

EMERGING TECHNOLOGIES FOR AUTOMATED  
INFORMATION SERVICES AND MANAGEMENT (ET)  
TRAINING COURSE  
(October 13, 1997 - January 16, 1998)

Submit by

Dilip Man Sthapit  
TRIBHUVAN UNIVERSITY CENTRAL LIBRARY (TUCL)  
Kirtipur, Kathmandu, NEPAL

Conducted by

INDIAN NATIONAL SCIENTIFIC DOCUMENTATION CENTRE (INSDOC)  
14 Satsang Vihar Marg, New Delhi - 110 067, India

Sponsored by

INTERNATIONAL FEDERATION OF LIBRARY ASSOCIATIONS AND  
INSTITUTIONS/ADVANCEMENT OF LIBRARIANSHIP IN THE THIRD WORLD PROGRAM  
(IFLA/ALP)

## ACKNOWLEDGMENT

I express my sincere thanks to the IFLA/ALP Programme Coordinator, Scholarships and Attachments Ms. DARUNA SOMBOONKUN for sponsoring me to undergo the valuable and useful Three month's training programme at INDIAN NATIONAL SCIENTIFIC DOCUMENTATION CENTRE (INSDOC), New Delhi, India.

I am extremely grateful and thankful to Professor T. VISHWANATHAN, Director, INSDOC for providing me all facilities during the three months training course at INSDOC.

I also express my sincere thanks to Shri Krishna Mani Bhandary, Librarian, Tribhuvan University Central Library for recommending and supporting me for this training course.

My heartfelt gratitude also goes to all the Faculty Members of the INSDOC specially to Shri V. K. Gupta, IFLA/ALP Training Coordinator, who has left no stone unturned to arrange such a valuable training programme in excellent and very systematic manner.

I would be fail in my endeavor, if I forget to convey my thankfulness to all concerned staff who rendered me hospitality to ensure successful completion of the training programme.

Date: January 16, 1998

Dilip Man Sthapit  
IFLA/ALP Trainee from Nepal

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1. **BRIEF INFORMATION ABOUT TRIBHUVAN UNIVERSITY CENTRAL LIBRARY(TUCL) (Participant's Institute):**

Tribhuvan University is a premier university of Nepal. There are four research centres, five technical institutions and more than 65 Collages scattered all over the country. Research centres, institutions and all the Colleges have their own libraries. Tribhuvan University Central Library (TUCL), is the largest library of the Nepal in many aspects. The library has above 200,000 volumes of books, bound periodicals, theses, and United nation's publications. At present the TUCL has approximately 45,000 Sq. Ft. floor area. The TUCL serves 6000 master level students, 3000 faculty members, several administrative staffs of the Tribhuvan University. Government's most departments do not have library. So, TUCL serves government officials, parliamentarians, NGO and the public. TUCL's Nepal Collection Section is the only authentic place for information on Nepal, where a database of more than 15000 records on Nepal is available. All these libraries and other libraries of Nepal are managed manually. A few of them have small database created using CDS/ISIS. Not a single library in Nepal is fully automated because lack of trained manpower and awareness of modern information technology. TUCL having the largest collection of the educational materials in Nepal, is providing important services from its resources to the students, teachers, researchers, staff and other users. However, TUCL is providing services manually, so it is very difficult to the readers to access his or her required information. Apart from that, almost all of the services like issuing and returning books, indexing of the reservation list, etc. are done manually. This is making whole process of the library services slow. Therefore, this type of training courses is essential for automation the library, because without trained manpower, implementation of the automation is not possible. I had gained a lot of knowledge of different modern information technology of the automation at INSDOC, which are useful and helpful for automation as well as computerization of the information (reading materials).

2. **BRIEF INFORMATION ABOUT INDIAN NATIONAL SCIENTIFIC DOCUMENTATION CENTRE (INSDOC) (Host Institute of the training course):**

Indian National Scientific Documentation Centre (INSDOC) is a premier organization in information science, technology, services and systems in India. It is a national laboratory under the Council of Scientific and Industrial Research (CSIR), Government of India for providing information and documentation services both at the national and the international level.

**2.1 Main function of the INSDOC:**

2.11 **Information Resources Management:**

- Electronic Library
- CD-ROM Network
- Over 2000 Electronic Journals

2.12 **Information Technology (IT) based services:**

- Database Design
- Computer Networking
- On line services

2.13 **Library Automation:**

- Total Turn Key Solutions
- Modularized Approach
- Object oriented Design

2.14 **Human Resource Development:**

- Associateship in Information Science
- Short Term Courses
- Attachment Training Programmes

2.15 **Publications:**

- Indian Science Abstract (ISA)
- Annals of Library Science and Documentation
- Directory of Scientific Research Institutions in India.

2.16 **Information Services:**

- Contents Abstracts and Photocopies Service (CAPS): is an innovative personalized information services. A List of over 7,500 core journals in various disciplines have been identified.
- Chemical Abstracts Keywords Index Service (CAKIS): provide a simple keyword's index of all the papers in any of the eight sub-sections of Chemical Abstracts.
- Standing Order Abstracts Services (SOAS): is a personalized Information services for libraries, information centers and individuals.
- Global Tender Watch: has been designed to provide businessmen corporate houses and other's access to international tender information electronically or by fax.
- Translation of S&T Documents: INSDOC provides translation of scientific and technical documents from foreign languages into English and vice-versa to individuals and organization in the country.

