

**MAJOR CLASS DIVISIONS OF TECHNOLOGY IN LIBRARY OF CONGRESS  
SCHEMES USE BY MAJOR TERTIARY INSTITUTION LIBRARIES IN NIGERIA – AN ANALYSIS**

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**Abstract**

*The study focuses on the Technology/Engineering field, specifically Technology class of Library of Congress, United States. It is important for a researcher, Technologist, Engineer, Librarian, subject specialist, and other library customers that have interest in the discipline of Technology to know the technology division as the Library of Congress craftily simplified the fields of knowledge. Hence, the main objectives are – to enlighten the technologists/engineers, to increase patronage, to stimulate the initiating body of possible review to make knowledge more accessible to the Library customers. Some suggestions proffered are: the need to make use of library compulsory in all higher institutions. Secondly, the need for the library personnel to reach the Colleges/Departments for collaborations in teaching and academic supports. It is very imperative that Colleges, Faculties and Departments liaise to work together.*

**Keywords:** Technology, Library, Library of Congress, Knowledge, Institutions

**Introduction**

Technology is everyone business, as it affects everyone. It is a vast field of knowledge that encompasses many disciplines such as: Chemical engineering, Mechanical engineering, Computer engineering, Agricultural engineering, Mechatronics, Railway engineering, Civil engineering, Mineral resources engineering. Ekere (2010) stated that, Technology stands for a branch of Knowledge that deals with Industrial arts, example – Engineering, Agriculture, Medicine, including traditional inventiveness. It is further explained – Technology is a body of knowledge about techniques. The word “technique” is from a Greek word. Technic means arts, skills, methods, procedures, etcetera.

Library of Congress is perhaps one of the best library in term of collections, and other resources such as Library of Congress Subject headings and Library of Congress Schedule of Subject fields such as Civil engineering, Mathematics, Physics. Adigun (2013) stated, Library of Congress Classification scheme, was planned to be a practical classification in the library of Congress. It is an enumerative classification scheme whose numerous separate schedules of subjects are based entirely on the subject groupings of the collection of books and other information resources in the Library.

Thus, according to Tillett (2012) class T, Technology, was a series of subclasses prepared between 1903 and 1907. The first edition of class T as a whole was published in 1910, serially in 1922, 1937, 1948, 1971 now each year in order to make new edition comprehensive. On the other hand tertiary institutions are the higher institutions of learning that undertake courses such as diplomas, degrees, masters and other relevant postgraduate and undergraduate courses. There are different types in Nigeria. Besides the conventional tertiary institutions such as Ahmadu Bello University Zaria, Nigeria, there are professionals tertiary institutions such as Federal University of Technology Minna,

Federal Polytechnic of Forestry Afaka, Kaduna state, Nigeria, University of Agriculture, College of Health Technology, etc.

In order for them to perform better and discharge the responsibility of training the various categories of students they need libraries in order to get the necessary support for education/teaching, study, research and development. As of today more tertiary institutions both public and private are spread in length and breadth of Nigeria, however there are challenges with the libraries such as lack of patronage cause by manifold of reasons like ignorance of the library customers such as Technology teachers/lecturers, instructors and students that is, ignorance of the Technology (T) schedule of Library of Congress as used in these libraries. This paper main objective is to enlighten these groups of library customers in order to utilize the libraries effectively and ignite accessibility. TungChamma (2025) asserted, access to information should not depend on luck; but should also be supported by availability and knowledge on how to get one's needs. AI can help you to know more about T class and how to recognise and access technology information resources. It is however, better to know it first yourself then you can use AI platform to improve.

#### **Objective**

- i. To enlighten the Technologists/Engineers ii. To make policy makers more aware iii. To increase Patronage and access iv. To stimulate the initiating body/owner of the copyright of possible more reviews to make knowledge more affordable and accessible
- v. To make information retrieval more accurate and timely

#### **Libraries**

Libraries are institutions that acquire information resources, manage them and make them available for library customers to access them for their various needs. With the development as seen today libraries are basically categorised into three, namely physical (conventional libraries) libraries, digital libraries (e – libraries) and hybrid libraries. The conventional libraries are the physical libraries we have with its building, books, journals, magazines, dvds, etc managed by professionals, also library customers are allowed to enter, read, inquire, discuss, register as members, among others. Secondly, digital libraries came as result of development in information and communication technology (ICT). The development brought about new trends in Library and Information science and services. Henceforth, the birth of digital or electronic libraries which are 24/7 and the libraries utilise computers and related instruments and facilities to upload, download and create web pages. This also enables the library customers and the library personnel to access databases of the library anywhere and anytime.

