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Technical Processing of University Library: A Theoretical Study

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Abtract: Technical services operations comprise of ordering, claiming and receipt of materials, cataloging and classification of materials; and serials control. Beside these, other technical services operations contain circulation, documents, foreign language and special collections, and bibliographic instruction in technical services areas. This leads me to believe that the distinction between technical services and public or reader services in individual libraries is based on custom and tradition arising out of incidental circumstances, rather than on fundamental principle. In this article, I tried to provide some basic aspect regarding technical processing which help in maintaining the library bitterly. In this article, I include basic aspect of acquisition, classification, cataloguing and information retrieval. Beside this I tried to focus on library management software which is most important for technical processing now a day.

***Keywords:** Technical Processing, Acquisition, Classification, Cataloguing, Information Retrieval, Library Management Software.*

1. Introduction

Technical services operations comprise of ordering, claiming and receipt of materials, cataloging and classification of materials; and serials control. Beside these, other technical services operations contain circulation, documents, foreign language and special collections, and bibliographic instruction in technical services areas. This leads me to believe that the distinction between technical services and public or reader services in individual libraries is based on custom and tradition arising out of incidental circumstances, rather than on fundamental principle. We cannot deny that automation play a vital role for future technical processing. ICT has made it possible for libraries to access the huge databases of large libraries in developed countries for the purpose of adopting their bibliographic data for their own library and the online catalogues have changed the scenery of cataloguing and classification.

Step of Technical processing are as follows:

i)Selection: systematic process of choosing materials relevant to a library or information center

ii)Acquisition: the specific activities of "procuring items and paying the publishing companies that produce the items".

iii)Cataloging: process of adding specific information about library items to the library catalog (OPAC) to make items accessible to patrons Classification: provides call number, subject headings and shelf location

Processing: preparing materials for use

2. Collection Development of Library

Technical works of a library associate with that task which bringing material to the library and making them ready for the user. Collection development includes identification, selection, acquisition, organization of collection. Library collection development is a process of acquiring of library materials of many formats such as books, periodicals and other media. Sometimes it is called collection building where librarian going to build up of existing collection. Collection development is a programmed guided by written policies which is contract between library user and staff.

The processes of Collection Development include:

- Formulation of selection criteria.
- Panning for resource sharing (i.e., cooperative decision-making within library consortia or with other libraries).
- Planning for new collections or collection areas.
- Replacement of lost or damaged items.
- Routine selection and de-selection decisions.
- Evaluating options for access.

2.1. Objectives of Collection Development

i)   Selecting best and useful documents according to needs of all socio economic backgrounds of all ages.

ii)   Providing better and new information according to the needs of readers

iii)   Periodic reviewing to valuable and old documents for withdrawal into stock.

iv)   Spending money only on valuable reading materials

2.2. Book Selection Procedure

Selection procedure of library materials varies from library to library due to the different need of each library. Book selection of smaller libraries will be done by simply drawing up a list of books for purchase once a year whereas in bigger libraries, books selection is a continuous process. Before purchasing library materials in the library, the librarian should take the suggestions for purchase of books in the following ways:

i)Suggestions of the Heads of departments(in case of Academic and Special Libraries)

ii)Suggestions of the members of the Library committee.

iii)Suggestions of the library staff.

iv) Suggestions from the faculty staffs.

v) Suggestions of the readers.

All suggestions are collected together for preparing book selection card under various head and acknowledgment letters send to the person who has made suggestions. All the necessary bibliographical details are filled in by consulting the book selection tools. The librarian should check the holdings of the library and budget should take into account.

The selection of documents, following factors should be considered-

i)Library: Objectives and goal of library, Size of library.

ii)User : Need, demand, requirement of user and number of user should be considered.

iii)Budget: Budget allocation for procurement of books/journals.

2.3. Source use to select the books

Sources used to select the books are as follows-

i)   Publishers catalogue

ii)   Trade periodicals

iii)   National Bibliography

iv)   Citation Analysis Tools

v)   Electronic Resources

vi)   Syllabus of courses in the parent organization

vii)   Library user recommendation

2.4. Principle of Book Selection

The selection of document or book is the prime importance of all types of libraries. Selection of documents is varying from library to library. The financial resources, the readers, their reading needs are factors to be considered while selecting the library documents. Librarians are enunciated different principle while selecting library document. Some of principles are as follows-

2.4.1. Drury's Principles: Drury's principles the selection of reading material for a library was enunciated in 1930. He states that "to provide the right book to the right reader at the right time". In his principle, the reader is the central character. It has made relationship between the readers and their requirements. The selector should select only that material which caters to the information, educational and recreational needs of the readers. The selected material should be procured expeditiously to be made available to the user when he needs it. The selection of documents has made on the basis of knowing the requirement of reader and their documents.

2.4.2. Dewey's Principle: Melvil Dewey's states that "the best reading for the largest number at the least cost". According to this principle the selector select the documents which may satisfy the information requirements of maximum number of user within the library budget.

2.4.3. McColvin's Principles: L.R McColvin introduced his demand and supply theory of book Selection in 1925. He states that "books in themselves are nothing. They have no more meaning than the white paper upon which they are printed, until they are made serviceable by demand. The more closely book selection is related to demand, the greater is the resultant and possible service". This theory advocates the selection of only those documents which are demanded by the users for their informational needs.

2.4.4. Ranganathan's Principles: According to Dr. S.R. Ranganathan, documents fall under three categories such as documents which are primary interest to the users; documents which may be required at one time or other to supplement the basic documents and documents which are of no significance to the primary area of work. The library should make comprehensive collection of primary documents, selective acquisition of supplement documents and depend on libraries for satisfying needs for user.

2.5. Collection Development E-Resources

Electronic resources are those resources which accessible through computer. E-Resources are comprised of e-books, e-journals, e-audio/video resources.

