFlashingHazard * motionSimulation * noMotionSimulationHazard * sound * noSoundHazard | A characteristic of the described resource that is physiologically dangerous to some users. Related to [WCAG 2.0 guideline 2.3](http://www.w3.org/TR/UNDERSTANDING-WCAG20/seizure.html).  All three of the negative properties should be set if none of the hazards are known to exist. If the content has hazard(s), include positive assertions for the hazards it has and negative assertions for the others.  If the property is not set in the positive or negative, the state of hazards is not known. |
| accessibilityAPI | [Text](http://schema.org/Text) | * AndroidAccessibility * ARIA * ATK * AT-SPI * BlackberryAccessibility * iAccessible2 * iOSAccessibility * JavaAccessibility * MacOSXAccessibility * MSAA * UIAutomation | Indicates that the resource is compatible with the referenced accessibility API. |
| accessibilityControl | [Text](http://schema.org/Text) | * fullKeyboardControl * fullMouseControl * fullSwitchControl * fullTouchControl * fullVideoControl * fullVoiceControl | Identifies one or more input methods that allow access to all of the application functionality. |

Source: WebSchemas/Accessibility (http://www.w3.org/wiki/WebSchemas/Accessibility)

**2.11**  **Difficulty Level**

|  |  |
| --- | --- |
| Name | difficultylevel |
| Label | difficultylevel |
| URI: |  |
| Definition: | Instances of this class represent difficulties. |
| Description: | How hard it is to work through this learning object for the typical target audience |
| Type of Term: | rdf:Property rdf:ID="difficulty" |
| Domain Includes: |  |
| Range Includes: | rdf:resource="#Difficulty" |
| Equivalent Property: | - |
| Is Defined By: | IEEE LTSC P1484.12.1 Learning Object Metadata (LOM) specification |
| Date Issued: |  |
| Authority list | Ref. Annex 2.11. Vocabulary for Difficulty Level |

**CHAPTER- 3**

**MULTIMEDIA METADATA (MPEG 7)**

To facilitate the resource discovery of audiovisual documents over the web, it is necessary to define content description standards or metadata standards for complex, multi-layered, time-dependent information-rich data streams. This is the primary goal of the "Multimedia Content Description Interface" MPEG-7, under development by the MPEG group.

MPEG-7, formally named "Multimedia Content Description Interface", is a standard for describing the multimedia content data that supports some degree of interpretation of the information’s meaning, which can be passed onto, or accessed by, a device or a computer code. - ISO/IEC 15938, Development since 1998, ISO standard 2001 (V1).

A standard framework for describing all aspects of the content of a multimedia object includes low-level descriptions of individual objects in a scene and high-level abstract descriptions of scenes, information related to content usage, storage features, structural information. The main aim is to facilitate search, identify, filter, and browse audiovisual content.

MPEG-7 is a standard for describing features of multimedia content. It provides the world’s richest set of audio visual descriptions. MPEG-7 uniquely provides comprehensive standardised multimedia description tools for content. These descriptions are at three levels:

* the catalogue level (e.g. title, creator, rights)
* the semantic level (who, what, when, where information about objects and events) and
* the structural level (spatio-temporal region, color histogram, timbre of an recorded instrument, texture)

MPEG-7 uses the basic concepts:

* 'Descriptors' that define the syntax and the semantics of each feature or metadata element. Descriptors are intended to apply at different levels of abstraction, e.g. from low-level visual features like shape, size, texture and colour to high level 'semantic' information, e.g. about abstract concepts, events, genres, etc.
* 'Description Schemes' that specify the structure and semantics of the relationships between components.
* 'Description Definition Language' (DDL) that provides a syntax for the express, combine, extend and refine Descriptors and Description Schemes. Description Definition Language (DDL) is based on the [XML Schema language](http://www.w3.org/XML/Schema).

System tools of MPEG 7 support binary coded representation for

• efficient storage and transmission,

• transmission mechanisms,

• multiplexing of descriptions,

• synchronization of descriptions with content,

• management and protection of intellectual property

MPEG-7 standards are categorized into following parts:

* MPEG-7 Systems – binary encoding format, terminal architecture.
* MPEG-7 Description Definition Language
* MPEG-7 Visual – DT for Visual descriptions.
* MPEG-7 Audio – DT for Audio descriptions.
* MPEG-7 Multimedia Description Schemes
* MPEG-7 Reference Software
* MPEG-7 Conformance Testing
* MPEG-7 Extraction and use of descriptions – informative

MPEG-7 Visual Component comprises six content-based image/video retrieval descriptor categories:

– Color descriptors (7)

– Texture descriptors (3)

– Shape descriptors (3)

– Motion descriptors (4)

– Localization descriptors (2)

– Face recognition (1)

In the case of Audio Component, audio description framework has 17 low-level descriptors (temporal and spectral), Generic (application independent) and High-level audio description tools with:

– Audio signature description scheme

– Musical instrument timbre description tools

– Melody description tools

– General sound recognition and indexing description tools

– Spoken content description tools

Multimedia Description Schemes combine individual «descriptors» into following five elements:

* Content description: representation of perceivable information
* Content management: information about the media features, the creation and the usage of the AV content;
* Content organization: representation, the analysis and classification;
* Navigation and access: specification of summaries and variations;
* User interaction: description of user preferences and usage history

The MPEG-7 elements provide support to a broad range of applications (for example, multimedia digital libraries, broadcast media selection, multimedia editing, home entertainment devices, etc.). MPEG-7 has potential to further extend searching of the web for multimedia content as it is searchable for text today. This would apply especially to large content archives, which are being made accessible to the public, as well as to multimedia catalogues enabling people to identify content for purchase.