According to Harit (2017) libraries are the repositories of knowledge and therefore, form an integral part of education. The definition emphasises the function of libraries as repositories of knowledge that is, custodians, managers, planners, directors, coordinators, among others that is why they have to take front seats in paving the path to effective information retrieval for the library customers. Supportive function of libraries in academic and research libraries means that their customers need to know how to access the collections (contains) in these libraries without hassle. In the same vein the library personnel should do the necessary things to ensure that shelves are well labeled, doors and gates of libraries are decorated with posters and flyers that will explain the classification classes the library is using in arranging knowledge. Of course, Technologists and Engineers need to know Dewey Decimal Classification scheme (DDC), other classes in Library of Congress such as P – languages, K – Law, Q – science, B – religion.

#### **Academic libraries**

The academic libraries are the tertiary institution of learning libraries. They were established to support the teaching, extra curriculum and research in the institutions; therefore, they are part and parcel of the institutions. As Harit (2017) further opined, Libraries in the educational institutions are concerned with the teaching and learning process, experienced by specific communities, teachers, students and faculty members. Similar view as described by Emokiniovo and Ogunrombi (2012) academic libraries in Universities are established primarily to support the teaching, learning and research activities of their parent institutions. Following the National Universities Commission Policy of bringing library services closer to library customers. These group of customers need enlightenment regularly in order to use the libraries in colleges/faculties, Schools, and Departments professionally.

These libraries generally serve the following functions for the academic communities, namely:

- i. As repositories ii. As information disseminators iii. As consultants – for editing, advice, other management tasks iv. As educators/ reference service providers

v. Support services – accreditation, space for conferences, seminars, workshops, book fares, entrepreneur lectures, training of Library officers, etc.

As repositories libraries are saddled with the responsibilities of keeping the books, journals, maps, dvds, globes standards, bibliographies, etc as supposed. This function is vital as custody of the resources entails systematic arrangement of the information resources in these libraries by the library personnel. Infact, the ability to systematically arrange the library information resources differentiate libraries from the bookstores or bookshops. Repository function of libraries brings about concepts of cataloguing and classification. Cataloguing means describing an information resources and assigning subject to it. On the other hand classification is the technical term for assigning call numbers or classification numbers to and information resources such as – books, journal, magazines, DVDs, maps , etc for easy retrieval and arrangements.

Secondly, as information disseminators/facilitators libraries serve as channels in which information is acquired, managed and allow access to those in needs. Some come to library to inquire, some read newspapers, some come to watch television and educative/documentary films. To some the only function or role of libraries whether the library is national, public, academic, research its primary function is information. Ahmed (2020) stated that, the primary functions of any library are to acquire various information materials (print and non – print) in all aspect of human knowledge and organize them properly for easy and speedy accessibility for use.

Thirdly, as consultants – for editing, advice, management tasks. That is, libraries staff serve as consultants for establishing new libraries, re – organizing existing libraries, advice to researchers, training new librarians and teaching information retrieval strategies, among numerous tasks. They help teachers and students on editing, referencing, bibliographic compilation, cataloguing, indexing, etc.

Fourthly, as educators/ reference service providers. Libraries educate, and discharge reference services to their customers. It is in these libraries whether physical or digital library customers acquire education, teachers/lecturers get teaching materials. Projectors are providers to teach in the libraries. Likewise, other devices are offered by the libraries to enhance education. Libraries attend to customers queries physically and digitally.

Fifthly, Support services – accreditation, space for conferences, seminars, workshops, book fares, entrepreneur lectures, training of Library officers, etc. Libraries are partners to engineers, technologies, doctors, teachers, scientists, businessmen, entrepreneurs, etc.

Academic libraries are arranging their information resources such as books base on organize classification scheme such as Dewey Classification scheme, Library of Congress Classification Scheme, National Library of Medicine Classification Scheme, etc. The arrangement facilitates good arrangement on the shelves and leads to easy access to the information resources.

#### **Library of Congress Classification Scheme**

This classification scheme uses double notations in assigning call numbers or class numbers that is using alphabets and numbers (specifically Arabic numerals). The major letters or alphabets use in this scheme are A, B, C, D, E, G, H,L, M, N, P, Q, R, S, T, U, V, and Z. Of particular interest in this study is the T which stands for Technology. It is further sub divided as T, TA, TC, TE, TD,TF, TG, TH, TL, TK, TS,TP, TX, TT each combination represents a field of knowledge.

