
UNIT 12 UNIVERSAL DECIMAL CLASSIFICATION (UDC)

Structure

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12.0 OBJECTIVES

This Unit introduces you to Universal Decimal Classification, which is second only to Dewey Decimal Classification in popularity.

After reading this Unit, you will be able to:

- assess the suitability of UDC as a scheme of classification for arranging books and developing bibliographic tools like catalogues and bibliographies; and
- use it for number building.

12.1 INTRODUCTION

Universal Decimal Classification (UDC) is the second of the three schemes of library classification you are required to study. In this Unit, UDC is explained with reference to its structure, notation, auxiliaries, synthetic devices and alphabetical index. The Unit briefly describes its origin and development, discuss its strength and weakness, and provides adequate guidance for you to build a number on your own. At the end of the Unit, the number building in UDC is demonstrated with the help of a few exercises.



For building numbers, you are advised to use a copy of UDC schedules, published by the British Standards Institution under the title UDC. International Medium Edition - English Text (BS 1000 M : 1985). It comprises two parts, Part-I Systematic Tables, published in 1985, and Part-II: Alphabetical Subject Index, published in 1988.

12.2 HISTORICAL BACKGROUND

Universal Decimal Classification owes its origin to Dewey Decimal Classification (DDC). As noted in the introduction to UDC International Medium Edition, DDC had, even in the 19th century, "played an important part in establishing the norm of a systematic code denoting the subject as a primary means of arranging and retrieving literature in libraries". Due to this virtue of DDC, it was natural for the scheme to attract the attention of a renowned Belgian bibliographer, Paul Otlet. This was in 1895 when Otlet, in collaboration with Henri La Fontaine, was working on a Universal Bibliography under the auspices of Institute International de Bibliography in Brussels. The projected compilation with which the two Belgian bibliographers were busy was called Universal Bibliographic Repertory, a comprehensive classified index to all published information.

Otlet was in search of a means for arranging the entries of the planned Universal Bibliography and he found the DDC to be most useful for the purpose. He, therefore, obtained permission from Melvil. Dewey to translate his classification into French. Otlet and La Fontaine were impressed by the following merits of DDC:

- 1) It was a classification of human knowledge;
- 2) It was an international language of numbers; and
- 3) The decimal numbers that comprised the language of DDC could be easily extended to accommodate not only new *subjects*, but also the details so essential for an international bibliography.

However, Otlet was not satisfied with just borrowing the DDC text and translating it into French. He must be credited with developing decimal classification further into a versatile means of arranging and retrieving literature. Several innovations were introduced into the original scheme. Thus:

- 1) UDC became a highly synthetic scheme.
- 2) Several relations between subjects were identified and symbols were assigned to represent them.
- 3) Characteristics common to many subjects were listed separately as tables of auxiliary numbers, which could be added where required.

Due to the introduction of auxiliaries and other synthetic features, UDC achieved a higher level of detail in numbers and economy of presentation. The level of detail worked out by Otlet and La Fontaine in the French version of DDC due to their innovations served well the purpose of their Repertory.

The first edition of UDC, called Handbook to the Universal Bibliographic Repertory in French, was published by the Institute International de Bibliography (IIB) from 1904 to 1907. The second edition was brought out during 1927 to 1933. The work of revision and expansion went on before World War I. This was particularly so in the case of Science and Technology sections.

The expansion of these sections was the work of Donker Duyvis from the Netherlands, who was then one of the editors of UDC. The expansion of the original classification was so extensive that the number of subdivisions rose from 33,000 in the first edition to 70,000 in the second edition and 1,40,000 in the third, which were published between 1934 and 1951.

The credit for introducing and popularising UDC in the United Kingdom, and from there to the Commonwealth countries, goes to S.C. Bradford, a pioneer in the field of documentation: The TOC came to be, regarded as perhaps the most satisfactory scheme for classifying science and technology literature is also largely due to Bradford. The responsibility for publishing a full edition of UDC in English was initially taken by the British Society for International Bibliography and ASLIB together and several parts were published by 1939. However, it was



later taken over by the British Standards Institution (BSI). The UDC and its parts have ever since been published as British Standards. The UDC International Medium Edition (BS 1000M: 1985) was published in 1985 in two parts -- Part I : Systematic Tables (1985); and Part II : Alphabetical Subject Index (1988). The latest is IME, English Text, Edition 2 (BS 000M). Part 1: Systematic Tables; and Part If: Alphabetical Subject Index. BSL 1993.

English, French and German are the official languages for the maintenance of UDC. The original Institute International de Bibliography became, in 1931, the Institute International de Documentation. Another change in name came in 1937. It became the Federation International de Documentation (FID) with its headquarters at The Hague in the Netherlands. Recently, FID has added the word information to its name. It is now Federation Internationale d' Information et de Documentation/International Federation for Information and Documentation. Authorised amendments to UDC appear annually in the form of Extensions and Corrections to the LTDC. Initially, this was a six-monthly publication,

Self Check Exercise

1) State at least five reasons for UDC being regarded as truly universal.

Note: i) Write your answer in the space given below

ii) Check your answer with the answers given at the end of this Unit.