2.2 Main Division (Groups) of the INSDOC:

- Data, Computer and Software Group (DCSG)
- Education, Training and Translation Group (ETTG)
- Library, Bibliographic and Bibliometric Group (LBBG)
- Programme Management and Marketing Group (PMMG)

**3. BRIEF SUMMERY ABOUT THE TRAINING:**

The word of information is undergoing rapid change. As the traditional custodians of information, librarians need to be aware of the implications of these change and develop technological and managerial skills which will enable them to make effective use of information and to meet their organizations changing information needs, because information plays vital role in the development of every field, so now a days all person want to abreast themselves from latest information of his/her related fields. In this context nowadays libraries and Information (Documentation) Centers play important role for national development, by providing all types of information. There is a demand to provide such information quickly on demand for which an efficient and accurate device is required. But in many developing countries the status of the library and information profession needs to be strengthened, because many librarians lack confidence to face increasingly sophisticated technology. It is vital however that they may be kept in touch with modern technologies and maintain a active approach to their work in an ever-changing information world. These can be done by continuing education and

training, because without training, awareness and knowledge of the modern information technologies, can not be obtained. So training courses is essential for every person who are engaged in library or Information (Documentation) profession. Therefore IFLA/ALP helps in providing advance training every year by grants scholarships and sponsoring for different types of training programmes.

#### **4. USEFULNESS OF THE TRAINING COURSE:**

This training course is very useful for me to achieve following objectives of my profession.

- To create and design machine readable databases of the reading materials.
- To provide automatic searching facilities to the users.
- To generate bibliographies on several subjects and formats.
- To enable the library to search the international databases to meet the information needs of the users.
- To design and print the different publications of the library, such as library bulletin, Annual Report of the library, Library brochure, library booklets, Accession list of new arrival reading materials, bibliographies, etc.
- To design the slides and transparencies of the different presentation programme, such as library orientation, user education, different training programmes, etc.
- To design and print out the letter, cover page of the different publications, etc.
- To Automate the library function, Library management etc.
- To handle multi-media technologies
- To access the information through the Internet, e-mail, On-line system, etc.
- To manage different library functions

#### **5. DURATION:**

This training courses was conducted in 13th October 1997 to 16th January 1998.

#### **6. INAUGURATION:**

This training course is a attachment type, so this training course was not formally inaugurated by the special guest, only the coordinator of this training course Shri V. K. Gupta gave me information about importance of training course, training procedures, as well as he gave me information regarding the facilities, etc. for the training course.

#### **7. PARTICIPANTS:**

I am (Dilip Man Sthapit, from TUCL, Kathmandu, Nepal is) only one participant of this training course, because another IFLA/ALP selected candidate from Pakistan did not attend.

#### **8. CONTENTS OF THE TRAINING COURSE:**

The various computer packages, Library Automation packages, Bibliometrics, Office Automation, Library Management topics, modern Information Technologies etc. were included in the

training course I have learned and practice following subjects that are very useful for computerization of the reading materials, Database management, Desk Top Publishing, to handle modern information technology and besides this these subjects are very useful for all the aspects of the betterment of library and information services:

## 8.1 WINDOWS

Windows is most powerful and fast software. This is a single user multimaking operating system with a Graphic user interface. This software is like windows and we can open different software in same time like windows of the house, so it is called/known as windows.

In this regard I have learned and gained following knowledge about Windows:

### 8.11 Features of the Windows:

- DOS can run only one software at a time, but in Windows we can run/operate more than one software.
- Lay person also easily handled this software.
- DOS also includes in Windows 95. So no need another separate operating system.
- Easily connect internet, because all devices of the modern technologies are includes in this software.
- Cut and paste is also easy from one programme to another programme.
- This is not an operating system, this is a platform.

### **Under this course I have learned following method:**

- Copy and pasting method
- Knowledge about control Pannel
- Method of Add/remove programme
- Method of Display format
- Method of File management & Knowledge about File Manager
- Method of Task bar setting
- Method of opening different programmes in one time
- Method of find out the help in icons
- Creating method of different folio under programmes.
- Drawing method of a picture in paint brush
- calcutting and inserting method
- Decorating method of desktop with a wall paper
- Changing method of Windows color scheme.

## 8.2 MS OFFICE (OFFICE AUTOMATION)

Under this course I have learned different useful packages that are commonly used in office.

### 8.2.1 Office Automation:

Automation work is used for automatic technical process. According to Webster dictionary Automation is the technique of making an apparatus, a process or a system operates automatically.

## **8.22 MS WORD:**

This is first leg of MS Office and this is the most popular and the greatest word processing programme. MS Word has most of the utilities. So it is an most advanced word processing programme that makes it easy to create, edit, format, etc. for different documents.

In this regard I have learned following knowledge about MS WORD:

- Typing and editing method
- Text formatting method
- Page Designing method
- File Management method
- File saving, & Page setting method
- Graph, Table, Chart, etc. creating method
- Insert method of pictures, objects and drawing diagram
- Create a page with different numbers of column and size of papers.
- Tab setting and Indenting
- Creating method of page number, header, footer
- Font changing method
- Mail Merging method
- Envelopes and Labels creating method

## **8.2.3 MS EXCEL:**

This is helpful in preparing work sheets, creating chart, creating, payroll, etc. In this regard I have learned about following method:

- Chart creating method
- Selecting method of cells and its command
- Worksheet editing method
- Worksheet Formatting method
- Table and graph creating method
- Method of organizing and Analyzing Data in a sheet and Tables
- Solving Problems by Analyzing Data
- Method of exchange data with other programmes, etc.