MPEG 7 standard is very comprehensive and are applicable for:

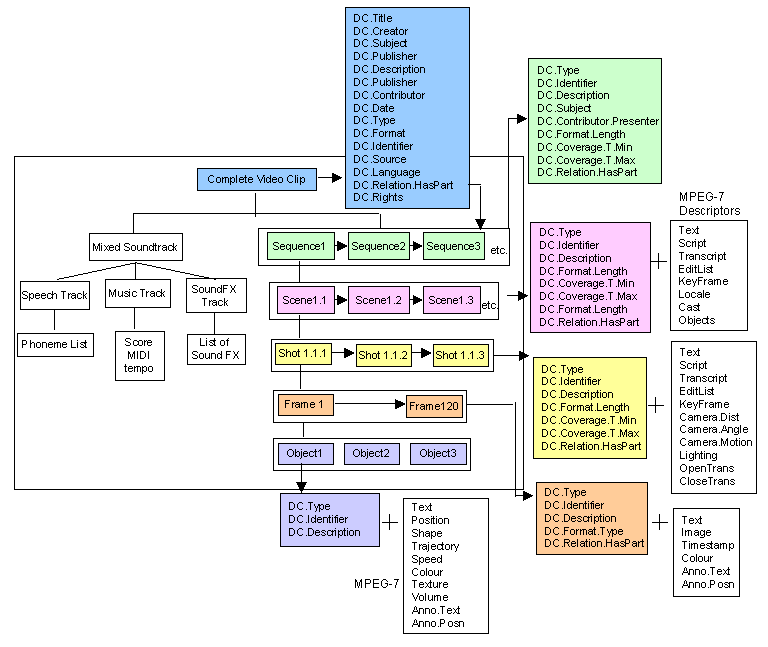
* Broadcast media selection (e.g., radio channel, TV channel).
* Cultural services (history museums, art galleries, etc.).
* Digital libraries (e.g., image catalogue, musical dictionary, film, video and radio archives).
* E-Commerce (e.g., personalised advertising, on-line catalogues, directories of e-shops).
* Education (e.g., repositories of multimedia courses, multimedia search for support material).
* Home Entertainment (e.g., systems for the management of personal multimedia collections, including manipulation of content, e.g. home video editing, searching a game, karaoke).
* Investigation services (e.g., human characteristics recognition, forensics).
* Journalism (e.g. searching speeches of a certain politician using his name, his voice or his face).
* Multimedia directory services (e.g. yellow pages, Tourist information, Geographical information systems).
* Multimedia editing (e.g., personalised electronic news service, media authoring).
* Remote sensing (e.g., cartography, ecology, natural resources management).
* Shopping (e.g., searching for clothes that you like).
* Social (e.g. dating services).
* Surveillance (e.g., traffic control, surface transportation, non-destructive testing in hostile environments).

However from NDL perspective a "hybrid" approach which combines both simple unqualified Dublin Core and MPEG-7 descriptors within a single description container would be most appropriate. Dublin Core can be used for generic media-independent search and retrieval while MPEG-7 can be used for object-specific fine-grained queries. Each structural component may comprise both a set of Dublin Core attributes plus a set of MPEG-7 attributes.

For instance if:

* DC.Type = "Image.Moving.TV.News.Scene" then valid descriptors will include both the DC simple elements plus MPEG-7 descriptors such as script, transcript, editlist, keyframe etc.
* DC.Type = "Image.Moving.TV.News.Scene.Shot" then valid descriptors will include both the DC elements plus keyframe, camera\_distance, camera\_angle, camera\_motion, opening\_transition, closing\_transition.
* DC.Type = "Image.Moving.TV.News.Scene.Shot.Frame" then a valid descriptors will be the DC elements plus colour\_histogram.

This is illustrated in Figure below:



**Multilayered Hierarchical Structure and Attributes of Video**

Source:

[http://www8.org/w8-papers/3c-hypermedia video/comparison/comparison.html](http://www8.org/w8-papers/3c-hypermedia%20video/comparison/comparison.html)

Figure above shows the logical structure, the structural components and their associated Dublin Core attributes and some MPEG-7 attributes for the proposed video description scheme.