Collection development policy of e-resources: When a library is going to subscribe e-resources, the librarian should be look after following criteria-

i) **Technical feasibility:** It includes availability, authentication, hardware/ software capability, storage and maintenance and platforms which facilitate access e-resources.

ii) **Functionality and reliability:** It includes search/retrieval functionality, downloading, sorting/ranking ability to database, reliability and availability.

iii) **Support of Vendor:** It includes purchase models, pricing models, access options, achieving, maintenance fees and cancellation rights.

iv) **Licensing:** It includes standard license, liability to unauthorized use, refunds, period of agreement etc.

2.6. Methods of Collection Development

Libraries acquire materials through a mix of methods available for the purpose

a) Purchase order,

b) Membership,

c) Exchange Arrangement,

d) Gifts, and

e) Deposit System.

2.6.1. Purchase order: Purchase from publishers or their agents is the major part of the acquisition in library. The library may select titles of local or foreign publishers and that books bring to the library by local book sellers. The library may place order to send books to library on the basis of availability of books.

2.6.2. Membership: Libraries receive publications through making membership of some organizations such as research organizations, academic bodies and professional associations. The membership to these organizations may be free or it may require payment of an annual fee. An important thing is that the publications of these organizations are not available in open market. As a part of membership, the publication of these organizations is send to the library. Sometimes, libraries acquired publication in term of exchanged agreement where two agreeing bodies exchange publications irrespective of value of publications.

2.6.3. Exchange Arrangement: Libraries get materials under exchange arrangement with other organization. Formula of exchange agreement is-

Value of publication exchange = Value of publication received

2.6.4. Gifts: Library acquired publications through gift. Eminent personalities, eminent scholars, some organizations etc, gift their collection to the library.

2.6.5. Deposit System: Some organizations acquired publications through deposit system. Some organization libraries are selected for depository library of government publication**.** E.g. Jawaharlal Nehru University Library is a depository library for United Nations Publication.

3. Classification

The word classification has been derived from the Latin term classes'. It is system in which resources are arranged according to the subject.

According to Margaret Mann, Classification helps to arrange things as per their likeness and unlikeness, it is a method used in sorting or grouping of things.

According to Sayers, Library Classification is the arrangement of books in a manner which is the most useful to readers

According to New Encyclopedia Britannica, Classification is an arrangement adopted by libraries to facilitate its clientele to find documents quickly and easily

From the above definitions, it can be said that that classification is a conscious and designed approach to arrange documents in a most systematic manner having permanent sequence with easy access and retrieval.

It cannot said to be wrong that whole library structure exists and depends upon library classification. Library professionals are classifying documents by using different tools and classification scheme. Mostly used classification scheme are Dewy Decimal Classification Scheme, Universal Decimal Classification and Colon Classification.

3.1. Need of Library Classification

Classification scheme play a vital role in the library. The need and importance of library classification are discussed below-

3.1.1. Helpful Sequence: The foremost purpose of any library classification scheme is to make a helpful sequence of all the subject material acquired by a library so that same could be used by users of library in most suitable way without wasting much time in searching the documents.

3.1.2. Systematic arrangement: Library Classification helps in accommodate all the newly published literature in systematic way where a document on its return with the help of classification attains the same position and the same place among the already created sequence of documents.

3.1.3. Easy Retrieval: Classification help in arrangement of books on the shelves of library is more systematic way than manual. So, it facilitated easy retrieval of documents from huge collection of library.

3.1.4. Maximum use of library documents: Library Classification helps in maximum use of library documents by arrangement of documents to most favorable way of user.

3.1.5. Help in library professionals: Library classification helps a library professional in discharging their duties more efficiently.

3.1.6. Fulfill the basic philosophy of library science: Classification helps in fulfill the basic philosophy of library science which is advocated by the father of library science S. R. Ranganathan in the form of five laws of library science

3.2. The Advantages of Library Classification

Library classification helps in finding documents very easily without waste of time. .Without the library classification, a user cannot find his/her required very easily without library classification. The advantages of library classification in organizing the knowledge and information are as follows-

3.2.1. Security: Classification helps to build a security system with use of application like RFID.

3.2.2. Stock verification: Classification help in stock verification of documents in reliable way by use the application of IT.

3.2.3. Charging and discharging: charging and discharging of books become very easy with the help of classification.

3.2.4. Weeding out: Weeding out of documents has become more easy

3.2.5. Arrangement of books: Classification helps in arrangement of books in library specific, comprehensive and expeditious manner.

3.3. Component of library Classification

Library classification comprise of various components. The components of library classification are as follows-

3.3.1.Book numbers :Book number is a mechanism to sub arrange documents in a library having the same class number. Mostly two systems are popular for book numbering such as namely alphabetical by author and chronological by the year of publication. For Alphabetical system mostly Cutter tables are used whereas chronological method was invented by W.S. Biscoe but preferred by S. R. Ranganathan.

3.3.2. Call number: Call number is alphanumeric code that uniquely identifies and indicates the location of an item in a library's collection. Some libraries use Library of Congress Classification in which the call number begins with letters and some other libraries use Dewey decimal classification in which the call number begins with numerals.

3.3.3. Auxiliaries: Auxiliaries are two types such as common auxiliaries and special auxiliaries. Common auxiliaries are those auxiliaries which are universally applicable to all classes for subject and document specification. Special auxiliary clearly specified the range of numbers. Special auxiliaries are recognized by sidelining the numbers. Common auxiliaries are subdivisions commonly applicable to the class numbers in the main schedules. Their name is varying form classification scheme to classification scheme. In the CC common auxiliaries are known as common isolates and in the DDC these are known as standard subdivisions.

3.3.4. Generalia class: Generalia documents which cover topics across many subjects e.g. a news paper cover everything under the sky. A Library Classification provided place to such subjects. In the DDC, the Division 010-090 is set aside for such documents.

3.3.5.Index: Index is referred to a alphabetical key used in all the requisites and concepts in the schedules and auxiliary tables along with their class numbers. A good index is not only comprised of an alphabetical approach but also presents a supplementary or alternative structure of knowledge.

3.3.6. Literary forms: Literary forms such as Poetry, Fiction, Essays are read for aesthetic pleasure rather than subject.

3.3.7. Literary warrant: Literary warrant a term introduced in 1910 by Wyndham E Hulme. It means that a scheme of library classification should be based on the published literature and

should not include those classes on which there is no published literature. The Library of Congress Classification is the best example of a system based on literary warrant.