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1.2.3 NATURE AND STRUCTURE

You are now aware that UDC is based on DDC and that it is an improvement upon the original DD scheme. The manifold improvements evident in UDC may be summed up as follows:

- 1) Both DDC and UDC are general classifications. However, special subject editions of UDC are available and each of these can be placed under the category of special classification.
- 2) The degree of detail achieved by UDC, through common and special auxiliaries, and through other devices, makes it suitable for bibliographic use. It is because of this reason that the editors of UDC call it bibliographic classification as against DDC, which is regarded as a library classification.
- 3) Though both DDC and UDC are basically enumerative classifications (those that list compound- classes exhaustively), UDC 'is nevertheless a faceted scheme because of its practice of identifying characteristics common to many categories and arranging them in tables. Each of these is a facet.

In one respect, however, both DDC and UDC are still similar in. that they are Aspect classifications, meaning the various aspects of a subject occur at different places in the scheme according to the - context. It is only the index &t collects at one place the otherwise scattered aspects i of a subject.

Take the following example from the index to the abridged edition published in 1961 (BS 400W1961):

Marine

biology.	557(26)
craft	629.12
denudation	551.35.054
engineering	629Q621
insurance	36813
products	639
etc.	



In the above example, Marine is a concept term and according to the context in which it is used, it gets distributed at six different places in the scheme. The example also shows how the index collects at one place all aspects of subject.

There are two kinds of tables in UDC, which contain the total classification: the main tables and the auxiliary tables. The main tables are also called schedules and represent the enumerative aspect of UDC. The auxiliary tables give the analytico-synthetic character to the scheme. Let us now see the main tables of UDC.

12.3.1 Main Tables

UDC, like DISC, regards the whole field of human knowledge as unity, i.e., one, which is divided into ten broadest classes denoted by decimal fractions. These ten broad classes are:

- 0 Generalities. Science and Knowledge Organisation. Information, etc.
- 1 Philosophy. Psychology.,
- 2 Religion. Theology
- 3 Social Sciences. Economics. Law. Government..., etc.
- 4 Vacant
- 5 Mathematics and natural sciences
- 6 Applied sciences. Medicine. Technology
- 7 The arts. Recreation. Entertainment. Sport
- 8 Language.. Linguistics. Literature
- 9 Geography. Biography. History

For the sake of convenience, the initial decimal point is omitted, So, .0 is just 0 and .1 is just 1 and so on. Class 4 was cancelled in 1963 to make room for future development and the original subject linguistics (class 4), was merged with class 8 in literature. To begin with, we will see what the class **Generalities** is about.

Generalities : UDC has developed an extensive class of generalities from 001 to 09. The generalities deal with science and knowledge in general, organisation, information, documentation, librarianship, institutions, publications, .etc., which are not independent disciplines by themselves but are relevant at once to the whole corpus of knowledge. The generalities are:

- 00 1 Science and Knowledge in General, etc.
- 00 2 Documentation. Books. Writing. Authorship
- 00 3 Semiotics. Syntactic Semantics in General. Writing. Scripts. Notations. Signs Symbols
- 00 4 Vacant
- 00 5 Study of Organisation. Methodology. Analysis. Synthesis. ,Classification and Taxonomy. Theory. Principles. Systematisation in General..
- 00 6 Standardisation and Standards..., etc.
- 00 7 Activity and Organising. Information. Communication and control theory..., etc.
- 00 8 Civilisation. Culture., Progress
- 00 9 Humanities. Arts. Subjects in General.

There is another set under the class Generalities, from 01 to 09, as follows:

- 01 Bibliography and Bibliographies. Catalogues'
- 02 Librarianship
- 03 Encyclopaedias, General Reference Works
- 04 Collections... Pamphlets. Lectures Papezssw
- 05 Serial Publications. Periodicals
- 06 Organisations... Associations.Congresses Exhibitions. Museums
- 07 Newspapers Journalism. The Press



- 08 Polygraphies. Collective Woks
- 09 Manuscripts. Rare and Remarkable Works..., etc.

The generalities 01 to 09 may be confused with the common auxiliaries of form discussed in the next sub-section more particularly in the case of 01 Bibliographies, 03 Encyclopaedias and 05 Serial publications. What is to be remembered is that while generalities are used as independent numbers, common auxiliaries of form are always used in conjunction with class numbers and they are enclosed in parentheses. Thus:

- 030.1 Encyclopaedia Britannica (*simple number*)
- 02(031) Encyclopaedia of librarianship (*common auxiliary*)

Having seen the class Generalities, we will now turn our attention back to theoretical classes.

Theoretical classes: We have seen that UDC divides the whole of human knowledge into ten broad 'classes, I - 9. These are known as theoretical classes. Each of these theoretical classes is further divided to form ten narrower classes as follows;

Let us take 5 **Mathematics and Natural Sciences** and see how it is divided.