Integration of DC and MPEG 7 elements will provide required granularity for

**Dublin Core to MPEG-7 Mappings (using XPath expressions to represent the equivalent MPEG-7 descriptors)**

|  |  |  |
| --- | --- | --- |
| **DC**  **Element** | **Definition** | **MPEG-7 Path** |
| Title | A name given to a resource. | CreationInformation.Creation.Title[@type="main"] |
| Creator | An entity primarily responsible for making the content of the resource | CreationInformation/ Creation/Creator[Role/Name="creator"]/ Agent/ Name |
| Subject | The topic of the content of the resource | CreationInformation/ Classification/Subject |
| Description | An account of the content of the resource | CreationInformation/Creation/ Abstract |
| Publisher | An entity responsible for making the resource available | CreationInformation/ Creation/Creator[Role/ Name="Publisher"]/ Agent/Name UsageInformation/ Availability/Dissemination/ Disseminator[Role="Publisher"]/ Agent/ Name |
| Contributor | An entity responsible for making contributions to the content of the resource | CreationInformation/ Creation/ Creator[Role/ Name="contributor"]/ Agent/ Name |
| Date | A date associated with an event in the life cycle of the resource | CreationInformation/Creation/CreationCoordinates/ Date CreationInformation/ Classification/Release[@date]  DescriptionMetadata/ CreationTime (date at which MPEG-7 metadata description was created) UsageInformation/ Availability/AvailabilityPeriod (date, time and duration of broadcast or date of publication if availability is persistent.) |
| Type | The nature or genre of the content of the resource | CreationInformation/ Classification/ Genre |
| Format | The physical or digital manifestation of the resource e.g., file format or mime type | MediaInformation/ MediaProfile/ MediaFormat/ FileFormat |
| Identifier | An unambiguous reference to the resource within a given context | MediaInformation/ MediaIdentification/ EntityIdentifier MediaInformation/ MediaProfile/ MediaInstance/ InstanceIdentifier MediaInformation/MediaProfile/ MediaInstance/ MediaLocator/ MediaUri |
| Source | A Reference to a resource from which the present resource is derived | Variation/Source/Video/ MediaLocator/ MediaUri VariationSet/ Source/ Video/MediaLocator/ MediaUri MediaInformation/ MediaIdentification/ EntityIdentifier MediaInformation/ MediaProfile[@master="true]/ MediaInstance/ MediaLocator/ MediaUri |
| Language | A language of the intellectual content of the resource | CreationInformation/Classification/Language[@type="original"|"dubbed"|background"]; CreationInformation/Classification/CaptionLanguage |
| Relation | A reference to a related resource | CreationInformation/ RelatedMaterial/ MediaLocator/ MediaUri MediaInformation/ MediaProfile/ MediaInstance/MediaLocator/ MediaUri/ VariationSet/ Variation/ VariationRelationship |
| Coverage | The extent or scope of the content of the resource | SemanticBase[@xsi:type="SemanticTimeType"]/Time SemanticBase[@xsi:type="SemanticPlaceType"]/Place |
| Rights | Information about rights held in and over the resource | CreationInformation/Creation/CopyrightString UsageInformation/Rights/RightsID |

**CHAPTER- 4**

**THESES & DISSERTATION METADATA**

**Contents Page No**

* 1. Advisor
  2. Date-Awarded
  3. Keyword
  4. Place
  5. Publisher-Department
  6. Publisher-Institution
  7. Researcher
  8. Type-Degree

**Application Profile for Thesis & Dissertation**

Besides the generic metadata as described in chapter-1, it is also required to have another set of metadata related to PhD Theses and Dissertation.

* + Advisor
  + Date-Awarded
  + Keyword
  + Place
  + Publisher-Department
  + Publisher-Institution
  + Researcher
  + Type-Degree

## Example:

## Thesis Title: Development And Validation Of Soft Computing Based Models For Pulsed

## Gas Metal Arc Welding Process.

## Author:Pal, Sukhomay.

## Guide: Pal,SurjyaK and  Samantaray, Arun K

## URI:<http://hdl.handle.net/123456789/371>

## Date of Award: 2008

**4.1 Advisor**

|  |  |
| --- | --- |
| Name of Term | **advisor** |
| Fully Specified Namespace | dc.contributor.advisor |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | A group of person supervising the thesis |
| Comments | Repeatable in case of co-supervision |
| Type of term | element |
| Has Encoding Scheme | NIL |
| Obligation | M |
| Occurrence | MIN=0, MAX=2 |
| Example Usage | Pal, Surjya K and   Samantaray, Arun K |

**4.2 Awarded**

|  |  |
| --- | --- |
| Name of Term | **awarded** |
| Fully Specified Namespace | dc.date.awarded |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | Ph.D. awarded date. |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | ISO 8601 - <http://purl.org/dc/terms/ISO8601> |
| Obligation | R |
| Occurrence | MIN=0, MAX=1 |
| Example Usage | 2008 |

## 4.3 Keyword

|  |  |
| --- | --- |
| Name of Term | **keyword** |
| Fully Specified Namespace | dc.subject.keyword |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | List of keywords specified in thesis |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | NIL |
| Obligation | M |
| Occurrence | MIN=0, MAX=infinite |
| Example | Signal processing, Artificial Neural Network, Metal Arc Welding Process |

**4.4 Place**

|  |  |
| --- | --- |
| Name of Term | **place** |
| Fully Specified Namespace | dc.publisher.place |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | The place of publication |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | NIL |
| Obligation | O |
| Occurrence | MIN=0, MAX=1 |
| Example Usage | Kharagpur |