3.3.8. Main class: It is a conventional area of knowledge which gives context to a topic from a specialization aspect of the field. The main classes are postulated conveniences to control the universe of knowledge by forming the first array of the division of knowledge in classification.

3.3.9. Notation: Notation is used to library classification to signify classes and their subdivisions and their auxiliary aspects by a series of symbols. Notation helps the classified arrangement of subjects by using symbols to translate subjects and their subdivisions into ordinal numbers.

3.3.10. Notes: Notes helps in guide to explanations, suggestions or instructions appended to an entry in the classification schedules or auxiliary tables which needed the classifier in clear interpretation of the entry for uniformity and consistency in application of the system.

3.3.11.Schedules: Schedule is a printed or an electronic databases which comprise of series of list of subjects and their subdivisions arranged in a systematic way usually general to specific order with unique notation for each entry. It is called main tables in UDC.

3.3.12. Semantic relations: Semantic relation means relation between library classifications and other controlled vocabularies which are mostly controlled by hierarchical relations. In short, it is the relations among classes in arrays or in chains

3.3.13. Syntactic relations: It is citation order of components in a composite subject which are mostly determined by the rational principle of dependency of facets. PMEST is the model for such relation.

3.4. Types of Classification Scheme: Different types of classification are as follows-

3.4.1. Enumerative Classification Schemes: An enumerative Library classification scheme is a scheme where all the possible classes are enumerated according to certain distinctiveness. It has a top down approach whereby a series of subordinate classes are produced where both simple and complex subjects are listed. The structure of the scheme is shown by the notation. In enumerative classification, users can easily find the coordinate and subordinate classes and can make a map of the subject. It required frequent revisions because is difficult to accommodate new subjects. It sometimes displays hierarchical structures of notation. In enumerative

classification all the possible subjects and topics are scheduled along with a predefined class number. E.g. Dewey decimal classification, Library of Congress.
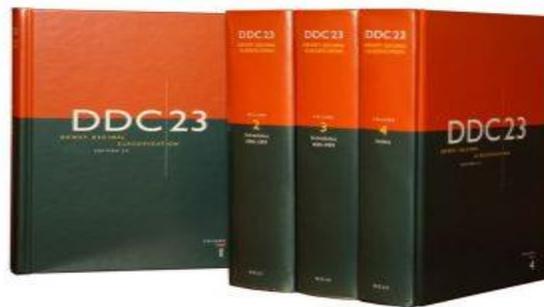

Fig 4.1: Screenshot of DDC

Source:(https://www.google.co.in/search?q=ddc+23rd+edition+image&source=lnms&tbm=isch&sa=X ved=0ahUKEwiy19yEm6PcAhUYT48KHf9QBTgQ_AUICigB&biw=1366&bih=634#imgrc=gGWcFVf epvzsUM:)

3.4.1.1. Dewey Decimal Classification: DDC is most widely used classification scheme in libraries.DDC is a general knowledge organization tool which is continuously revised to keep pace with knowledge. The system was conceived by Melvil Dewey in 1873 and was first published in 1876. It is published by OCLC (Online Computer Library Center). DDC share dewey numbers through a variety of means such as WorldCat, the OCLC. The DDC has been translated into more than 30 languages.

The system is developed and maintained in a national bibliographic agency, the Library of Congress. The Dewey editorial office is located in the Decimal Classification Division of the Library of Congress. The editors prepare proposed schedule revisions and expansions and forward the proposals to the Dewey Decimal Classification Editorial Policy Committee (EPC) for review and recommended action.

The EPC (Editorial Policy Committee) is a ten-member international board whose main function is to give advice the editors and OCLC on matters relating to changes, innovations and the general development of the Classification. Its members come from national, public, special and academic libraries and represent the interest of DDC users.

a) Editions of DDC: DDC is published in full and abridged editions in both forms such as print and electronic versions. The abridged edition based on logical truncation of the notational and structural hierarchy of the corresponding full edition. The electronic versions of Web Dewey are

updated frequently and contain additional index entries. Selected new numbers and changes to the DDC are posted monthly on Dewey website.

The editions of DDC are as follows-

Edition	Year of Publication	Number of Volume	Total Pages	Editors
1st edition	1876	1	44	Melvil Dewey
2nd edition	1885	1	314	Melvil Dewey & W.S. Biscoe
3rd edition	1888	1	416	Melvil Dewey & W.S. Biscoe
4th edition	1891	1	466	E. May Seymour
5th edition	1894	1	467	E. May Seymour
6th edition	1899	1	511	E. May Seymour
7th edition	1911	1	792	E. May Seymour
8th edition	1913	1	850	E. May Seymour
9th edition	1915	1	856	E. May Seymour
10th edition	1919	1	940	E. May Seymour
11th edition	1922	1	988	J. Dorkas Fellows

12th edition	1927	1	1243	J. Dorkas Fellows
13th edition	1932	1	1647	J. Dorkas Fellows & M.W. Getchell
14th edition	1942	1	1927	Constantin Mazney & M. W. Getchell
15th edition	1951	1	716	Milton J. Fergusom
15th revised edition	1952	1	927	Godfrey Dewey
16th edition	1958	2	2439	Benjamin A. Custer & D. Haykin
17th edition	1965	2	2153	Benjamin A. Custer & D. Haykin
18th edition	1971	3	2718	Benjamin A. Custer
19th edition	1979	3	3385	Benjamin A. Custer
20th edition	1989	4	3388	Benjamin A. Custer
21st edition	1996	4	4115	J.P. Comaromi

22nd edition	2003	4	4076	J. Mitchell
23rd edition	2011	4		J. Mitchell

b)Web Dewey

It is an online version of Dewey decimal classification. It is maintained by OCLC. It is regular updated and easy to navigate.