The scheme is used by most of tertiary institutions in Nigeria, because of its comprehensiveness and ability to accommodate more and expanding fields of knowledge. The scheme is undergoing changes every year currently we have the 25<sup>th</sup> edition as soon as we entre 2026 new Library of Congress edition may be available offline and online. The pioneering role of the library of providing Online Public Access Catalogues (OPACs) is highly appreciated by most libraries in developing countries including Nigeria.

#### **T Class of Library of Congress**

T as an alphabet or letter is used in the Library of Congress Classification Scheme to represent Technology. That is, the whole field of engineering is under the letter “T”. Thus the breakdown is given below as copied from the Library of Congress website – <http://www.loc.gov>

Thus below is the summary of the sub – divisions of T representing various fields of Technology/Engineering as devised by the Library of Congress experts:

T	Technology (General)
TA	Engineering (General)/ Civil Engineering (General)
TC	Hydraulic Engineering/Ocean Engineering
TD	environmental Technology/Sanitary Engineering
TE	Highway Engineering/Roads and Pavements
TF	Railroad Engineering and Operation
TG	Bridge Engineering
TH	Building Construction
TJ	Mechanical Engineering and Machinery
TK	Electrical Engineering/Electronics and Nuclear Engineering
TL	Motor vehicles/Aeronautics and Astronautics
TN	Mining Engineering/Metallurgy
TP	Chemical Technology
TR	Photography
TS	Manufactures
TT	Handicrafts/Arts and Crafts
TX	Home Economics

Similarly, each of these seventeen (17) divisions of T class are broken into many sub classes to represent one engineering or Technology field. The table below depicts the combinations of subject fields contain in each letter or pair – letters:

Table 1. Combinations of Subject fields of T class of Library of Congress Classification Scheme

S/N	Letter(s)	Key Subject fields
1.	T	Communication of Technical information, Industrial engineering, management engineering, Applied Mathematics, Information technology, Engineering graphics

2.	TA	General engineering, Surveying, Structural engineering	Civil engineering,
3.	TC	Hydraulic engineering – dams, rivers, lakes etc	Ocean engineering -
4.	TD	Environmental technology/ Sanitary engineering - Municipal engineering, environmental protection, water supply, sewage, industrial and factory sanitation, etc	
5.	TE	Highway engineering/Roads and pavements Highway design, roadside development, pavements, etc	
6.	TF	Railroad engineering and operation Railway construction, railway equipment, etc	
7.	TG	Bridge engineering	
8.	TH	Building construction Architectural engineering, buildings, etc	
9.	TJ	Mechanical engineering and machinery Power resources, dynamics, vacuum technology, etc	
10.	TK	Electrical engineering/Electronics and Nuclear engineering Electric apparatus, power plants, electronics, nuclear, etc	
11.	TL	Motor vehicles/aeronautics/Astronautics engineering Motor vehicles, Aeronautics, space travel, etc	
12.	TN	Mining engineering/ Metallurgy Mineral deposits, Metallurgy, etc	
13.	TP	Chemical Technology Chemical engineering, Biotechnology, Gas industry, etc	
14.	TR	Photography Cameras, photographic processing, motion pictures, etc	
15.	TS	Manufactures Production management, wood technology, textiles industries, etc	
16.	TT	Handicrafts, Arts and Crafts Woodworking, leatherwork, Home arts, etc	
17.	TX	Home economics The house, Nutrition, Cookery, Hospitality, Foods, etc	

In the above table (Table 1), it depicts the various subject fields and the letter combinations that represent them. The imperative for this is to enlighten the library customer on how to access a book he intends to read. Likewise, the arrangement on the library shelves are done systematically base on the arrangement as indicated in the table.

When a technologist or an engineer comes to the library he should first consult the catalogue. The catalogue in a physical library may be in card 5\*\*\* by 3\*\*\* or in a book or file, or computer based. In the catalogue he will check the author, the title, or the call number. Immediately he gets the call number he can then go to the reading rooms and look at the book with call number, for example –**TA469. B35** that is the book wrought iron B35 represents authors initial, the other first numbers represent subject – wrought iron.