**4.5 Department**

|  |  |
| --- | --- |
| Name of Term | **department** |
| Fully Specified Namespace | dc.publisher.department |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | Department in which the awardee is registerered |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | Vocabulary containing list of departments |
| Obligation | R |
| Occurrence | MIN=0, MAX=1 |
| Example Usage | Mechanical Engineering |

**4.6 Institution**

|  |  |
| --- | --- |
| Name of Term | **institution** |
| Fully Specified Namespace | dc.publisher.institute |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | Name of the institution, mostly the name of the institution that granted the award. |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | NIL |
| Obligation | M |
| Occurrence | MIN=0, MAX=2 |
| Example Usage | IIT Kharagpur |

## 4.7 Researcher

|  |  |
| --- | --- |
| Name of Term | **researcher** |
| Fully Specified Namespace | dc.creator.researcher |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | A person responsible for the research content of the thesis |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | NIL |
| Obligation | M |
| Occurrence | MIN=0, MAX=1 |
| Example Usage | Pal, Sukhomay |

**4.8 Type - Degree**

|  |  |
| --- | --- |
| Name of Term | **degree** |
| Fully Specified Namespace | dc.type.degree |
| Term URI | Has to be specified |
| Defined By | Has to be specified |
| Definition | degree awarded for this resource |
| Comments |  |
| Type of term | element |
| Has Encoding Scheme | Vocabulary containing ‘Master’s level’ and ‘Doctoral level’ |
| Obligation | M |
| Occurrence | MIN=0, MAX=2 |
| Example Usage | PhD |

Example:

* Type of Degree may be **M. Phil or PhD.** Master level dissertation may also be included here.

**CHAPTER 5**

**WORKED OUT EXAMPLES**

**Example 1:**

Subject: Library Science

Paper: digital library

Module Name: Technical infrastructure of a digital library

Paper coordinator: Jagdish Arora

**List of Generic Metadata Elements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.N | Elements | Fully Specified Namespace | Value/attribues | Remarks |
|  | Contributor | dc.contributor | INFLIBNET |  |
| 1. 2 | Author | dc.contributor.author | Arora, Jagdish |  |
|  | Illustrator | dc.contributor.illustrator | <May be available> |  |
|  | Editor | dc.contributor.editor | <May be available> |  |
|  | Coverage | dc.coverage | The time, culture, geography or region to which this learning object applies. | Not Available |
|  | Creator | dc.creator | Patel, Yatrik |  |
|  | Date | dc.date | 31/12/2014 | Not available |
|  | Date-Created | dc.date.created | 29/06/2015 | (Metadata created date) |
|  | Date-Accessioned | dc.date.accessioned | <May be available> |  |
|  | Date-Issued | dc.date.issued | <May be available> |  |
|  | Date-Modified | dc.date.modified | <May be available> |  |
|  | Date-Valid | dc.date.valid | <May be available> |  |
|  | Date-copyright | dc.date.copyright | 31/12/2014 |  |
|  | description | dc.description | this module are to discuss and impart knowledge on broader aspects of technical infrastructure of a digital library i.e.computers and network infrastructure requirement including server-side hardware components, server-side software components, and client-side hardware & software components as well as role of cloud computing in digital libraries. | As a abstract |
|  | Table of Content | dc.description.tableofcontent | <May be available> |  |
|  | Format | dc.format | Pdf, mp4 | The file format, physical medium, or dimensions of the resource |
|  | Extent | dc.format.extent |  |  |
|  | Medium | dc.format.medium | Video | The material or physical carrier of the resource. |
|  | Mimetype | dc.format.mimetype |  |  |
|  | Identifier | dc.identifier | Ex. http://epgp.inflibnet.ac.in/index.php | Website (Identifier-ISBN, Identifier-ISSN, Identifier-URI, Identifier-bibliographic Citation) May be available one or more |
|  | Language | dc.language | English |  |
|  | Publisher | dc.publisher | Inflibnet Centre, Gandhinagar |  |
|  | Relation | dc.relation |  | Relation includes:  Is Part Of  Requires  Has Format  Has Part  Is Format Of  Is Replaced By  Is Version Of  References |
|  | Is Part Of | dc.relation.ispartof | Technical infrastructure of a digital library |  |
|  | Replaces | dc.relation.replaces |  | (Duplicate of no.23) |
|  | Rights | dc.rights | MHRD (NMEICT) | Information about rights held in and over the resource. |
|  | Subject | dc.subject | Digital Library (Education--Digital libraries) | Web of Science category |
|  | Title | dc.title | Technical infrastructure of a digital library |  |
|  | Alternative title | dc.title.alternative |  | Not available |
|  | Type | dc.type | Pdf, avi | File format |