## **8.2.4 POWER POINT:**

Power Point is especially useful for presentation programme. It is known as the first presentation programme with complete presentation graphic package. It takes the fear out of public speaking. By the help of power point we can quickly create, reverse and deliver 35mm slides, tranperiences, Handouts, as well as direct screen computer presentation, and create speaker support materials. In this context I have gained knowledge about following methods too:

- Installation Method of Power Point
- Run Power Power Point
- Method of On-screen presentation
- Use of Auto Content Wizard
- Method of prev our presentation
- Slides creating method
- Text wrapping method
- Graph and Table adding method
- Colour changing method



### **8.3 DESK TOP PUBLISHING (DTP):**

DTP is a term used for producing quality publication with the help of desk top computer. DTP is very useful for all the types of publication, such as:

- To make and design annual reports.
- Training materials
- Visiting Cards
- Letter head
- Brochure
- Invitation Cards
- To design Books/magazines/newspapers, etc.

#### **8.31 Software of the DTP:**

There are many types software, such as Coral Ventura, Prakashak, Pagemaker, etc. But among them the most commonly used software is Pagemaker.

#### **8.32 Pagemaker:**

Pagemaker is a windows based powerful software in DTP. It is used in designing of different types of publications, adding texts, graphics, designing elements and bringing about quality printing. This software is very easy to learn and perform. Easily transfer or pest data and graphic materials by place tool. Under this course I have learned following methods:

- Tool Box
  - \* Pic tools
  - \* Line draw
  - \* Alphabet (Text)tools
  - \* Image tools
  - \* Roated tools
  - \* Rectangle tools
  - \* Round Circle tools.
- Create a page with different numbers of column and size of papers.
- Using method of Zero point
- Using method of Master page
- Creating method of Page number, Header, footer
- Designing method of letter heads, Brochure, pamphlets, visiting cards, annual reports, etc.
- Inserts of pictures, objects and drawing diagram
- Using method of control palette basics
- Tab setting and Indenting
- Method of to customize text wrap around a graphic.
- Copy and pasting method

## **8.4 CD ROM TECHNOLOGY AND ELECTRONIC PUBLICATION:**

CD ROM (Compact Disk Read Only Memory) is a non magnetic disk, 12 centimeters in diameter, on which up to approximately 650 megabytes of data can be permanently recorded by using a laser beam to burn microscopic pits into the surface; data can be read by using a lower power laser to sense the presence/absence of pits. CD ROM plays main part in modern information technology. Generally information is storage in only one side of CD ROM and CD ROM is free from sector, cylinder, tracks. Highly compression of data also possible in CD ROM as well as Motion picture also save and retrieve in CD ROM. So nowadays CD ROM is an essential part of Information Technology and without CD ROM drive, Computer will be handicapped. In this regard I have learned and gained following knowledge about CD ROM technology:

### **8.41 Why CD ROM are needed:**

- Database management
- CD ROM is light weight
- Data can not be corrupted in CD ROM
- Easily add, use and store graphic and textual data.
- Easily use for multi media.

In this context I got knowledge about searching and printing method of following bibliographic databases on CD ROM.

### **8.42 Science Citation Index (SCI) on CD ROM:**

The SCI, being published since 1963 in printed medium, went into CD ROM medium in 1988. Now, most of its earlier volumes are also available in CD ROM. SCI is a multi disciplinary index of the journal's literature in the field of Science and Technology. In CD ROM based SCI, there are five dictionaries, such as author, title words, address code, journal code and citation code. CD ROM based SCI is very useful for:

- searching of cited author, cited patent
- viewing an article's related records
- searching on a reference cited by another article
- Conduct a single title word/author search
- define search by using the set numbers and logical operators
- search by address/institutions
- examine related records instead of searching for articles that have the same author/title words, find articles that cite the same papers.
- useful for bibliometric studies
- useful tool for compilation of bibliography according to needs.

### **8.43 Parts of the SCI:**

- **Source Index**

- \* Citation Index
- **Permuterm Index**
- \* Subject Index
- **Corporate Index**
- \* Geographical Index
- \* Organization Index
- **Journal Citation Reports (JCR)**

#### **8.4.4 Chemical Abstract (CA) on CD ROM:**

CA is the most comprehensive abstracting services in the world including abstracts from a worldwide list of periodicals published by the American Chemical Society. It started in 1907 in printed medium, Now most of its earlier volumes are available in CD ROM. CA is multi disciplinary abstracts of the journal literature in the field of chemistry. CA has 80 sections on the five main headings/section/parts, i.e.

- Biochemistry Section
- Organic chemistry section
- Macromolecular chemistry section
- Applied chemistry and chemical engineering section
- Physical, inorganic and analytical chemistry section

#### **8.45 CD ROM based CA is useful for:**

- Research and Development
- searching the abstracts according to need and print full text of abstracts
- Preparing bibliographies
- useful for bibliometric studies

#### **8.46 Contents of CA:**

CA content following information of the abstract, which is very useful for library/information centres and scientists:

- Abstracts number
- patent title
- names of inventors/persons/organizations to whom the patent rights are granted
- name of assignee
- patent number
- patent classification
- Date of patent application
- Date of patent publication

- Number of pages
- abstract text

#### **8.4.7 NUCSSI Databases on CD ROM:**

The National Union Catalogue of Scientific Serials in India (NUCSSI) is a record of nearly 35000 titles of serials of the 17th century to date from 99 countries held in more than 800 institutions in India. The novel feature of NUCSSI is that the database is available in CD ROM as well as other machine readable format. This database is published by INSDOC and in the field of S&T information. This database is the first CD ROM database in India. NUCSSI on CD ROM covers holding's information of nearly 400 major libraries in India and is updated till 1996. Distinguished feature of CD ROM based NUCSSI are:

- simple menu driven access
- Cost effective
- easy Search options:
  - 1 Title
  - 2 Current subscribed title
  - 3 Individual library holdings
  - 4 Holdings on subjects
  - 5 Details of participating libraries

#### **8.5 AUTOMATION OF LIBRARY FUNCTION:**

Libraries and information centres are light houses of information(knowledge) on the filed of R&D. The human knowledge is increasing every day at various levels on various subjects. There is a demand to provide such information quickly on demand for which an efficient and accurate devices/tools is introduced, which are based on machine readable format, i.e. mechanized process. The machine process is called automation.