The advantages of Web Dewy 2.0 are as follows-

- Access the DDC and related information
- Search or browse DDC numbers, Library of Congress Subject Headings (LCSH), Mapped MeSH and BISAC headings
- Access authority records from links in the Web Dewey records
- Add your own notes and display them in context
  Home page of Web Dewey
- Provide link to the OPAC

Fig 4.2: Home Page of WebDewey

Source: (http://dewey.org/webdewey/login/login.html)

c) Structure and Notation: In the DDC, basic classes are organized by disciplines or fields of study. DDC is divided into ten main classes which cover the entire world of knowledge. Each main class is further divided into ten divisions and each division into ten sections.

The first summary contains the ten main classes. The first digit in each three-digit number represents the main class. E.g. 600 represent technology.

The second summary contains the hundred divisions. The second digit in each three digit number indicates the division. For example, 600 is used for general works on technology, 610 for medicine and health, 620 for engineering and 630 for agriculture.

The third summary contains the thousand sections. The third digit in each three-digit number indicates the section. E.g. 610 is used for general works on medicine and health, 611 for human anatomy, 612 for human physiology and 613 for personal health and safety.

. A decimal point indicates the third digit in a class number after which division by ten continues to the specific degree of classification needed.

The print version of the DDC (Edition 22) is composed of the following major parts in four volumes-

Volume 1

(i)Introduction: Description of the DDC and how to use it

(ii) Glossary: Short definitions of terms used in the DDC

(iii) Index: Index to the glossary

(iv) Manual: a guide to the use of the DDC and how to make the classification

(v) Tables: Six tables of notation that can be added to class numbers to present greater specificity

Volume 2

 (i) Schedules: the organization of knowledge from 000–599

Volume 3

(i) Schedules: the organization of knowledge from 600–999

Volume 4

(i) Relative Index: Relative index is an alphabetical list of subjects with the disciplines \

First Summary of DDC

The Ten Main Classes

000 Computer science, information & general works

100 Philosophy & psychology

200 Religion

300 Social sciences

400 Language

500 Science

600 Technology

700 Arts & recreation

800 Literature

900 History & geography

Second Summary

The Hundred Divisions

000 Computer science, knowledge & systems	100 Philosophy
010 Bibliographies	110 Metaphysics
020 Library & information sciences	120 Epistemology
030 Encyclopedias & books of facts	130 Parapsychology & occultism
040 [Unassigned]	140 Philosophical schools of thought
050 Magazines, journals & serials	150 Psychology
060 Associations, organizations & museums	160 Logic
070 News media, journalism & publishing	170 Ethics
080 Quotations	180 Ancient, medieval & eastern philosophy
090 Manuscripts & rare books	190 Modern western philosophy

200 Religion	300 Social sciences, sociology & anthropology
210 Philosophy & theory of religion	310 Statistics

220 The Bible	320 Political science
230 Christianity & Christian theology	330 Economics
240 Christian practice & observance	340 Law
250 Christian pastoral practice & religious orders	350 Public administration & military science
260 Christian organization, social work & worship	360 Social problems & social services
270 History of Christianity	370 Education
280 Christian denominations	380 Commerce, communications & transportation
290 Other religions	390 Customs, etiquette & folklore

400 Language	**500 Science**
410 Linguistics	510 Mathematics
420 English & Old English languages	520 Astronomy
430 German & related languages	530 Physics
440 French & related languages	540 Chemistry
450 Italian, Romanian & related languages	550 Earth sciences & geology
460 Spanish & Portuguese languages	560 Fossils & prehistoric life
470 Latin & Italic languages	570 Life sciences; biology
480 Classical & modern Greek languages	580 Plants (Botany)
490 Other languages	590 Animals (Zoology)

600 Technology	700 Arts
610 Medicine & health	710 Landscaping & area planning
620 Engineering	720 Architecture
630 Agriculture	730 Sculpture, ceramics & metalwork
640 Home & family management	740 Drawing & decorative arts
650 Management & public relations	750 Painting
660 Chemical engineering	760 Graphic arts
670 Manufacturing	770 Photography & computer art
680 Manufacture for specific uses	780 Music
690 Building & construction	790 Sports, games & entertainment

800 Literature, rhetoric & criticism	900 History
810 American literature in English	910 Geography & travel
820 English & Old English literatures	920 Biography & genealogy
830 German & related literatures	930 History of ancient world (to ca. 499)
840 French & related literatures	940 History of Europe
850 Italian, Romanian & related literatures	950 History of Asia
860 Spanish & Portuguese literatures	960 History of Africa

870 Latin & Italic literatures	970 History of North America
880 Classical & modern Greek literatures	980 History of South America
890 Other literatures	990 History of other areas

3.4.1.2. Library of Congress Classification: It was published in 1876.It is consisting of 21 classes in 29 parts and 45 volumes. Classes of library of congress classification which are available on World Wide Web are as follows-

- A -- GENERAL WORKS
- B -- PHILOSOPHY. PSYCHOLOGY. RELIGION
- C -- AUXILIARY SCIENCES OF HISTORY
- D -- WORLD HISTORY AND HISTORY OF EUROPE, ASIA, AFRICA, AUSTRALIA, NEW ZEALAND, ETC.
- E -- HISTORY OF THE AMERICAS
- F -- HISTORY OF THE AMERICAS
- G -- GEOGRAPHY. ANTHROPOLOGY. RECREATION
- H -- SOCIAL SCIENCES
- J -- POLITICAL SCIENCE
- K -- LAW
- L -- EDUCATION
- M -- MUSIC AND BOOKS ON MUSIC
- N -- FINE ARTS
- P -- LANGUAGE AND LITERATURE
- Q -- SCIENCE
- R -- MEDICINE
- S -- AGRICULTURE
- T -- TECHNOLOGY
- U -- MILITARY SCIENCE
- V -- NAVAL SCIENCE
- Z -- BIBLIOGRAPHY. LIBRARY SCIENCE. INFORMATION RESOURCES (GENERAL)

3.4.2.Analytico-Synthetic Classification Scheme: This scheme is that the subject of a given document will be divided into its constituent elements on which the classification scheme will be used to find notations for each element and combined according to the prescribed rules to prepare the final class number.