- 50 Generalities about the Pure Sciences
- 51 Mathematics
- 52 Astronomy. Astrophysics. Space Research Geodesy
- 53 Physics
- 54 Chemistry. Mineralogical Sciences
- 55 Earth Science. Geology Mineralogy, etc.
- 56 Palaeontology
- 57 Biological Sciences in General
- 58 Botany
- 59 Zoology

Since 50-59 is logical subdivisions of the broad class 5, they retain the initial 5. The UDC notation here deviates from the DDC principle of three-digit minimum. In the first of the lists, the numbers are of only one digit (0-9), while in the second they are each of two digits (50-59). You will, thus, notice that with decreasing extension, and therefore with increasing intension, the number gets longer. Any of the above two-digit numbers can be further subdivided to get ten classes, each denoted by a three-digit number. The editors of UDC International Medium Edition call this "numeric hierarchy reflecting the conceptual hierarchy". In short, the length of the -number is indicative of the degree of detail. It can be seen by dividing 53 Physics from the above list.

- 531 General Mechanics of Solid and Rigid Bodies
- 532 Fluid Mechanics in General Mechanics of Liquids
- 533 Mechanics of Gases. Aeromechanics. Plasma Physics
- 534 Vibrations. Acoustics
- 535 Optics
- 535.1 Theory of light
 - .2 Propagation and energetics of radiation. Photometry
 - .3 Propagation Reflection. Refraction. Absorption. Emission
 - .4 Interference. Diffraction. Scattering by diffraction
 - .5 Polarisation. Double refraction. Dispersion in anisotropic bodies
 - .6 Colours and their properties. Colour theory
 - 535.62 Composition of colours..., etc.
 - .64 Colour systems..., etc.
 - .643 Trichromatic systems
 - .1 Physiological chromaticity systems
 - .2 Standard chromaticity systems
- 536 Heat. Thermodynamics
- 537 Electricity. Magnetism. Electromagnetism
- 5389 Physics of Condensed Matter
- 539 Physical Nature of Matter



We can see for ourselves how, in the above example, numeric hierarchy reflects the conceptual hierarchy. Each broader class is divided into ten narrower classes by adding a digit and, similarly, each narrower class is divided into still narrower classes the same way until no further subdivisions are possible. By shortlisting our example the two hierarchies – numeric and conceptual – will be self-evident. Thus:

- 5 Natural Sciences
- 53 Physics
- 535 Optics
- 535.6 Colours and their properties. Colour theory
- 535.64 Colour systems..., etc.
- 535-643 Trichromatic systems
- 535.643.2 Standard chromaticity systems

We moved down the numeric hierarchy from 5 (the broadest class) to 535.643.2 (the narrowest class) by adding one digit at a time in all. Similarly, with every division, we moved down the conceptual hierarchy from natural sciences to standard dichromatic system studied in optics under physics, a natural science, from the class of greatest extension to the class of highest intension. You will do well to remember here that the digit added to a class to derive ten, or in some cases fewer subdivisions represents a characteristic which is the basis of division.

In a hierarchy, each class that gets divided is called superordinate. Its subdivisions are coordinate among themselves. They are, however, subordinate to the class from which they are derived.

The main tables of UDC, as stated earlier, represent its enumeration character. We can now study its synthetic character as reflected in its auxiliary tables.

Self Check Exercise

1) State briefly in what respects UDC differs from DDC.

- Note:** i) Write your answer in the space given below
 ii) Check your answer with the answers given at the end of this Unit.

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12.3.2 Auxiliary Tables

UDC has developed two kinds of auxiliaries: common and special. These auxiliaries considered UDC's most innovative and influential feature. It is with the help of these auxiliary notations that compound numbers are constructed. A compound number is always constructed by synthesising elements from more than one place in the tables. For examples, we saw two numbers in our discussion on the class, Generalities. They are:

- 030.1 Encyclopaedia Britannica
- 02(031) Encyclopaedia of librarianship

The 030.1 is a simple number taken from one place from the Generalities table, whereas 02(031) is a compound number, as the two elements 02 librarianship and (031) encyclopedia are taken from separate tables, viz, Generalities and common auxiliaries. This second number represents synthesis.

The common auxiliaries denote, in the words of the editors, generally recurrent characteristics, meaning that they are features common to all subjects. The special auxiliaries denote locally recurrent characteristic, meaning peculiar to certain subjects only. We will first see the common auxiliaries and then see the special auxiliaries.



12.3.3 Common Auxiliaries

For the common auxiliaries there are two kinds of symbols: signs and sub-divisions.

Signs: Signs are relators indicating the relationship between the two numbers brought together to form a compound concept. These signs are:

- + . Plus meaning and 622+669 Mining and metallurgy
Stroke meaning from ...to ... (7/8) North and Central America and *South America* Colon meaning reversible relation -
17:7 Ethics 'in relation to art
or 7:17 Art in relation to ethics
- :: Double Colon meaning irreversible relation 77.044:: 355 War photography. Since it is irreversible, it cannot be 355::77.044
- [] Square brackets meaning subgrouping as understood in algebra [622+669] .(485) Mining and metallurgy in Sweden

These signs are then relators that link UDC numbers. They are not by themselves numbers. They, therefore, cannot be subdivided. The plus sign connects related but nonconsecutive numbers, as in the above example of 622 (Mining) and 669 (Metallurgy). The stroke connects consecutive numbers, e.g., (7) and (8) (North and Central America, and South America). Therefore, 6431645 Would mean 643+644+645. The colon indicates the relationship between two coordinate classes, as in 17:7 where the meaning does not change even if the order of the classes in it is reversed. The square brackets are an algebraic sub-grouping device to denote, a complex subject formed by two or more main numbers with a plus sign or colon. This, as a whole, is related to another subject by a colon, or modified by a common or special auxiliary.