Automation is very much needed for all the library function, such as:

- Acquisition Control
- Circulation Control
- Serials Control
- Technical Processing
- Library management
- To create and provide efficient and accurate service
- To control the rapid growth of information
- Possible to link the system into other existing system

Under this course I have learned following Library Automation Software and Modern technology, and gained knowledge through theory and practical classes:

##### **8.5.1 GRANTHALAYA:**

This is a software package for library or information centre developed and designed by INSDOC. It is a valuable presentation for the modern library/information centre from the expertise of library professionals, documentalists and software engineers who are working in the INSDOC. This GRANTHALAYA package, which is totally modularised conforms international standards and incorporates functionality features to meet the requirements of a modern library. This can be

implemented in libraries of varying sizes and types. In this regard I have gained following knowledge about it:

#### **8.5.1.1 Prominent features:**

GRANTHALAYA has the following prominent features which distinguish it from other library automation packages:

##### **Modularity:**

The package comprises seven modules designed to handle all functions of library.

##### **Object oriented design:**

It offers qualitatively superior and product.

##### **CCF compatibility:**

It adopts Common Communication Format, so it promotes standardisation.

##### **Dictionary concept and data validation:**

Dictionary facility is provided in the package for data elements which are frequently used like publishers, keywords, accompanying materials, etc. and this package has built in data validation checks which enforce the uniqueness of accession number.

##### **Powerful query and search facilities:**

GRANTHALAYA is provided with sophisticated tools for retrieval of information through a variety of search parameters. Multiple keyword's search can be executed using Boolean logic. A user can also quarry information by selecting terms through dictionaries.

##### **Ease of use:**

This package is easy to learn and use. It offers pick lists and help texts at different levels and provide on screen message to help users.

#### **8.5.12 Modules:**

GRANTHALAYA is made up of seven modules each catering to specific functional requirements. The main menu listing the modules and utilities is shown below. Such as:  
Modules:

- 1) Data Administration
- 2) Query
- 3) Circulation
- 4) Acquisition
- 5) Serial Control
- 6) Technical Processing
- 7) Library Administration

##### **Utilities:**

- 8) Back up

- 9) Restore
- 10) Exit to DOS

### 8.5.1.3 Hardware and Software requirements for GRANTHALAYA package:

- DOS Version:
  - PC: AT 486 or above
  - RAM: 8MB or above
  - Hard Disk: 540 MB or above
  - Floppy Drive: 1.2 MB or 1.44 MB
  - Monitor: VGA or SVGA color monitor
  - Printer: Dot matrix
  - DOS Version: 6.0 or above
  
- UNIX Version:
  - PC: AT486 or above
  - RAM: 16 MB or above
  - Hard Disk: 540 MB or above
  - Floppy Drive: 1.2MB or 1.44MB
  - Monitor: Monochrome
  - Printer: Dot Matrix
  - UNIX Version: SCO UNIX 5.3.2
  - INGRES 6.2 or above
  - ORACLE 6.0 or above

### 8.5.1.4 Directory structure:

GRANTHALAYA is installed on the hard disk in GRANTH directory and following subdirectories is created in this directory:

```

\GRANTH\DATA
\GRANTH\DATA\BOOK
\GRANTH\DATA\REPORT
\GRANTH\QUERY
\GRANTH\QUERY\BOOK
\GRANTH\QUERY\CONF
\GRANTH\QUERY\REPORT
\GRANTH\QUERY\THESIS
\GRANTH\CIRC
\GRANTH\ACQU
\GRANTH\ACQU\BOOK
\GRANTH\ACQU\CONF
\GRANTH\ACQU\REPORT
\GRANTH\ACQU\THESIS
\GRANTH\SERIAL
\GRANTH\TECH
\GRANTH\ADMN

```

During this course I have learned following method of this package:

- Installation method
- Knowledge about the different modules
- Knowledge about data administration method

- Circulation control method
- Serial control method
- Library administration method of this package
- Query & searching method, etc.

### **8.5.2 TECHLIB PLUS:**

TECHLIB PLUS is built on BASIS PLUS, world leading document Database Management System (DBMS) and text retrieval system. Designed to stream line and facilitate all the day to day operations of a fully electronic library. TECHLIB Plus provides patron access, catalog maintenance, circulation, serial management, acquisition processing and MARC cataloguing. Image reference can be stored directly in TECHLIB PLUS databases or stored in BASIS PLUS databases. TECHLIB PLUS also provides direct access to information in current contents.

### **8.5.3 SANJAY:**

This Library automation programme is developed under CDS/ISIS.

### **8.5.4 BAR CODING TECHNOLOGY:**

Barcode is a series of black bars of varying breadths and white spaces between every two of them. The bars and spaces represent a series of characters/digits. Such types of barcodes are found in foreign countries printed food packets, books, etc. These barcode are readable only by a scanner which send message to the computer the decodifies the number of the digits. The computer identifies such bars as '0's and '1's. Therefore, it is known as a series of '0's and '1's representing character/digits in such a form as only the computer can identify. Barcoding technology is a time saving device for the library and information centres. There is no chance of mistake in numbering.