In the same vein when a technologist or an engineer is online he can still process library resources of any library of his choice by accessing online public access catalogues (OPACs). Like in the physical library the online public access catalogues give access to all what one is looking for. By the moment one is hooked up the OPAC work space he can then type the author of the book he wants to access. Or he can type the call number (class number). Typing for instance, he can check the catalogue through the following access points:

**Subject:** Food

**Author:** Bhanu, T.K. Chandra

**Title:** Food science and technology

**Series:** not available

**Publisher:** Campus books

**Date of publication:** 2020

**ISBN:** 978 – 81 – 8030 – 2312

**Call number:** TX354.B43

**Accession number:** 114158

All of the above access if a library customer uses them can bring out the book for him, but the faster and precise access points are: Author, call number, accession number, title, ISBN.

An engineer or technologist should note that, knowing the combination of T of Library of Congress is significant for his career, research, conference, lecturing/teaching, among others. There are many OPACs available online he needs to visit for his personal development, there he needs the skills and knowledge of T – technology. Furthermore, some libraries like British Library online catalogues, World catalogue (worldcats), and many others are having Dewey Decimal Classification only or combination of the two, that is, Arabic notation base numbers and alphabets.

#### **From the Catalogue to the Reading Rooms**

A technologist or an engineer should know how to go around in the physical library and digital library in order to access the library resources as easy as it will be possible. There is no need for a library customer to entre the library without equipping himself with the knowledge of “T”. The technologists, or engineer should avoid waste of time searching for the library resources. Here are the main tips on how to go searching for a book/journal/magazine/dvd, etc online or offline.

- i. Identify what you are looking for
- ii. Get the details of what you are looking for
- iii. Retrieve what you are looking for
- iv. Use what you are looking for
- v. Manage what you are looking for

The step you will follow using a non digital library is go to the catalogue and determine where you are to start with, that is, this can be done when you have the knowledge of what contains in “T” class.

Look at this catalogue contains as obtained from the Isa Kaita Library Kaduna Polytechnic:

TX354.P73
Prakash, Mayank
Food Science Catering Technology and Kitchen Management/Mayank Prakash – New Delhi: Random Publication, 2020
Viii, 306:ill
Includes bibliographical references and index
ISBN: 978 93 5269 54 23
1. Nutrition 2. Food

Figure 1. Catalogue information of a book

When you identify what you are looking for, you can then go for it and look for it, in a physical catalogue or OPAC available to you. Except for those library customers who go to the library as tourists, otherwise you need to have knowledge of classes in the libraries and identify what you want.

Secondly, get the details of what you are looking for, as given in the above book on Food science. A library customer looking for Food science, Nutrition can appreciate having the book. Also those from Catering department can find the book useful to some extent. Getting the details is by atleast identifying „three access points“ of the book, such as : call number, authors name and title of the book.

Thirdly, go to the reading rooms where the books are arranged professionally and retrieve the book from the shelf. The call number of the book is: **TX354.P73** you will not waste your time going to TT Manufactures or TA Civil engineering. You will use your knowledge to get to the shelf tagged TX – Home economics. Save your time always.

Fourthly, when you retrieve the book the next thing is to utilize it correctly. This knowledge we were taught in GST, Use of library and similar classes. Books, journals, dvds, magazine, etc, of libraries are treasures for the coming generation we should manage them for all to use.

Finally, related to the above, manage what you are looking for, use it, respect it. Do not tear, mutilate or pour water or drinks on it. When you finish leave it on the table the library personnel are paid to replace it professionally to the right class position the book belongs to on the shelves. The library personnel are guided in reshelfing the library resources base on the classification letters like T – technology general, TA – Civil engineering and so on. They follow these arrangements to shelf.

#### **Suggestions**

- i. The need to make Use of Library compulsory in all higher institutions of learning in the country.
- ii. The library personnel to reach the Colleges/Faculties/Schools/departments for collaboration
- iii. The Technologists/Engineers should put more interest in learning how to use libraries for their career developments. There may be time they may be directors that can supervise libraries in their institutions. They may be selected to go for accreditation that involve academic libraries. They may be supervisors that need to guide students of engineering on their projects.

#### **Conclusion**

T class is one of the significant classes of the Library of Congress Subject Schedules. It is entirely on Technology or Engineering. The moment a library customer visits a library online or offline he will see all the engineering books, journals, magazines, dvds, etc are tagged with T,TA, TC, TK, TR, TS, TT, TJ, among others. Each single letter or twins letters represent and entire field of knowledge. You can imagine the large libraries like the library

in your institution is not organized base on recognised class schedules. Imaging Chemistry, Hausa, English, Biology, Mechanical engineering, Civil engineering fields of knowledge mix together to get your Mechanical engineering book may be hectic.

The rational for using T and for learning T is for arrangement and entire management. For the library customers such as, Engineers/Technologists is to ease accessibility and affordability.

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