[622+669] (485) Mining and metallurgy in Sweden. (mining and metallurgy taken as a whole and modified by a common auxiliary of place Sweden)

[622+669] (485):31 Statistics of mining and metallurgy in Sweden.

31:[622+669] (485) (mining and metallurgy taken as a whole and related to another subject -statistics)

The double colon fixes the order of the components in a compound subject. Thus, 77.044::355 War photography, where 77.044 is news photography and 355 is war, can only be placed under news photography, and not under war. So, the number is not reversible.

Auxiliary sub-divisions: The common auxiliary sub-divisions are 'given as numeric tables. They are hierarchically enumerated. Though they resemble the main tables, they are distinguished by their own symbols. These symbols are prefixed to the number, or they enclose the number. These common auxiliaries are features recurring in all or most subjects. They are listed only once in the scheme in order that they may be taken out and attached where they are required.. The common auxiliary subdivisions, thus, facilitate synthesis and create mnemonics. *The symbols* that are associated with them can be taken as facet indicators, e.g., parenthesis indicating the 'space facet and quotation marks revealing the time facet.

There are two groups of the common auxiliary sub-divisions: the independent and the dependent auxiliary tables. Both are affixed to any UDC number where appropriate. However, the independent auxiliary subdivisions may additionally be used on their own to form the whole class number for a document. These independent common auxiliary sub-divisions are:

as independent		as dependent	
language =	=30 German language	622=30	documents in German about mining.
form (0...)	(043.2)54 Theses in chemistry with other theses.	54(043.2)	Theses in chemistry kept along with other chemistry books
place (1/9)	(73)339.5.053 USA, trade balance (area studies).	339.5.053(73)	economics
race (=...)	(=97)39 North American folklore (under race).	39(=97)	folklore
time "..."	"18"785.7 19th Century chamber music (under century).	785.7"18"	music



The dependent common auxiliary subdivisions are:

- point of view .00 622 mining and .002.5 production, plant, machinery equipment. Hence, 622.002.5 is plant machinery equipment in mining.
- material -03 applicable through most of the main tables, e.g., 62-03 is materials in engineering.
- persons -05 294.3 is Buddhism. Hence, 294.3-05 is Buddhists.

12.3.4 Special Auxiliaries

Unlike common auxiliaries, special auxiliaries are not listed at one place in UDC as they are locally recurrent characteristics, meaning they do not have extensive applicability. Special auxiliaries are listed at various places in the tables and express the concepts that are applicable within the subject under which they are so listed. Most special auxiliaries are enumerative. There is only one synthesising sign, which is apostrophe ('). Since special auxiliaries are applicable only where they are indicated, the same notation may be used elsewhere with a different meaning attached to it. The special auxiliaries are suffixed to main numbers and, as such, cannot be *used as* independent numbers.

Instructions on the applicability of special auxiliaries are provided in the tables wherever they are applicable. For example, in 62 Engineering, we come across the following instruction:

The special auxiliaries -1/-9 listed here under 62 are applicable throughout 62/69 except where otherwise indicated.

There are three kinds of notations used in special auxiliaries. They are:

The hyphen series: -1/-9 serving to indicate elements, components, properties and other details of the subject denoted by the main number to which they apply, For example, the series 62-1/-9, applicable throughout 62/69, denotes engineering and mechanical details.

The point-nought series: .01/.09 denoting aspect studies, activities, processes, operations, plant and equipment. For example, 3.07/.8 means authorities and personnel in authorities.

The apostrophe series : `1/9. Unlike the hyphen and point-nought series, these are synthetic and integrative in function and denote compound subjects. They are at places fully listed, but elsewhere are derived through the UDC's device of parallel division. For example,

' 329.17'23'12 Nationalist-Republican-Liberal parties (synthesis of 329.17, 329.23 acid 329.12)

Special auxiliaries may be used singly, or in combination with other auxiliaries:

- 329.052 Opposition parties and
- 320.053.52 Opposition splinter parties

Self Check Exercise

3) Distinguish between the main tables and auxiliary tables and between the common auxiliary and special auxiliaries.

Note: i) Write your answer in the space given below

ii) Check your answer with the answers given at the end of this Unit.

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12.3.5 Parallel Division

There is another device in UDC, which is similar to special auxiliaries, and particularly to add-to instructions in DDC. It consists in the use of the same notation to denote a given concept in more than one place. It is called parallel division, signalled in the tables by the sub-divide sign as. This sign indicates that the number preceding it has to be divided as the number following it. This will result in an analogous array with the same concepts expressed by the same sequence of digits. For example:

<p>611.21/.26 Respiratory system under anatomy 611.21 Nose, sinus .22 Larynx (voice box) .23 Trachea (wind pipe) .24 Lungs .25 Pleurae .26 Diaphragm</p>	≡	<p>616.21/.26 Respiratory system under pathology 616.21 Nose, sinus .22 Larynx (voice box) .23 Trachea (wind pipe) .24 Lungs .25 Pleurae .26 Diaphragm</p>
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In this case, the subdivisions of 616 are the source numbers from which digits have been taken and added to the target numbers under 611 expressing- the same concepts. The device of parallel division is a mnemonic feature of UDC.