#### **8.541 Utilities of Barcoding Technology:**

- Tracking of Books
- Issue and Receipt of the books to the members
- Inventory checks
- Speedy check-in/Check-out
- High accuracy in the transactions
- Periodicals control
- Generating users statistics

#### **8.542 Benefits of Barcoding Technology in Library:**

- Borrowing and returning of books will be fast
- Since each members will have a uniquely barcoded library card, the risk of mistaken identity will be avoided
- Human error will be virtually eliminated.
- More accurate follow-up on over dues book
- Reconciliation of stocks
- Faster in stock checking operation.

#### **8.5.4.3 Necessary Tools for Barcoding Technology:**

- IBM Compatible Computer
- Barcode Scanner
- Decoder
- Data capturing units
- Barcode printer (Dot Metrics/Laser/Thermal)

- Communication Software.

Under this Barcoding Technology course I have learned and gained above knowledge and also different types of barcodes.

### **8.5.5 CDS\ISIS:**

CDS/ISIS is micro-computer based library automation software. This software is distributed free of cost by UNESCO and this was developed by the UNESCO in 1985. This is very good application for storage and retrieval of databases. It is menu driven software for structural non-numerical structural database written in PASCAL. UNESCO has released many versions of CDS/ISIS since 1985, such as:

#### YEAR VERSION

1985	1.0
1988	2.3
1990	2.32
1992	3.0
1993	3.07
1995	3.071

#### **8.5.5.1 System Requirements for CDS/ISIS Software:**

- PC - XT/AT with minimum 512 K RAM
- One Floppy Disk Drive
- One Hard Disk
- A Monitor
- A Printer

#### **8.5.5.2 Major function of CDS\ISIS:**

- Define the Database containing the required data elements.
- Enter the New records in to a given database
- Modify, edit, correct/delete existing records.
- Automatically build and maintain fast access files for database in order to maximize retrieval speed
- Retrieve the records by their contents/data elements through a sophisticated search language.
- Display the records/portion there of according to requirements.
- Sort the records in any sequence
- Print the partial/full databases as required.

#### **8.553 Features of CDS\ISIS**

- Variable Field Length
- Flexible indexing
- Full Boolean search facility
- Printing Facility
- Support the Local Area Network System
- New parameters in Syspar.par file
- Record Locking device
- Expanded memory support
- Improvements in system restrictions
- New commands in formatting language
- Display the dictionary forward and backward



- Option to change the hit file into master file.

During this training course I learnt CDS/ISIS package in details. Some of the features which I learnt are given below:

- Installation Method of the CDS/ISIS:
  - \* Manual Method
  - \* Computerised Method
- Different function of the Keyboards
- Methods of database definition file and it's following components:
  - \* Field Definition Table (FDT)
  - \* Data Entry Worksheet/Database designing
  - \* Display format and its different categories of command
  - \* Field Select Table (FST)
- Master File Services
- Inverted File Services
- Relationship between the files
- System Architectures:
  - \* Menu System
  - \* Multilingual dialogue
  - \* Worksheets Designing/Worksheet editors
- Formatting language/Formatting commands
- Search Techniques/Search language of CDS/ISIS
  - \* Different Search Operators
  - \* Boolean Operators
  - \* Field and proximity Operators
  - \* Free text operators
- Precise Terms
- Right Truncated Terms
- Methods of Sorting and Printing format

#### 8.554 Knowledge about System Restrictions of the CDS/ISIS:

Maximum number of databases unlimited  
 Maximum number of records in a database 16 millions  
 Maximum records size 8000 Characters  
 Maximum number of fields (Defined in FDT) 200 (excluding repetitions of repeatable fields)  
 Maximum number of FST lines 200  
 Maximum field size 8000 Character  
 Maximum number of fields in a worksheet page 19  
 maximum number of pages in a worksheet 20

Maximum size of a display format 4000 Character  
Maximum number of stopwords 799

## 8.6 MULTI-MEDIA:

The term "Multi-Media" means different things to different persons, it means more than one media. The term "Multi-Media" is combination of two words i.e. Multi and Medium, Multi refers to many and Media is the plural form of medium i.e. medium can refer to storage, transmission, communication, representation, input interaction, presentation and perception. Multimedia is referred as different levels of abstraction and it also refers as basic information like text, audio, graphics, images, video, etc. Multimedia is aimed at meeting the demand for better access and presentation of information using multidimensional approach of representation. The usefulness of Multimedia lies in its ability to present rapidly a variety and quality of information to meet the needs of different types of users, as well as multimedia is very useful in various fields such as school, collage, research and education, training, science information centres, tourism, etc.

### 8.61 Components of Multimedia:

Basically there are five components in Multimedia software, i.e. Text, Graphics Image, Animation, Sound and Interactive links.

**TEXT:** Text is mostly available in printed materials in different forms i.e. full text, bibliographical indexes, etc. Text is the basis for word processing programmes.

**GRAPHIC IMAGES:** Graphic images generally mean a "still" image, such as photographs, on-line drawing or graphs, etc. These graphic Images play an important role in the presentation of data of any research and development work.

**ANIMATION'S:** Animation's refer to a moving picture and this is powerful communicators. These are more powerful and useful for illustrating concepts that involve movement of different conditions and different behavior of the same animal during different meteorological conditions, for example animals behavior during earthquake, different seasons, etc.