**List of Educational Metadata**

|  |  |  |  |
| --- | --- | --- | --- |
| S.N | Elements | Metadata Standards Used |  |
|  | alignmentType | LRMI | Teaches  PG (EducationLevel) |
|  | educationalAlignment [Board] | LRMI | UGC |
|  | educationalRole | LRMI | Student |
|  | educationalUse |  | Lecture |
|  | interactivityType |  | Expositive |
|  | learningResourceType | LRMI | Video  On-Line  Quiz |
|  | timeRequired | LRMI | PT1H15M |
|  | typicalAgeRange | LRMI | 18+ |
|  | useRightsUrl | LRMI | CC-By-SA  http://epgp.inflibnet.ac.in/beta/# |
|  | Accessibility related fields | LRMI | - |
|  | Difficulty Level | IEEE LOM | Medium |

**Example 2**

Subject category: (Arts and Humanities)

Projects Subject: (English language and literature)

**List of Generic Metadata Elements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.N | Elements | Fully Specified Namespace | Attribute/Value | Remarks |
| 1. . | Contributor | dc.contributor | Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar |  |
|  | Author | dc.contributor.author | Barad, Dilip |  |
|  | Illustrator | dc.contributor.illustrator | <May be available> |  |
|  | Editor | dc.contributor.editor | <May be available> |  |
|  | Coverage | dc.coverage | The time, culture, geography or region to which this learning object applies. | Not Available |
|  | Creator | dc.creator | Barad, Dilip |  |
|  | Date | dc.date | 17.06.2013 | Not available |
|  | Date-Created | dc.date.created | 29.06.2015 | (Metadata created date) |
|  | Date-Accessioned | dc.date.accessioned | <May be available> |  |
|  | Date-Issued | dc.date.issued | <May be available> |  |
|  | Date-Modified | dc.date.modified | <May be available> |  |
|  | Date-Valid | dc.date.valid | <May be available> |  |
|  | Date-copyright | dc.date.copyright | 17.06.2013 |  |
|  | description | dc.description | Plato was a great moral philosopher and his primary concentration was to induce moral values in the society and to seek the ultimate Truth. So when he examines poetry his tool is rather moral and not aesthetic.Aristotle examines poetry as a form of art and evaluates its constituent elements on the basis of its aesthetic beauty. | Abstract |
|  | Table of Content | dc.description.tableofcontent | <May be available> |  |
|  | Format | dc.format | Pdf, mp4 | The file format, physical medium, or dimensions of the resource |
|  | Medium | dc.format.medium | Video | The material or physical carrier of the resource. |
|  | Identifier | dc.identifier | https://sites.google.com/site/nmeictproject/literary-theory-and-criticism | Website (Identifier-ISBN, Identifier-ISSN, Identifier-URI, Identifier-bibliographic Citation) May be available one or more |
|  | Language | dc.language | English |  |
|  | Publisher | dc.publisher | Ex. Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar | Examples of a Publisher include a person, an organization, or a service. Typically, the name of a Publisher should be used to indicate the entity. |
|  | Relation | dc.relation |  | Relation includes:  Is Referenced By  Is Part Of  Is Format  Has Format  Has part  Has version of  Is version of |
|  | Replaces | dc.relation.replaces |  |  |
|  | Rights | dc.rights | MHRD (NME-ICT) | Information about rights held in and over the resource. |
|  | Subject | dc.subject | Arts and Humanities (English language and literature) | Web of Science category |
|  | Title | dc.title | Plato and Aristotle |  |
|  | Alternative title | dc.title.alternative |  | Not available |
|  | Type | dc.type | PDF and MP4, swf | File format |

**List of Educational Metadata**

|  |  |  |  |
| --- | --- | --- | --- |
| S.N | Elements | Metadata Standards Used |  |
| 1. | alignmentType | LRMI | Teaches  PG(EducationLevel) |
| 2. | educationalAlignment [Board] | LRMI | UGC |
| 3. | educationalRole | LRMI | Student |
| 4. | educationalUse |  | Lecture |
| 5. | interactivityType |  | Expositive |
| 6. | learningResourceType | LRMI | Video  On-Line  Quiz |
| 7. | timeRequired | LRMI | PT1H20M |
| 8. | typicalAgeRange | LRMI | 18+ |
| 9. | useRightsUrl | LRMI | CC-By-SA  http://epgp.inflibnet.ac.in |
| 10. | Accessibility related fields | LRMI | - |
| 11. | Difficulty Level | IEEE LOM | Easy |