12.4 NOTATION

you already know that notation is a code representing the concepts in a classification scheme and generally expressing their order.

The UDC notation consists of the following sets of symbols:

- i The ten Indo-Arabic numerals: 0, 1 to 9.
- ii The Roman alphabets both capital and lower case.
- iii Punctuation marks like point, semi-colon, colon and inverted commas.
- iv Mathematical signs: the plus and the equals.
- v Besides these, it includes parentheses, square brackets, the stroke and the apostrophe.

This, then, is the complete system of symbols used in UDC as its notation. The numerals are used to divide the whole of human knowledge into ten broad classes each of which has been further divided to form ten theoretical classes and so on, as shown in Section 12.3 Nature and Structure. Roman letters are used in such places where the subject can be better identified by their use, for example, in the class Literature. The punctuation marks and mathematical signs are used as connecting symbols to build compound numbers by adding to the base numbers *from the auxiliary* tables. The numbers carry ordinal value and not arithmetical value, meaning they are decimal fractions and not integers. This facilitates division of a class at any point in the order without disturbing it. The other qualities of UDC notation are explained in the following sub-sections.

12.4.1 Hospitality

Because the UDC notation consists of numbers, which are taken as decimal fractions, it can accommodate emerging new ideas, where appropriate, ad infinitum. This is so in the case of not only main numbers but auxiliaries as well. The notation is, thus, Mispitable and capable of reaching the required level of detail. 'Since it is hierarchic, moving from the general to the particular, it expresses the order of classes. Take the following example;

6	Technology
62	Engineering
621	Mechanical Engineering... Electric* Engineering. Machinery
611.3	Electrical engineering
621.39	Telecommunication. Telecontrol
621.396	Radiocommunication apparatus and methods (Radio).
621.396.7.	Radio stations



At any place in this hierarchic chain any new concept can be accommodated without disturbing the order of existing concepts. The division on the basis of decreasing extension clearly expresses the order of classes in the hierarchy.

12.42 Facetisation and Synthesis

The editors of UDC claim that the scheme is faceted. Every recurrent category is a facet and "the best example of facetisation is presented by its tables of common auxiliaries. The UDC's ' on order for facets is flexible to a great extent, as evident from the examples given in our , session on common auxiliaries in sub-section 12.33 (sub-divisions). It also uses a device called intercalation to change, as required, the citation order of facets with a view to create a more helpful sequence (see 12.4.3). The UDC is, therefore, a faceted classification.

It is also a highly synthetic scheme. Ordinarily, every faceted scheme is synthetic in structure. However, in addition to facetisation in the form of common auxiliary subdivisions, UDC also contains a number of other synthetic devices such as:

- 1) The use of signs (+, : , [, ::) to connect two or more numbers, as indicated in sub-section 12.3.3. .
- 2) The use of the apostrophe (') in special auxiliaries (see 12.3.4).
- 3) The facility to combine, in a single number, two special auxiliaries, as seen in sub-section 12.3.4.

In short, if the main tables of UDC display its hierarchical enumerative character, the auxiliary tables represent its faceted and synthetic structure.

12.4.3 Intercalation

You are already aware that the citation order for facets is flexible in UDC.

Intercalation is the use of the auxiliary as an infix. Genenally, an auxiliary is prefixed or suffixed to a main number. In UDC, it can also be infix to interrupt a main number. This, at times, becomes necessary to provide an alternative approach. For example:

622	Mining
622(410)	Mining in Britain
622.333	Mining of coal
622.333(410)	Mining of coal in Britain
622.34	Mining of metal ores
622.34(410)	Mining of metal ores in Britain

In the above arrangement, the books about mining in Britain 'get scattered throughout the class Mining. Ideally, if required, all books on British mining should be brought together. It is possible to bring them together, if the auxiliary number for space in the above case is used as an infix and allowed to interrupt the main number as follows:

622
622(410)
622(410)333
622(410).34

12.4.4 Mnemonics

The common auxiliary sub-divisions and the parallel division are two principal mnemonic devices used in UDC. Both these devices have been discussed in detail in sub-sections 12.3.3. and 12.3.5. Mnemonics results from the use of the same notation representing a given concept wherever that concept occurs in the scheme.

12.4.5 Filing Order

The filing order of UDC symbols is based on a progression from the general to the particular. Thus, a common auxiliary used as an independent number is filed before a main number. This is followed by a compound number having the plus sign or the stroke in it, as it is broader in meaning than a simple number. Next, The simple numbers are filed in the order of increasing length. The length indicates specificity(due to an auxiliary) or particularity (dud to hierarchical division). The filing order of UDC notation is given on page xi of the International Medium Edition -- English Text (BS 1000M: 1985) which is reproduced here.