This scheme solved the two major problems of enumerative classification schemes such as by providing various tables, specific notational symbols and rules and produce a smaller classification scheme in size. It also provides flexibility to users on building specific numbers Nevertheless.E.g.Universal Decimal Classification.
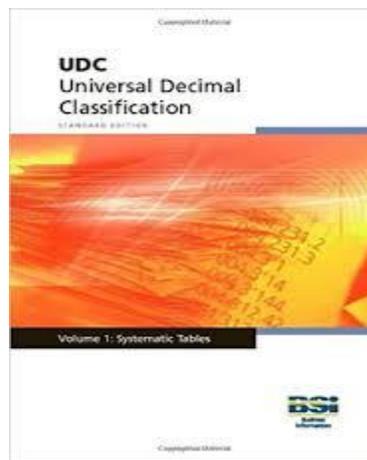

Fig 4.3: UDC

Source:(https://www.google.com/search?q=udc+latest+edition+image&client=firefox-b-ab&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjdhZrum6PcAhVGRY8KHQJnDBUQ_AUI CigB&biw=1366&bih=634#imgrc=npr8P9R6OCeP-M:)

3.4.2.1. Universal Decimal Classification: The UDC was developed by Paul Otlet and Henri La Fontaine in 1895. It is multilingual classification scheme for all fields of knowledge, indexing and retrieval tool. It is a highly flexible classification system.UDC is suitable for systematic organization of collections as well as document browsing and searching. It is used by bibliographic services, documentation centers and libraries in around

The International Federation for Information and Documentation (FID) managed the UDC. The UDCC appoints the UDC editorial team and the UDC advisory board with international membership to look the content of UDC and oversee to its revision.

a)The first UDC editions

Manuel du Repertoire Bibliographique Universel, Brussels: IIB, 1905-1907.

Classification Décimale Universelle, (FID 151), Brussels: IIB, 1927-1933.

Dezimal-Klassifikation (Gesamtausgabe), (FID 196), Berlin: DNA. ,1934-1953.

b)Main Features of UDC

i)It is the first officially multilingual classification published in French, German and English.

ii) Its 1000 sections summary is available in about 50 languages

iii) It lays more emphasis on subject analysis and document specification.

iv) UDC is truly multidimensional scheme.

v) UDC is a flexible in nature which help in accommodate new subjects, and change citation order for flexibility of shelf arrangement and searching.

The main classes of UDC are as follows-

0 Generalities

1 Philosophy. Psychology

2 Religions. Theology

3 Social Sciences

4 [Vacant]

5 Natural Sciences, Mathematics

6 Technologies

7 The arts

8 Languages, Linguistics, Literature

9 Geography, Biography, History

c)Common auxiliary of UDC

Notation	Description
+	Coordination. Addition (plus sign).
/	Consecutive extension
:	Simple relation (colon sign).
::	Order-fixing (double colon sign).
[]	Subgrouping (square brackets).
*	Introduces non-UDC notation (asterisk).
A/Z	Direct alphabetical **specification.**
...	Common auxiliaries of language.
(0...)	Common auxiliaries of form.

(1/9)	Common auxiliaries of place.
(=...)	Common auxiliaries of human ancestry, ethnic grouping and nationality.
"..."	Common auxiliaries of time.
-0...	Common auxiliaries of general characteristics: Properties, Materials, Relations/Processes and Persons
-02	Common auxiliaries of properties.
-03	Common auxiliaries of materials.
-04	Common auxiliaries of relations, processes and operations.
-05	Common auxiliaries of persons and personal characteristics.

d)UDC online

'UDC Online' is web-based of universal decimal classification available on web since 2001. It works with computers and using software.

Salient features of UDC online

- UDC online is an international database.

 -UDC consist of main tables, common auxiliaries and special auxiliaries

 -Provides powerful search and browse.

- Enables to cover new subjects easily.

-Provides search through 'UDC Dictionary'.

-Keeps good control over truncation/stemming.

-Number building boxes are provided for synthesized complex numbers.

-Special auxiliaries are not shown separately.

-Includes a 'Hierarchy Tree'.

-Quicker finding and building of UDC numbers.

3.4.3. Faceted Classification Scheme: Facet classification is a list of the various facets of every subject or main class and provides a set of rules for constructing class numbers through facet analysis. The concept of facet analysis was introduced by Dr. S. R. Ranganathan and was used in his faceted classification scheme called Colon Classification. The basic idea was that facet of a

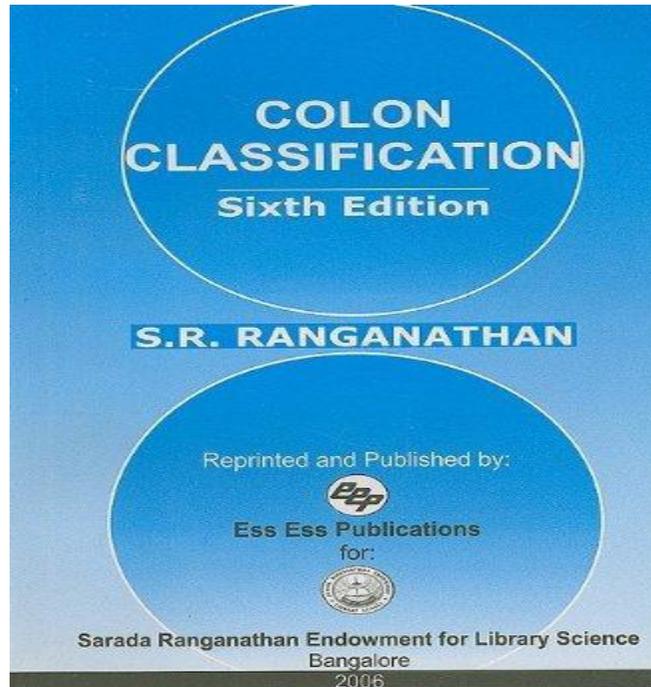subject divided five fundamental categories: Personality, Matter, Energy, Space and Time.E.g Colon Classification

Fig 4.4: Colon Classification

Source:(https://www.google.com/search?q=COLON+CLASSIFICATION+IMAGE&client=firef oxab&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjix5C8nKPcAhXLo48KHT_kCn0Q_AUI CygC&biw=1366&bih=634#imgrc=mBA0Kj_w0EFCiM:)

3.4.3.1. Colon Classification: Mathematician turned librarian Dr. S. R. Ranganathan developed colon classification (CC), from 1924 to 1928 and fist published in 1933. CC initially applied in the Madras University Library. The latest edition published after the death of Ranganathan, was the seventh (1987). In colon classification, he assigned more than one class number to a document, especially those dealing with compound and complex subjects. .