**Example 3**

Subject category: Biological Science

Project subject: Zoology

Module name: Cockroach

**List of Generic Metadata Elements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.N | Elements | Fully Specified Namespace | Value/attribues | Remarks |
| 1 | Contributor | dc.contributor | V P & RPTP Science College, Vallabh Vidyanagar |  |
| 2 | Author | dc.contributor.author | Bhatt, Nikunj |  |
| 3 | Illustrator | dc.contributor.illustrator | <May be available> |  |
| 4 | Editor | dc.contributor.editor | <May be available> |  |
| 5 | Coverage | dc.coverage | The time, culture, geography or region to which this learning object applies. | Not Available |
| 6 | Creator | dc.creator | Bhatt, Nikunj |  |
| 7 | Date | dc.date | 31/12/2014 | Not available |
| 8 | Date-Created | dc.date.created | 29/06/2015 | (Metadata created date) |
| 9 | Date-Accessioned | dc.date.accessioned | <May be available> |  |
| 10 | Date-Issued | dc.date.issued | <May be available> |  |
| 11 | Date-Modified | dc.date.modified | <May be available> |  |
| 12 | Date-Valid | dc.date.valid | <May be available> |  |
| 13 | Date-copyright | dc.date.copyright | 31/12/2014 |  |
| 14 | description | dc.description | This learning module describes the Systematic Position, Habits and Habitat, Structure, Locomotion,  Ingestion, Behavior, Reproduction etc of Cockroach. | As a abstract |
| 15 | Table of Content | dc.description.tableofcontent | <May be available> |  |
| 16 | Format | dc.format | mp4 | The file format, physical medium, or dimensions of the resource |
| 17 | Extent | dc.format.extent |  |  |
| 18 | Medium | dc.format.medium | Video | The material or physical carrier of the resource. |
| 19 | Mimetype | dc.format.mimetype |  |  |
| 20 | Identifier | dc.identifier | http://www.zoologyexperiments.com | Website (Identifier-ISBN, Identifier-ISSN, Identifier-URI, Identifier-bibliographic Citation) May be available one or more |
| 21 | Language | dc.language | English |  |
| 22 | Publisher | dc.publisher | V P & RPTP Science College, Vallabh Vidyanagar |  |
| 23 | Relation | dc.relation |  | Relation includes:  Is Part Of  Requires  Has Format  Has Part  Is Format Of  Is Replaced By  Is Version Of  References |
| 24 | Replaces | dc.relation.replaces |  | (Duplicate of no.23) |
| 25 | Rights | dc.rights | MHRD (MNE- ICT) | Information about rights held in and over the resource. |
| 26 | Subject | dc.subject | Zoology(Biological Science) | Web of Science category |
| 27 | Title | dc.title | Cockroach |  |
| 28 | Alternative title | dc.title.alternative |  | Not available |
| 29 | Type | dc.type | mp4 | File format |

**List of Educational Metadata**

|  |  |  |  |
| --- | --- | --- | --- |
| S.N | Elements | Metadata Standards Used |  |
| 1 | alignmentType | LRMI | Teaches  PG(EducationLevel) |
| 2 | educationalAlignment [Board] | LRMI | UGC |
| 3 | educationalRole | LRMI | Student |
| 4 | educationalUse |  | Lecture |
| 5 | interactivityType |  | Expositive |
| 6 | learningResourceType | LRMI | Video  On-Line  Quiz |
| 7 | timeRequired | LRMI | PT45M |
| 8 | typicalAgeRange | LRMI | 18+ |
| 9 | useRightsUrl | LRMI | CC-By-SA  http://epgp.inflibnet.ac.in |
| 10 | Accessibility related fields | LRMI | - |
| 11 | Difficulty Level | IEEE LOM | Medium |

**CHAPTER 6**

**ANNEXURE FOR VOCABULARY USE**

**List of Vocabulary**

Annex-1.6.3 : Vocabulary for Mime Type

Annex-1.8 : Vocabulary for Language

Annex 1.15 :Vocabulary for Type

Annex-2.1 : Vocabulary for Alignment Type

Annex-2.2 : Vocabulary for Educational Alignment –Board

Annex-2.3 : Vocabulary for Educational Role

Annex 2.4 : Vocabulary for Educational Use

Annex-2.5 : Vocabulary for Interactivity Type

Annex-2.6 : Vocabulary for Learning Resource Type

Annex-2.7 : Vocabulary for Duration (learning time)

Annex-2.8 : TypicalAgeRange

Annex 2.9 : Vocabulary for Accessibility Features

Annex-2.10 : Vocabulary for Difficulty Level

Annex 3.8 : Vocabulary for Type of Degree

**Annex-1.6.3 Vocabulary for Mime Type**

|  |  |
| --- | --- |
| S. No | Name of the Value |
| 1. | 3gp2 |
| 2. | Adobe Flash |
| 3. | pdf |
| 4. | xls |
| 5. | xlsx |
| 6. | ppt |
| 7. | pptx |
| 8. | doc |
| 9. | docx |
| 10. | mpeg |
| 11. | zip File |
| 12. | bmp |
| 13. | mp3 |
| 14. | zav |
| 15. | epub/ E- Book |
| 16. | Flash Video |
| 17. | gif |
| 18. | jpeg |
| 19. | MPEG-4 Video |
| 20. | Video CD |
| 21. | txt File |
| 22. | Mobipocket eBook Format |
| 23. | jpg |
| 24. | tif |
| 25. | png |
| 26. | mp4 |
| 27. | swf |

**Annex-1.8 Vocabulary for Language**

|  |  |
| --- | --- |
| S.N | Name of Languages |
|  | Assamese |
|  | Bengali |
|  | Bodo |
|  | Dogri |
|  | English |
|  | Gujarati |
|  | Hindi |
|  | Kannada |
|  | Kashmiri |
|  | Konkani |
|  | Maithili |
|  | Malayalam |
|  | Manipuri |
|  | Marathi |
|  | Nepali |
|  | Oriya |
|  | Sanskrit |
|  | Santhali |
|  | Sindhi |
|  | Tamil |
|  | Telegu |
|  | Urdu |