**SOUND:** Sound can substantially reinforce our understanding of information presented in other ways. Inclusion of sound in Multimedia program serves as a more powerful and useful tool to provide information to users which otherwise is not possible using any other method.

**INTERACTIVE LINKS:** This is an integral part of Multimedia. This means that the users can point with a mouse and click on highlighted text and cause the programme to respond in a certain way.

### 8.62 Hardware/Software requirement for Multimedia Computer:

**The CPU:** The CPU for multimedia should be at least 286/386/486 but 4 to 8 MB RAM is essential.

**The Monitor:** The Multimedia PC should be equipped with a monitor having SVGA card.

**Sound Card:** Sound cards are the important part of Multimedia, which aids to use Multimedia fully, but sound card should be supports 16 bit sound, 8 note synthesizer, and MIDI play back.

**Input/output Devices:** Key board and mouse both are important components for any Multimedia PC.

**Hard disk:** Capacity of the hard disk should be atleast 120 MB,

**CD-ROM Drive and Laser printer:** CD-ROM drive should be at least 150K per second data transfer rate.

Audio-Amplifier/Speaker

Software

## **8.7 ON LINE ACCESS:**

On line Database can be accessed through a computer terminal with software. Modem and telephone network are connected to computer, then the digital signals will be transmit through telephone line.

### **8.71 INSDOC's On-line system:**

INSDOC has access to the following On-line International Databases:

- DIALOG (California)
- STN (Ohio)
- EASYPNET (USA)
- ESA-JRS (Italy)
- ECHO (Luxemburg)
- UNEP (Paris)
- DATA-STAR (Switzerland)

### **8.72 INSDOC's on Line Databases:**

INSDOC has developed the following databases:

- NUCSSI (National Union Catalogue of Scientific Serials available in India.
- MAPA (Medical and Aeromaterial Plants Abstracts)
- INPAT (Indian Patents Database)
- CCD (Current Contents Database)
- PSD (Polymer Science Database)
- ISA (Indian Science Abstracts)

I have searched both International and On-line databases.

## **8.8 BIBLIOMETRICS:**

The word "Bibliometrics" is first appeared in 1969 in Alan Pritchard's article "Statistical Bibliography or Bibliometrics?". In this article he suggested that the word "Bibliometrics, i.e. the application of mathematics and statistical methods to books and other media of communication" be substituted for statistical bibliography".

Etymologically Bibliometrics is composed of two different parts i.e. Biblio and Metrics. Biblio is a Greek word which means books and Metrikos means measurement. So Bibliometrics word denotes the science of measurement pertaining to books or documents. In this context, different authors view's show that Bibliometrics aims at the examination of the statistical distribution of the processes relating to:

- The utilisation of documents
- Library staff, and
- Library users.

### 8.81 Scope and purpose:

Bibliometric studies are generally based on quantitative measurements without any qualitative evaluation. They are therefore, considered only as partial indicators of scientific progress.

It sheds light on the process of written communication and on the nature and course of development by a descriptive means of counting and analysing various facts of written communication. It provides information about the structure of knowledge and how it is communicated. The scope of bibliometrics includes studying the relationship within a citation study. It is a quantitative science and it is divided into two basic categories:

- \* Descriptive bibliometrics (productivity count)
- \* Evaluation bibliometrics (literature usage count)

### 8.82 Bibliometrics provides:

- Light on process of written communication
- Information on structure of knowledge
- Studies relationship within a subject through citation studies involving authors, journals, subjects, etc.
- Quantitative growth of literature
- Information scattering
- Obsolescence studies
- Role of information Channel in scientific communication
- Citation habits of scientists and growing role of citation analysis.
- Interdisciplinary and interdisciplinary relations on the basis of bibliography references.

### 8.83 Applications of Bibliometrics:

Identify research trends  
Identify growth of knowledge  
Estimate comprehensiveness of abstracting and indexing services  
Identify groups of users for subjects  
Forecast past, present and future of publishing trends.  
Identify the exact need of particular journal and they reduce and save the budget as well as space.  
Identify core periodicals in different disciplines  
Plan multilevel network system  
Study obsolescence and dispersion of scientific literature  
predict productivity of authors/organisations  
Design auto language processing, auto indexing, abstracting, classification  
To find out the real useful journal selection.

### 8.84 Bibliometric Laws:

- Lotka's Inverse Square Law of Scientific Productivity
- Bradford's Law of Scattering of Scientific Papers

- Zipf's Law of Word Occurrence

During this course I have gained knowledge about Bibliometrics tools such as different citation Indexes, limitation of citation analysis, types and methods of citation, methods of evaluation or analysis of particular scientist, author, paper, journal, etc. too, which are very useful for library professional.

#### **8.85 Citation:**

When one document refers to another document, the later has been cited as a source of information is known as citation.

#### **8.86 Citation Analysis:**

Citation Analysis is statistical analysis of the bibliographies or citations appearing at the end of each paper/document/article. The primary function of citation is to provide a connection between two documents, one which cites and the other which is cited.

#### **8.87 Application or reason of the citation:**

- giving credit to related work
- showing one's awareness of related research in the subjects
- providing background of reading materials
- Identifying methodology, equipment, etc.
- as a historical background
- Supply information for comparison, etc.
- To lead the reader to further studies in the field
- For the preparation of bibliographies
- To study the use of literature of different countries
- To prepare ranked list of periodicals
- To study the rate of collaborative research
- For the analysis of scientific journals.