Table: Filling Order

	Symbol	Example
Independent Auxiliaries	=	= 30 German language
	(0...)	(0.035.22) Microfilmed documents
	(1/9)	(430) Germany
	(=...)	(=1.410) British nationals
	"..."	"18" Nineteenth century
Auxiliaries as Suffixes	+	622.341.1+669.1 Iron-ore mining and ferrous metallurgy
	/	622.341.1/2 Mining of iron ores and manganese ores
	simple number	622.341.1 Iron-ore mining
	:	622.341.1:338.124.4 Economic crises in iron-ore mining (may be reversed to form 338.124.4:622.341.1)
	::	622.341.1::338.124.4 Economic crises in iron-ore mining (may not be reversed)
	=	622.341.1=30 Documents in German about iron-ore mining
	(0...)	622.341.1(0.035.22) Microfilmed documents about iron-ore mining
	(1/9)	622.341.1(430) Iron-ore mining in Germany
	(=...)	622.341.1(=1.366) Iron-ore mining among the ancient British
	"..."	622.341.1"18" Iron-ore mining in the nineteenth century
	*	622.341.1*Fe ₂ O ₃ Mining of red haematite (Fe ₂ O ₃)
	A/Z	622.341.1GOE Named iron ores: Goethite
	.00	622.341.1.002.67 By-products of iron-ore mining
	-0	622.341.1-057.2 Manual workers in iron-ore mining
	-1/-9	622.341.1-78 Protective devices and measures in iron-ore mining
.0	622.341.1.03 Geological character of iron-ore deposits	
,	622.341.1'17 Waste, residues from iron-ore mining	
Next simple number	622.341.11 Magnetite—haematite ores	

12.4.6 Evaluation

The UDC notation is hospitable and expressive. It is basically enumerative, moving from the general to the particular, and contains synthetic devices. As a result, the numbers are at times very long. A scheme that attempts to attain the required degree of detail for bibliographic purposes and computerisation is bound to produce long numbers with a host of symbols. The notation has achieved the necessary specificity and particularity, but, in the process, has become clumsy. The common auxiliary subdivisions and parallel division lend a mnemonic character to IM notation, and, Above all, the device of intercalation brings flexibility in facet order to make it versatile.

Self Check Exercise

4) Write a paragraph on the qualities evident in the UDC notation

Note: i) Write your answer in the space given below

ii) Check your answer with the answers given at the end of this Unit.

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12.5 ALPHABETICAL SUBJECT INDEX

Part 2 of IME is the Alphabetical Subject Index published in 1988. The entries in the index reflect the terminology used in the schedules. In most cases qualifiers have not been added under each term indicating the context in which the term is used. To tide over this problem some index entries consist of a term' followed by several class numbers. For example 'Axes' is indexed and unqualified to five numbers 581.44, 621.968, 622.231, 631.342, 672.719. To understand the context in which these. five class numbers are used, one has to refer to the schedules.

The index does not fully indicate the context of the terms listed. But it does indicate the range of possible locations for a particular concept. The arrangement of entries in the index is word-by-word. The users of *the* index are advised not to classify a document solely on the basis of index but to verify the class number in the schedules. Here is a sample entry from the index:

Lighters 629.123.15, 662.58
cigar and cigarette 662.592
electric 662.593
flint .662392
pocket 662.59 -
using solar heat 662.591

12.6 PROVISION FOR FUTURE EXPANSION

As we have seen, the UDC notation-is decimal and can accommodate emerging new concepts wherever necessary, In addition to this in-built provision, UDC has resorted to what is called gap device. These gaps in the notation are meant for incommoding a large number of subdivisions and are left where future expansion is envisaged. We find the following vacant numbers in the notation:

142 - 159.8	in Philosophy and Psychology
365 – 367	in social welfare
375	in Education
4	the class philology transferred to 8 Literature
538.1 -- 538.8	in Physics
544 – 545	in Chemistry

This is how UDC has provided for future expansion.

12.7 MAINTENANCE OF UDC

The responsibility for the maintenance and updating of UDC lies with the International Federation for Information and Documentation (FID). The FID works in conjunction with national organisations having consultative arrangements with users of the scheme. It is the Classification *Sector of FID that maintains the Master Version of UDC* incorporating all approved amendments. The scheme is periodically revised. The amendments proposed by users through their national agencies are circulated as P-Notes to subscribers. After they become acceptable - they could as well be enlarged, abridged or withdrawn - they are published in UDC's annual periodical Extensions, and Corrections to C. It is the responsibility of user libraries to carry out the amendments appearing in this periodical to ensure uptodateness. Proposals for amendments are welcome from all *users of UDC*.

12.8 MERITSAND-DEMERITS OF UDC

Although UDC has certain drawbacks inherited from DDC, it certainly has more merits to its credit. Since its beginning, attempts have been made to adapt the scheme to universal needs in pursuance of its initial objective of establishing and maintaining a universal bibliography. It is worth while to understand the merits of UDC.



- Since UDC is a general scheme of classification, it covers the whole field of human knowledge. The process of dividing a class into ten subclasses is carried to the required degree of specificity. The required degree of detail is achieved with the help of common and special auxiliaries. The resultant subject description is of utmost precision.
- Its notation consists of numerals and signs, which are understood internationally. The decimal notation allows maximum hospitality for the admission of new terms.
- The UDC is an analytico-synthetic classification • because of the use of an auxiliary apparatus of connection.
- It is extremely flexible, i.e., adjustments to local needs can be made with relative ease. This is because the citation order in any given class often allows several alternative treatments (intercalation and reversible relation).
- It is ideally suited to special libraries, as its full edition contains subject schedules of minute description. Special subject editions are also 'separately available. The medium edition can take care of almost all subjects.
- It forms a carefully organised and comprehensive vocabulary of *terms (in its index)* for indexing and retrieval. It may be used as a thesaurus.
- It is amenable to computerisation.
- The users are able to participate in its revision.