**Annex 1.15 Vocabulary for Type**

|  |  |
| --- | --- |
| S. N | Name of the Value |
| 1. | book |
| 2. | audio |
| 3. | video |
| 4. | Software |
| 5. | thesis |
| 6. | Image |
| 7. | Journal Article |
| 8 | Conferences Article |

1. **Annex-2.1: Vocabulary for Alignment Type**

|  |  |
| --- | --- |
| S.N | Name |
|  | assesses |
|  | teaches |
|  | requires |
|  | textComplexity |
|  | readingLevel |
|  | educationalSubject |
|  | educationLevel |

**Annex-2.2: Vocabulary for Educational Alignment –Board**

|  |  |  |
| --- | --- | --- |
| S.N | Board/ council | Name |
|  | Council | All India Council for Technical Education (AICTE) |
|  | Council | Distance Education Council (DEC) |
|  | Council | Indian Council of Agricultural Research (ICAR) |
|  | Council | Bar Council of India (BCI) |
|  | Council | National Assessment and Accreditation Council (NAAC) |
|  | Council | National Council for Teacher Education (NCTE) |
|  | Council | Rehabilitation Council of India (RCI) |
|  | Council | Medical Council of India (MCI) |
|  | Council | Pharmacy Council of India (PCI) |
|  | Council | Indian Nursing Council (INC) |
|  | Council | Dental Council of India (DCI) |
|  | Council | Central Council of Homeopathy (CCH) |
|  | Council | Central Council of Indian Medicine (CCIM) |
|  | Council | Veterinary Council of India (VCI) |
|  | Commission | University Grants Commission (UGC) |
|  | Board | Andhra Pradesh Board of Intermediate Education |
|  | Board | Andhra Pradesh Board of Secondary Education |
|  | Board | Board of Higher Secondary Education,New Delhi |
|  | Board | Assam Board of Secondary Education |
|  | Board | Bihar School Examination Board |
|  | Board | Board of Youth Education India |
|  | Board | Board of School Education, Haryana |
|  | Board | Board of Secondary Education, Madhya Pradesh |
|  | Board | Board of Secondary Education Madhya Bharat Gwalior |
|  | Board | Board of Secondary Education, Rajasthan |
|  | Board | Chhattisgarh Board of Secondary Education |
|  | Board | Central Board of Secondary Education |
|  | Board | Central Board Of Patna, Bihar |
|  | Board | Central Board Of Education Ajmer New Delhi |
|  | Board | Goa Board of Secondary & Higher Secondary Education |
|  | Board | Gujarat Secondary Education Board |
|  | Board | Himachal Pradesh Board of School Education |
|  | Board | Indian Board of School Education |
|  | Board | J&K State Board of School Education |
|  | Board | Jharkhand Academic Council |
|  | Board | Karnataka Board of the Pre-University Education |
|  | Board | Karnataka Secondary Education Examination Board |
|  | Board | Kerala Board of Public Examinations |
|  | Board | Maharashtra State Board of Secondary and Higher Secondary Education |
|  | Board | Manipur Board of Secondary Education |
|  | Board | Manipur Council of Higher Secondary Education |
|  | Board | Meghalaya Board of School Education |
|  | Board | Mizoram Board of School Education |
|  | Board | Northwest Accreditation Commission [NWAC] |
|  | Board | Nagaland Board of School Education |
|  | Board | National Institute of Open Schooling |
|  | Board | Orissa Board of Secondary Education |
|  | Board | Orissa Council of Higher Secondary Education |
|  | Board | Punjab School Education Board |
|  | Board | Rajasthan Board of Secondary Education |
|  | Board | Tamil Nadu Board of Higher Secondary Education |
|  | Board | Tamil Nadu Board of Secondary Education |
|  | Board | Tamilnadu Council for Open and Distance Learning |
|  | Board | Tripura Board of Secondary Education |
|  | Board | Telangana State Board of Intermediate Education |
|  | Board | Uttar Pradesh Board of High School and Intermediate Education |
|  | Board | Sampurnanand Sanskrit Vishwavidyalaya Varanasi Uttar Pradesh |
|  | Board | Uttarakhand Board of School Education |
|  | Board | West Bengal Board of Secondary Education |
|  | Board | West Bengal Council of Higher Secondary Education |
|  | Board | West Bengal State Council of Vocational Education and Training |
|  | Central Board | Central Board of Secondary Education (CBSE) |
|  | Central Board | Indian Council of Secondary Education (ICSE) |

**Annex-2.3: Vocabulary for Educational Role**

|  |  |
| --- | --- |
| S.N | Name |
|  | Administrator |
|  | Mentor |
|  | Parent |
|  | Peer Tutor |
|  | Specialist |
|  | Student |
|  | Teacher |
|  | Team |