The second edition was published in the year 1937 where he clearly laid down the theory and methods of CC as already published in the Prolegomena to library classification. The third edition of CC was published in 1950. In the fourth edition published in the year 1952 where he was generalized by an intuitive process of abstraction, and named as personality, matter, energy,

space, and time, famously known as PMEST. The fifth edition was published in year 1957 where he projected as two volumes of basic and depth versions, but only the basic version was published. Sixth edition was published in 1960.The sixth edition was amendments in 1963. The Seventh edition was published in 1987 which was edited by his long time research assistant, Professor M.A. Gopinath (1940-2013).

a) Features of CC

The CC is a scheme on which aims to classify by discipline all subjects and all forms of library documents. Ranganathan divided the work into three successive planes such as Idea plane is the message, Verbal is expression; Notational plane is representation.

i)Idea Plane

It is a blue print of the scheme where thinking policy and decision making is executed. Here, subject break into facet and ultimately into isolate arranged systematically into array and chain. An isolate is the smallest unit of knowledge in the CC where a facet is a group of isolates

ii)Verbal Plane

It is a technical term which provide concept to arrange in array and chains in idea plane. It is used to express a classification system free from homonyms and synonyms.

iii)Notation

It is used to represent the complex idea and translate the subject of a document in a language of ordinal digits. Notation in a class number should be brief, simple easy to write, and pronounce.

The notation in CC-7 comprising of 74 symbols and characters (60 semantic and 14 indicator) has been divided into the following six species -

1	A/Z (Roman capitals)	26
2	Δ (Greek delta)	01
3	0/9 Indo-Arabic numerals used decimally	10
4	a/z Roman lower case (i,l,o excluded)	23
5	* " ← Indicator symbols with anteriorising value	03
6	& ' . : ; , - = → + () Ordinary indicator symbols	11 = 74

CC further divides basic subjects into main basic subjects and non-main basic subjects and further divides them into 10 species. On the basis of their modes of formation the following 10 types of basic subjects have been identified (Satija et al. 2014):

b)Main basic subjects

Traditional (Law, Physics)

Newly emerging (Library & Information Science)

Fused (Biotechnology)

 Distilled (Research methodology)

Subject bundles (Ocean sciences)

Agglomerates (Social sciences)

c)Non-main basic subjects

 Canonical classes (Algebra, Geometry)

 System constituents (Marxian economy)

 Environment constituents (Desert farming)

 Special constituents (Gerontology)

      The disciplines are further divided into sub-disciplines, namely:

  B*Z Maths and physical sciences

  G*Z Biosciences

  K*Z Animal sciences

  L*Z Medical sciences

  MZ*Z Humanities and social sciences

  MZ*ZZ Humanities

  S*Z Behavioral sciences

  T*Z Social sciences

      CC has an order of main classes meticulously based on objectively stated principles. An overview of main classes in the CC is as follows:

  A/B Science/Mathematics

  C/D Physics/Engineering

  E/F Chemistry/Chemical technology

  G/H Biology/Geology

I/J Botany/Agriculture

K/L Zoology/Medicine

M Useful arts

Δ Spiritual experience & Mysticism

N/O/P Fine arts/Literature/Language

Q/R Religion/Philosophy

S/T Psychology/Education

U/V Geography/History

W/X Political Science/Economics

Y/Z Sociology/Law

These main classes are in fact preceded by Generalia and Form classes a/z, and newly emerging classes 1/9, e.g.,

a Bibliography

k General encyclopedias

m General periodicals

p Conference proceedings

w Biographies

z Generalia classes

1 Universe of knowledge

2 Library science

3 Book science

4 Mass communications

8 Management sciences

4.4. Cataloguing

Library catalogue has been defined in various ways by various authors. It is called as list books and other reading materials which are arranged in a systematic way. In simple word it is a methodically arranged record of information about the bibliographical arranged record of information about the bibliographical resources of a particular library for the purpose of identification and locating the material. Cataloguing may include manuscripts, incunabula, modern printed books, periodical publications, scores of music, maps, lantern slides, films and

other printed and pictorial material. Main purpose of the library catalogue is to help the reader and staff to find out the desired reading material without loss of time.

4.1. Purpose and functions of Library catalogue

Purpose and functions of the library catalogue in more specific way as follows-

i)   To enable a person to find a book of which either by
  a) Author
  b) Title
  c) Subject

ii)   To show what the library has
  a) By given author
  b) On a given subject
  c) In a given kind of literature

iii)   To assist in choice of a book
  a) Edition
  b) Character

S R Ranganathan has discussed the purpose and functions of library catalogue on the basis of five laws of library science are as follows-

a) To disclose to every reader his or her document.
b) To secure for every document its reader.
c) To save the time of the reader.
d) To save the time of the staff.

Other functions of the library catalogue are as follows-

a) Physical entity of a document can be displayed only at one place on shelf with the help of the classificatory discipline while in catalogue.
b) In closed access library it becomes an requisite tool to get any information about the reading material.
c) The function of catalogue in open access library is that whether book is in the library or out of the library.
d) One may find one author works at one place under his name with the help of catalogue.
e) The catalogue is a necessary tool for book selection particularly for checking duplicate

4.2. Rule of Cataloguing

Cataloguing codes are comprise rules for description of materials and choice of headings and their forms needed in making author, title, etc. It also recorded bibliographic entries of document. Some types of catalogue codes are as follows-

4.2.1. British Museum Cataloguing Rules: It is also known as Panizzis's code. It is used to relate the works of an author so that the user can know all of that author's works, to identify and distinguish different editions, translations, etc., of a given work which is help in not confused with each other and to assemble all of the editions of a work so that a user will have presented with that given publication, all of the editions of the given work represented by it, as well as works related to it.