As against the above, it also has certain drawbacks. They are:

- The notation often tends to be long and appears *clumsy*. As a result, its use on the shelves becomes difficult.;
- User participation in revision has created unevenness in the scheme at places. It also delays revision of schedules until they become out of date.
- The revision involves publication of several different editions and their different language versions for which RD finds its funds inadequate.

However, the merits of UDC easily outweigh the demerits in it.

Self Check Exercise

5) You are required to recommend UDC for use in your library. What reasons would you give to justify your recommendation?

Note: i) Write your answer in the space given below

ii) Check your answer with the answers given at the end of this Unit.

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12.9 PRACTICAL WORK IN UPC

You have already come across, in this Unit, several simple and some complex examples of number building in UDC. Here are some more complex examples:



- Importance of weather forecasting for agricultural farming in arid zones.**
- | | |
|---------------------|---------------------|
| Weather forecasting | 551.509 |
| Agriculture/farming | 631 |
| Arid zones | (213.52) |
| Synthesised number | 551.509:631(213.52) |
- 2 A directory of research libraries in India.**
- | | |
|--------------------|--------------------|
| Research libraries | 027.021 |
| Directory | (058) |
| India | (540) |
| Synthesised number | 027.021(058) (540) |
- Machine readable cataloguing in the USA.**
- | | |
|--------------------|------------------|
| Cataloguing | 025.3 |
| Machine readable | (0.034) |
| The USA | (73) |
| Synthesised number | 025.3(0.034)(73) |
- 4 Canning of fruit jams in Arunachal Pradesh**
- | | |
|--------------------|-----------------------------|
| Fruit jams | 664.83.858 |
| Canning | .036.52 |
| Arunachal Pradesh | (541 ARU) |
| Synthesised number | 664.83.858.036.52 (541 ARU) |
- 5 Sale of milk powder in the developing countries.**
- | | |
|----------------------|-----------------------|
| Milk powder | 637.143 |
| Sale | 658.81 |
| Developing countries | (1-773) |
| Synthesised number | 637.143:658.81(1-773) |
- 6 Production of colour television in India.**
- | | |
|--------------------|------------------------|
| Colour television | 621.397.132 |
| Production | 002.2 |
| India | (540) |
| Synthesised number | 621.397.132.002.2(540) |
- 7 Soviet economic aid to India, an analysis and evaluation.**
- | | |
|----------------------|---|
| Law | 34 |
| International law | 341 |
| Economic aid | 341.232.3 |
| Russia | (47) |
| Economic development | 330.34 |
| India | (540) |
| Evaluation | 001.818 |
| Synthesised number | 341. 232. 3(47): 330. 34(540): 001. 818 |
- 8 Vigyan Pragati (a popular science magazine in Hindi)**
- | | |
|--------------------|-----------------------|
| Science | 5 |
| Hindi | =914.3 |
| Magazine | (051) |
| India | (540) |
| Synthesised number | 5 (051) (540) = 914.3 |
- 9 UDC International medium edition — English text.**
- | | |
|--------------------------|--------------|
| Librarianship | 02 |
| Administrative procedure | 025 |
| Decimal Classification | 025.45 |
| UDC | 025.45UDC |
| English text | =20 |
| Synthesised number | 025.45UDC=20 |



10	World armament and disarmament : Facts and figures — SIPRI Yearbook 1986	
	International law	341
	Peaceful settlement of international disputes	341.6
	Disarmament	341.67
	Armament	623.4
	Yearbook	(058)
	World	(100)
	1986	“1986”
	Synthesised number	341.67:623.4(058)(100)“1986” or 623.4:341.67(058)(100)“1986”

12.10 SUMMARY

UDC, as claimed by its editors, is an analytico-synthetic- classification with the added advantage of flexibility in the citation order for facets. This flexibility, in citation order is due to the provision of devices of intercalation and reversible relation. The UDC- includes two kinds of tables: main and auxiliary. While the former represent its enumerative character, the latter lend it its analytico-synthetic character. The degree of detail achieved by UDC through hierarchical enumeration in the main tables and through facetisation with the help of auxiliaries makes it a truly bibliographic classification.

Its notation is hospitable, expressive and highly synthetic. It also contains several mnemonic -devices. The UDC is an international effort and caters to universal needs. It is at once suitable 'for general and special collections.

Although UDC originates from DDC and inherits some of its drawbacks, its merits easily , outweigh them. Hence it has become popular with science libraries throughout the world.