#### **8.88 Citation Index:**

Citation Index is an ordered or systematic list of cited articles, each accompanied by a list of citing articles. The citing article is identified as a source and the cited article as a reference. Citations in journals explicitly state a connection between two documents one which cites, and the other which is cited. Citation indexes are useful for historical research, in addition to identifying individuals, whose work had impact on a branch of science. The citation indexes of the research papers are immensely useful in determining the quality of the paper and it is also helpful for find out the trend pattern of the performance of an individual scientist, a team or an institute or even a nation. As well as citation indexes are helpful for:

- retrieving information on new rather than previously published works.
- tracking citations of specific works/author, etc.
- conducting in-depth searches even if one knows only the name of one active author or bibliographic details of one relevant article.
- Identifying currently active areas of research.

#### **8.89 Types of Citation Indexes/Bibliomatrix tools:**

### **Social Science Citation Index (SSCI):**

SSCI is started in 1973 and is published three times a year with annual and multi-year cumulation. It covers about 1400 social science journals.

### **Art and Humanities Citation Index (A&HCI):**

A&HCI is started in 1978 and is published three times a year with annual and multi year cumulation. It covers marathen 1400 journals of the different disciplines of the science and social science journals.

### **Indian Science Citation Index (ISCI):**

ISCI is published by the National Centre on Bibliometrics (NCB), INSDOC. It covers Indian scientific and technical periodicals from 1990 onwards.

### **Journal Citation Reports (JCR):**

JCR is started in 1975 in annual basis. JCR is a unique cito-analytical product. It is a mine of information for all important scientific and technical journals of the world. JCR comprises in several sections:

Impact Factor (IF) Section: is a measurement of the frequency with which an 'average article' in a journals has been cited in particular year clearly it means IF is the average citation rate of the journal and its citation potential citation rate is defined as the number of times cited, whereas citation potential is defined as the number of citable items published. The JCR impact factor is basically a retio between citations and citable items.

Immediacy Index Section: This is a measure to show how quickly the average article" of a particular journal is cited and is expressed by the ratio of the number of citation received in particular year.

Citing half-life: the number Of journal publication years from the current year backwards which account for 50% of the total citations given by the citing journals in the current year is known as citing half life.

Cited Half Life: the number of journal publication years from the current year backwards which account for 50% of the total citations received by the cited journals in the current year is known as cited half-life.

### **Science Citation Index (SCI):**

SCI is started in 1963. SCI is a bimonthly publication, with annual 5 years and 10 years cumulations. It is also available in CD ROM. It covers over 33000 journals. SCI comprises following four basic indexes and JCR. All these indexes of the SCI is very useful tool for Bibliometric evaluation:

- \* Source Index: It contains full bibliographic descriptions of the items indexed in the SCI.
- \* Citation Index: is an alphabetical listing by author of all the cited items.
- \* Patent Citation Index: is systematic and numerical list of the patent number.
- \* Corporate Index: This indexed have two Sections:
  - Geographic Sections: In this section current source items are arranged alphabetically by the location of the author's organisation

- Organisation Section: It is an alphabetically list of the organisations.

### **Permuterm Subject Index (PSI):**

PSI is a permuted title word index to the book, chapter and journal article titles processed for the SCI.

## **8.9 INTERNET:**

Under this course, I have learned about Internet, its services and techniques and methods of access information in Internet as well as designing the web page, etc:

### **8.91 Introduction about Internet:**

Internet is a network of networks. It is also popularly known as "The Net". It is world's largest network of computers and other devices, the cabling and the network interface controllers that are inside the computer along with the network software based on any network protocol, known as TCP/IP (Transmission Control Protocol/Internet Protocol).

### **8.92 Types of Network:**

There are popularly three types of Network, i.e. Radio Network, Telephone Network, and Computer Network. Computer Network is divided in three parts according to geographical coverage, such as:

LAN (Local Area Network)  
 MAN (Metro Area Network)  
 WAN (Wide Area Network)

### **8.93 Required for Networking:**

- Networking cable (Medium for connecting)
- Internet card in computer
- each computer/Internet card should have a unique control address
- Common language software (Platform)
  - \* Novell Network
  - \* Windows 3.11

### **8.94 Knowledge about Domains:**

Domains is a standard internet address. There are following Domains in the world:

- COM = Commercial Organisation
- EDU = Educational Institutions
- GOV = Government
- ORG = Non Profit Organisation
- MIL = Military
- NET = Net working Organisation
- INT = International Organisation

### **8.95 Authority Body of Internet:**

- ISOC = Internet Society

- IETF = Internet Engineering Task Force (It solved the problem)
- IAB = Internet Authority Body
- FAQ's = Frequently Ask questions
- Cyberspace = It is virtual, i.e. working together through internet is known as cyberspace.

### 8.96 Information about browsing Home page/World wide page:

In this context I gained knowledge about following browser's name and browsing methods:

- \* http://www.Yahoo.com
- \* gopher://gopher.vt.edu
- \* ftp://ftp.spies.com
- \* Telnet://telnet.nippat.com
- \* http://www.khoj.com, etc.

### 8.97 Services of the Network (Internet):

E-Mail (Electronic Mail): It is the popular name for the electronic mail, simply means sending message through a computer network. This is analogous to sending a postal mail via the postal system. However, unlike the postal system write a letter, put it in envelope and then post it in post office, with e-mail write (compose) message on a computer and then send it electronically to nearest e-mail service provider (host).

FTP (File Transfer Protocol): We can down load files including software programmes also from computer of the world.

Telnet: Easily log on to other computers on the Internet.

Resources discovery and retrieval application: Many computers in "The Net" have large repositories of information, that are freely accessible, the encyclopedia, text of popular books, articles, etc. can be found in "The Net", all these information's are easily retrieve through different browser like Archive, WAIS, Gopher, WWW, etc.