4.2.2. Jewett's Rules: Charles C. Jewett's code for the catalogue was published in 1852 and consisting of 39 rules. He included the principle of corporate authorship further than Panizzi and entering all corporate bodies directly under their names.

4.2.3. Cutter's Rules: Charles Ammi Cutter published his Rules for a Printed Dictionary Catalogue in 1850. It includes rules for author, title, subject as well as description. Cutter was the first person to advocate corporate body as an author.

4.2.4. ALA Code of 1908: The first international cataloguing code was published in 1908 in both edition an American edition and a British edition which contained 174 rules covering entry and heading for authors, titles and description. Library of Congress supplementary rules were also included in both edition when necessary.

4.2.5. Prussian Instructions: Prussian Instructions, i.e., Instruktionen fur die Alphabetischen catalogue der Prussian Bibliotheken, were published in 1899. Its English translation rendered by A D Osborn was published in 1938 in which arranged grammatical rather than mechanical title. In title entry, first preferred grammatically independent word rather than first word as opposed to Anglo-American practice. The code did not accept the concept of corporate authorship and treated corporate publications as a class of anonymous publications

4.2.6. Vatican Code: Vatican library rules for the catalogue of printed books published in Italian in 1931 and 2nd edition 1939.It covered all aspect of cataloguing by providing for entry, subject heading and description

4.2.7. Classified Catalogue Code: The first edition appeared in 1934 and stopped in 1964(5th edition). The second edition established the symbiotic relationship between classification and cataloging and evolved chain procedure for subject cataloguing. After Cutter's rules and Vatican code, the CCC is the only other code which is complete to cover all the cataloguing procedures and rules for entry, description, subject cataloguing.

4.2.8.ALA Rules (prel 2nd ed, 1941): The second edition of the American edition of the 1908 rules was published by the American Library Association in 1941 and contained 324 rules in two parts such as Part I- entry and heading; Part II-Description of book.

4.2.9. Library of Congress Descriptive Rules: A rule for Descriptive Cataloging in the Library of Congress was published in 1949. It included rules adopted by library of congress like rules for separately published monographs, serials, and some non-book materials.

4.2.10. ALA Rules (2nd definitive edition, 1949):A.L.A. Cataloging Rules for author and title entries were published in 1949 for being criticized the earlier edition. It concluded rule for entry and heading.

4.2.10.1. AACR 1(1967): It is revision of 1949 code. Two versions of the Anglo-American Cataloguing Rules (AACR) were published in 1967 in a North American text (having 226 rules) and a British text (having 216 rules). It was prepared by the ALA, The Library of Congress, the Library Association (London) & the Canadian library Association. AACR-1 includes rules for author/title main entry headings, added entry headings and references, uniform titles for title and author entry, description,

4.2.10.2. AACR 2 (1978): AACR2 is a widely used standard for resource description and access used in around the globe. The Anglo-American Cataloguing Rules, Second edition (AACR2) was published in 1978. It was divided into two parts Part I based on the ISBD (G) framework in which included a general chapter and chapters for individual formats, including new chapters for machine-readable data files, the rules for non-book materials were based on alternative codes .Part II included entry and heading.

4.2.10.3. AACR 2, 1988 revised: AACR-2 was revised in 1988 and 2002. These revised editions are known as AACR-2R 2nd edition, 1988 revision and 2nd edition, 2002 revision respectively. The 2002 revision included significant changes to sections for non-book materials.

4.2.11.RDA: AACR-2R has been succeeded by Resource Description & Access (RDA) which is introduced in 2010. It is suitable for digital environment which provides guidelines on cataloguing digital resources and emphasis on helping users to find, identify, select and obtain the information they need.

4.3. Structure of Catalogue

Catalogued entry consists of eight sections. The sections are as follows-

    a)Call Number Section.

    b)Heading Section

    c)Title and Imprint Section

    d)Physical Description and Series Note.

    e)Note Section

    f)International Standard Book Number

    g)Accession Number

    h) Tracing

    The sections are illustrated as follows-

Main Entry

Call Number Section	Heading	Section

Acc. No.	…………	Title and imprint section…………………………… …………………………………………………………. Physical description and Series Section Notes Section ISBN Tracing

Details of each are discussed bellow-

i)Call Number: Call number consist of class number and book number.

ii)Heading section: The name of the author, title etc is recorded in heading section. In case of personal author, the heading comprises the surname followed by a comma and the forename. When the book is entered under title it beings from the first indention and continuation from the second indention. It is called hanging indention.

iii)Title with Imprint Section: This section includes information about the title, subtitle, parallel title, general material designation responsibility area, edition statement, collaborate statement and the imprint.

iv)Physical Description and Series Note: It also called collation in cataloguing terminology. Physical description of a document includes the number of volumes, pages, illustrative matter and the size. The preliminary pages are recorded on roman small and text pages in Indo-Arabic numerals followed by p. and page number is followed by a full stop and a colon. Lastly, the height of the book in centimeter is recorded and size is preceded by a semicolon. Section included the information about the series of the book.

v) Note Section: Note area contained further description of multivolume, composite book.

vi) International Standard Book Number: International Standard Book Number (ISBN) is a thirteen digit unique International Publisher's Identifier number which replaces the handling of long bibliographic descriptive records.

vii) Accession Number: It is unique number provided to new documents of the library as entered in the catalogue.

viii)Tracing: Tracing is a recorded of the subject heading collected from the Sears List of Subject Headings or any other standard list of subject headings and numbering in Indo-Arabic numeral such as 1,2 etc. It also recorded other entries i.e. joint author, collaborator, title etc numbered in capital roman numerals.

4.4. Subject Heading List of Catalogue

A subject heading in a cataloging is used to find the information by user on a particular topic Subject heading lists are used to provide constancy in the terms used to illustrate the subjects or topics covered by the materials in the library.