12.11 ANSWERS TO SELF CHECK EXERCISES

- 1) UDC was originally adopted for establishing and maintaining the Universal Bibliographic Repertory, an international bibliography. UDC is an international, and not national, effort to meet universal needs. It is used in over 1,00,000 libraries spread all over the world. It is available in 23 major languages of the world and is used in seven national bibliographies.
- 2) UDC was derived from DDC and, in many respects, both are identical, for example hierarchic enumeration. However, UDC is different from DDC in many respects. Besides common auxiliaries, UDC has also developed special auxiliaries. Because of several connective devices it has become synthetic to a very great extent. UDC has also identified several relations between subjects. It has established mechanisms to vary the order of facets, e.g., independent auxiliaries, reversible relation and intercalation. UDC has a higher capability with regard to specificity because of facetisation in it. This is how UDC is different from DDC.
- 3) The main tables of UDC contain subject classification. Each main table represents a theoretical class divided to derive hierarchic sub-divisions. These hierarchic tables move from the general to the particular. The main tables represent the enumerative aspect of UDC. As against this, the auxiliary tables ,display the synthetic character of UDC. They do not contain' subject classification. They contain, on the other hand, the recurrent characteristics of subject treatment in documents. Some of these recurrent characteristics are general and are applicable to all subjects. They are known as common auxiliaries while some other recurrent characteristics are special, meaning applicable only to certain subjects. 'These are special auxiliaries. The common auxiliaries are generally recurrent, while the special auxiliaries are locally recurrent.
- 4) The UDC notation is decimal and, therefore, highly hospitable. The main tables representing subject classification contain decimal numbers that can be expanded at any place to attain particularity. Because the division of classes is based on hierarchic enumeration, the notation is expressive. It is capable of displaying numeric hierarchy. The notation contains a number of synthetic devices and is capable of allowing alternative approaches. Besides, it has the



Much desired mnemonic features. The UDC notation is simple, but not brief. It is, however, amenable to computerisation.

- 5) The following reasons can be put across to justify the adoption of UDC.
- UDC is not just a library classification. It is a bibliographic classification in the real sense of the term.
 - UDC is truly universal with provision for user participation.
 - Its notation is easily understandable, hospitable and highly synthetic. It can provide alternative approaches. Both particularity and specificity are possible with it. It is amenable to computerisation also.
 - While UDC's Medium Edition can take care of all subjects, its subject editions can fulfill the needs of special collections.
 - Its index can be used as a thesaurus for indexing and retrieval of information.

12.12 KEY WORDS

Algebraic in Subgrouping	:Subgrouping as done in algebra. A subgrouping takes place in a classification when, with the help of some marks, two or more elements in a complex number are enclosed to form a single compound element, as in [622+669].
Citation Order	The order in which facets are cited in a number.
Conceptual Hierarchy	The division of a generic concept into a chain of subordinate concepts, e.g., classification to decimal classification to UDC, (see also Numeric Hierarchy).
Dependent Auxiliary	:A common auxiliary in UDC so called because it can appear only in conjunction with a main number, e.g., point of view materials, persons (see also Independent Auxiliary).
Generally Recurrent	: Features common to all subjects, e.g., form, language, etc. Common auxiliaries listed only once (see also Locally Recurrent).
Independent Auxiliary	: A common auxiliary in UDC that may be used as a class number also. For example, it is possible to build a collection of area studies by starting the number with the relevant space number. Here, the space facet is an independent auxiliary (see also Dependent Auxiliary).
Infix	An element or a number that interrupts another number, e.g., 622 is mining and 333 is coal so that 622:333 is coal mining. This number can be interrupted by infixing (410). Thus, in 622(410):333, (410) is an infix.
Intercalation	The device that facilitates infixing explained under Infix above.
Irreversible Relation	The relation that cannot be reversed. The relation that does not allow permutation of the concepts in a compound number (see also Reversible Relation).
Locally Recurrent	Features special to certain subjects only and not applicable to all, e.g., personnel in industry and the like. They are listed where applicable in the scheme (see also Generally Recurrent).
Numeric Hierarchy	The hierarchy expressible numerically. The quality possessed by an expressive notation, e.g., 6, 62, 621, etc. Technology to Engineering to Mechanical; Electrical Engineering (see also Conceptual Hierarchy).
Parallel Division	When the same set of concepts appears at two places, or under two classes, in a classification, these concepts are listed only once and reference is made to them from the other place where they are to be represented in a similar fashion. These two divisions under two classes are parallel to each other.



Particularity	: The capability of a classification to reach the indivisible particular is known as particularity achieved through hierarchic enumeration (see also Specificity).
Reversible relation	: The relation that can be reversed. The-two elements in a compound number in a classification can be permuted or rotated if the relation between them is reversible (see also Irreversible Relation).
Specificity	: Akin to particularity: If particularity is achieved through enumeration, specificity is achieved through synthesis. The capability of a classification to represent all elements in a subject (see also Particularity).
Supplementary Classification	:An aspect classification (e.g., DDC, UDC) distributes a subject on the basis of its aspects. Its alphabetical index, however, brings together under the subject term all these aspects. This phenomenon is known as supplementary classification.
Thesaurus	:A structured list of terms usually pertaining to a narrower subject area. The list also displays, -besides interrelation- ships, preferences among terms. Each thesaurus forms an indexing language relevant to a given field (see also Vocabulary Control).
Vocabulary Control	:The function a thesaurus performs. A thesaurus contains a number of devices for controlling the variety in language. The resulting language is a controlled vocabulary (see also Thesaurus).

12.13 REFERENCES AND FURTHER READING

UDC International Medium Edition English Text (BS 1000M: 1985) Part I: Systematic Tables, 1985. Part II: Alphabetical Subject Index (1988). London: British Standards Institution.

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