**Annex 2.4: Vocabulary for Educational Use**

|  |  |
| --- | --- |
| S.N | Name |
|  | Activity |
|  | Analogies |
|  | Assessment |
|  | Auditory |
|  | Brainstorming |
|  | Classifying |
|  | Comparing |
|  | Cooperative Learning |
|  | Creative Response |
|  | Demonstration |
|  | Differentiation |
|  | Discovery Learning |
|  | Discussion/Debate |
|  | Drill & Practice |
|  | Experiential |
|  | Field Trip |
|  | Game |
|  | Generating hypotheses |
|  | Guided questions |
|  | Hands-on |
|  | Homework |
|  | ID similarities & differences |
|  | Inquiry |
|  | Interactive |
|  | Interview/Survey |
|  | Interviews |
|  | Introduction |
|  | Journaling |
|  | Kinesthetic |
|  | Laboratory |
|  | Lecture |
|  | Metaphors |
|  | Model & Simulation |
|  | Musical |
|  | Nonlinguistic |
|  | Note taking |
|  | Peer Coaching |
|  | Peer Response |
|  | Play |
|  | Presentation |
|  | Problem Solving |
|  | Problem-based |
|  | Project |
|  | Questioning |
|  | Reading |
|  | Reciprocal teaching |
|  | Reflection |
|  | Reinforcement |
|  | Research |
|  | Review |
|  | Role Playing |
|  | Service learning |
|  | Simulations |
|  | Summarizing |
|  | Technology |
|  | Testing hypotheses |
|  | Thematic instruction |
|  | Visual/Spatial |
|  | Word association |

1. **Annex-2.5: Vocabulary for Interactivity Type**

|  |  |
| --- | --- |
| S.N | Name |
|  | Active |
|  | Expositive |
|  | Mixed |

**Annex-2.6: Vocabulary for Learning Resource Type**

|  |  |
| --- | --- |
| S.N | Name |
|  | Activity |
|  | Audio |
|  | Broadcast |
|  | Calculator |
|  | Discussion |
|  | E-Mail |
|  | Field Trip |
|  | Hands-on |
|  | In-Person/Speake |
|  | Kinesthetic |
|  | Lab Material |
|  | Manipulative |
|  | MBL |
|  | Model |
|  | On-Line |
|  | Podcast Presentation |
|  | Printed |
|  | Robotics |
|  | Still Image |
|  | Video |
|  | Wiki |
|  | Worksheet |
|  | Lesson Plan |
|  | Test |
|  | Quiz |

**Annex-2.7 : Duration (learning time)**

Durations are represented by the format P[n]Y[n]M[n]DT[n]H[n]M[n]S or P[n]W. In these representations, the [n] is replaced by the value for each of the date and time elements that follow the [n]. Leading zeros are not required, but the maximum number of digits for each element should be agreed to by the communicating parties. The capital letters *P*, *Y*, *M*, *W*, *D*, *T*, *H*, *M*, and *S* are designators for each of the date and time elements and are not replaced.

* *P* is the duration designator (historically called "period") placed at the start of the duration representation.
* *Y* is the year designator that follows the value for the number of years.
* *M* is the month designator that follows the value for the number of months.
* *W* is the week designator that follows the value for the number of weeks.
* *D* is the day designator that follows the value for the number of days.
* *T* is the time designator that precedes the time components of the representation.
* *H* is the hour designator that follows the value for the number of hours.
* *M* is the minute designator that follows the value for the number of minutes.
* *S* is the second designator that follows the value for the number of seconds.

For example, "P3Y6M4DT12H30M5S" represents a duration of "three years, six months, four days, twelve hours, thirty minutes, and five seconds".

**Annex-2.8: Typical Age Range**

0-2

2-5

5-8

8-10

10-12

12-14

14-16

16-18

18+

**Annex 2.9: Vocabulary for Accessibility Features**

|  |  |
| --- | --- |
| S.N | Name |
|  | alternativeText |
|  | annotations |
|  | audioDescription |
|  | bookmarks |
|  | braille |
|  | captions |
|  | ChemML |
|  | describedMath |
|  | displayTransformability |
|  | highContrastAudio |
|  | highContrastDisplay |
|  | index |
|  | largePrint |
|  | latex |
|  | longDescription |
|  | MathML |
|  | none |
|  | printPageNumbers |
|  | readingOrder |
|  | signLanguage |
|  | structuralNavigation |
|  | tableOfContents |
|  | taggedPDF |

**Annex-2.10: Vocabulary for Difficulty Level**

|  |  |
| --- | --- |
| S.N | Name |
|  | very easy |
|  | easy |
|  | medium |
|  | difficult |
|  | very difficult |

1. **Annex 3.8 : Vocabulary for Type of Degree**

|  |  |
| --- | --- |
| S. N | Name of the Degree |
|  | DSc |
|  | Ph. D |
|  | M.Tech |
|  | MS |
|  | M.Sc |
|  | M.A |
|  | M. Phil |

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**Additional Resource**

**Vocabulary for Educational Level**

1. **Elementary Education**
   1. LKG
   2. UKG
2. **Primary Education**
   1. Class I
   2. Class II
   3. Class III
   4. Class IV
3. **Secondary Education**
   1. Class V
   2. Class VI
   3. Class VII
   4. Class VIII
   5. Class IX
   6. Class X
   7. Class X1
   8. Class XII
4. **Higher School Education**
   1. College Education
   2. University Education
   3. Research
   4. Post Research
5. Technical Education
6. Adult Education
7. Teacher Education
8. Vocational Education