Types of subject heading are as follows-

4.4.1. Library of Congress Subject Headings (LCSH): List of Subject Headings use in dictionary Catalogs (A.L.A. list) published in 1895. It was developed and maintained by the U.S. Library of Congress LCSH is controlled vocabulary used for indexing, cataloging, and searching for bibliographic records in library catalogs and electronic databases has become a *de facto* standard for libraries. LCSH is updated daily in Classification Web.

4.4.2. Sears List of Subject Headings (SLSH): It was first published by Minnie Earl Sears in 1923 and served as a standard authority list for subject cataloging in small and medium-sized libraries. It provided a basic list of essential headings with patterns and guided to the cataloger in making further headings. It is available in both version such as print publication and online database. It is divided into topical subdivision, geographical subdivision, chronological subdivision etc.

The important features of Sears List of Subject Heading are as follows-

i) Heading are used generally in their plural forms e.g. used mice not mouse.

ii) Adjectival form precedes subject in the headings for literature class. For other subject the place or country succeeds the subject. E.g. Painting, Indian, Education.

iii) Provision for using see and see also references to link related subjects. E.g.

Head

    x Skull

    xx Brain

5. Information Retrieval

Information retrieval is a system on which documents or records containing information that have been organized in an order suitable for easy retrieval. It should provide the right information to the right user.

Information retrieval system is categorized into in-house information retrieval system and online information retrieval system. In house information retrieval system use to retrieve the information within the library. E.g. -Library catalogue. Online information retrieval system use to access the remote database.

The advantages of information retrieval system are as follows-

i)To retrieve from large amount of documents.

ii) To allow more flexible matching operations. For example, it is impractical to perform the query Romans NEAR countrymen with grep, where NEAR might be defined as "within 5 words" or "within the same sentence".

iii) To allow ranked retrieval on which anyone find to an information need among many documents that contain certain words.

5.1. Tool used for find the library documents: Tools used for find the library documents are as follows-

5.1.1. OPAC (Online Public Access Catalogue): The library's catalogue of books and other reading material can be accessed through library intranet and Internet (OPAC). The library catalogue is searched by author, title, publisher, keyword and year of publication.

5.1.2. Web OPAC: A Web OPAC is a library catalog on the Web or Internet. Users can search the required information by connecting to Uniform Resource Locator (URL) of Web OPAC anytime during the day and from anywhere in the world.

Fig 4.5: Web OPAC

Source: (http://124.124.221.8:81/opac/Welcome.aspx)

5.2. Tools Used for Information Retrieval

Traditional information retrieval system shows evolution of information retrieval system and their root in digital information retrieval system. Information retrieval tools and methods consist of classification, cataloguing, and vocabulary control as well as the traditional manual indexing systems.

5.2.1. Classification: Classification used to arrange the books systematically according to the subject which help the user to find the books easily.

5.2.2. Cataloguing: Catalogue used to organize the library materials systematically and to make for easy retrieval of information materials.

To enable a person find a book by:

•Author

•Title

•Subject

To show what the library has:

•By a given author

•On a given subject

•In a given literature

To assist in the choice of a book

•By edition

•By character

5.2.3. List of Subject Heading: List of subject heading used to gather all the topic of particular collection under one designated term library catalogue which help easy retrieval of a particular topic by the user.

5.2.3. Indexing Technique: It is used to relation between semantic terms**.** So user can retrieve the relationship term on the basis of query.

5.2.4.Bar Code: Barcodes are readable self contained machine identification labels with information encoded in a series of black bars and white spaces of varying widths that represent digits, and other punctuation symbols which are readable only by a scanner. It is used in library to achieve accuracy, time saving of users, to reduce overall cost, to make stock verification an easy process and to improve operational efficiency.

6. Library Management Software

Library management software used to carried out acquisition, cataloguing, serial control etc. of the library. E.g. SOUL and Koha

6.1. SOUL: Software for University Library (SOUL) is integrated library management software developed by INFLIBNET. First version of SOUL 1.0 released in 2000.Latest version (SOUL 2.0) released in 2009.

Main features of SOUL are as follows-

-UNICODE based multilingual support for Indian and foreign languages

-Compliant to International Standards such as MARC21, AACR-2, MARCXML

-Supports multi-platform for bibliographic database such as My SQL, MS-SQL or any other RDBMS

Modules of SOUL are as follows-

i)Acquisition

•Suggestions management;

•Order processing, cancellation and reminders;

•Receipt, Payment and budgetary control;

•Master files such as currency, vendors, publishers etc.; and

•Report

ii)Catalogue

- Data entry of different resources.

- Facilitates authority database of person name, corporate body, subject headings and series name.

- MARC 21 format

iii)Circulation

Membership;

Transaction;

Inter-library loan;

Overdue charges;

Reminder;

Search status;

Maintenance of the items such as binding, lost, replace, missing, withdrawal, etc.

iv)On-line Public Access Catalogue (OPAC)

Major functions of module are as follows-

Simple Search;

Boolean Search;

Advanced Boolean Search;

Displaying and downloading of records in MS Excel, PDF or MARCXML; and

Search support for the items that are in the acquisition process in the library

v)Serial Control

Functions of serial control are as follows-

Suggestions;

Master databases;

Subscriptions

Check-in of individual issues of journals

Payment, reminder, binding, and title history

Article indexing of journal/book articles

Cataloguing of electronic journals

vi)Administration

Functions of administration are-

Grouping of users based on the policy;

Transaction level security to users;

Various configuration settings such as labels, e-mail and other parameters related to software.

6.2. Koha

Koha is a open source integrated library system. Koha is created by Katipo Communications for the Horowhenua Library Trust and initially realized in 2000. It is written in perl language.

Koha Modules Include

- Administration
- OPAC
- Cataloguing
- Circulation
- Serials
- Acquisitions
- Patron

7. Summing Up

We come to know that technical processing is vital part of a library. I have been discussed various aspects of acquisition, classification, cataloguing and information retrieval. Technical processing is working as cycle in the library i.e. from acquisition to information retrieval. Advancement of science and technology, acquisition process is turn from traditional system to automated system. Now a day, technical processing of the library is done through library management software. LIS professional must tract with new development of technical aspect of the library.

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