**IRC (Internet Relay Chat):** Internet enable spontaneous connections in real time have become a platform for discussion and in physical meeting through keyboard of the internet connected computer.

### Benefit of the networking:

- \* communicate the information to group of computer
- \* transfer the information/document/file worldwidely
- \* resource sharing
- \* easily get R&D information.
- \* interactive browsing
- \* reading and posting to topic specific bulletin boards.

### 8.98 Format Types and Extension of the some Internet File:

- .arc Arced file (archive file that contains many other files)
- .arq DOS compression format
- .bin binary file
- .doc document file



.exe	executable Programme file
.gif	Image file (Graphics Interchange Format)
.gz	GNU Compress
.hlp	help file
.hqx	bin hex file
.ps	post script file
.pkg	apple link package file
.tar	compressed with unix tar
.tif	tagged image file format
.zip	zipped file compressed with PKzip

### **8.99 Knowledge about Intranet:**

In this regard I have gained knowledge about Intranets too. Intranet usually use Internet technology inside the corporate network. So Intranet look simple, power is simply unfathomable. Intranet can be scaled from a simple single department to worldwide enterprises spanning the continents.

### **8.910 INFORMATION SUPER HIGHWAY:**

In this context I have gained following knowledge:

Major change in society in 21st century, i.e. tremendous growth of information and information technology, Globalisation, Uniting whole Europe as common society, CTVT, changing political scenario, etc. and impact of Information technology in development of all fields including quality education, better environment, cultural changes.

### **What is Information Society:**

Information society is A5, which means any one can in any time any where access or get information in any desire format.

### **Information Infrastructure:**

NII	=	National Information Infra structure
RII	=	Regional Information Infrastructure
GII	=	Global Information Infrastructure

### **Technological level of Information Super highway:**

Information Super Highway	2 MBMS - 150 MBPS
Information Highway	64 KBPS - 2.048 MBPS
Information footpath	1.2 KBPS - 64 KBPS

### **Constraints of the Information Super Highway:**

- Intercontinental links (This is first constraints of optical fibre)
- Inter country Link
- Inter city link
- Intra city link
- fibre to kerb
- fibre to home

### **Promising Technology:**

I have gained knowledge about following promising technologies of the Information Super Highway and combination of these three is known as Information Super Highway.

- \* Satellite
- \* Optical fibre like a copper wire
- \* Wireless short band (radio)

#### **8.10 FAMILIARIZATION WITH ACTIVITIES OF THE DIFFERENT DIVISIONS/GROUPS OF THE INSDOC:**

Under this observation attachment course programme I have observed activities, function, task, etc. of the following divisions/groups of the INSDOC:

##### **8.101 Library Bibliographic and Bibliometric Group(LBBG):**

Under this group I have observed under mentioned different task, service, function, activities of the following division:

##### **8.102 National Science Library:**

Under this National Science Library of INSDOC I have gained knowledge about following activities, which are useful for library management system:

- Serial Control System, Procedures, etc.
- Procedures of the ISSN Assignment
- Acquisition Policy and procedures, etc.
- Classification procedures, scheme, etc.
- Circulation procedures of the NSL.
- Cataloguing Procedures of the NSL

##### **8.103 Data Computer & Software Group (DCSG):**

Under this group I have worked in the following divisions:

##### **8.104 Data Service Division:**

This Division published Indian Science Abstracts (ISA). It is a semi-monthly abstracting service reporting scientific work done by Indian scientists & other R&D workers in India and published either in India or abroad. This Publication cover published from 1966. ISA covered Mathematics, Chemical sciences, geology, paleontology, Anthropology, Biology, Zoology, Medical Science, Chemistry, Physics, Agriculture, Engineering, Management, Industry, Computers, Architecture, etc. ISA is fully computerised. Each issue of ISA contains more than 1500 entries classified according to UDC (Universal Decimal Classification) scheme. Author Index, Keywords Index also given in ISA and Content is given in Subject wise according to UDC No. e.g. 51,52,53, 54, 55, 56, 57, 58,59, 61, 62, 63, 65, 66, 67, and 68 with followed by name of the subjects.

##### **8.105 Computer Services Division:**

Main activities of this division is design different databases and provide information to users. This division has currently following on line databases:

- NUCSSI
- Current Content Database
- Polymer Science Database

- Medicinal and Aromatic Plants Abstracts Database (MAPA)
- Indian Patents Database (INPAT)

The division has following databases also but these databases are currently not available in online server:

- Bureau of Indian Standards Database (BIS)
- Metallurgy Index
- Indian Science Abstracts
- National Science Library Book Catalogue

I have searched above available databases by using different keys, such as country wise, region wise, city wise, author wise, journalwise, article'swise, etc.

#### **8.106 Marketing and Customer Services Division (MCSD):**

MCSD is one of the main division of INSDOC. All the marketing related functions or services provided as well as handled through this division. The main activity of MCSD is to provide customer services to INSDOC products, provide publicity and undertakes sales promotion activities. Following products or services are provided through this division:

##### **Main Services:**

- Translation Services
- Bibliography Literature Search Services
- Reprography Services
- Bibliometric Services
- Desk Top Publishing (DTP) Services
- Referral Services
- Content, Abstracts and Photocopy Service (CAPS)

##### **Publications:**

Following publications of the INSDOC, also provided through this division to users or subscribers:

- Indian Science Abstracts (ISA)
- Annals of Library Science and Documentation (ALSD)
- Directory of Indian Scientific Periodicals
- Directory of Scientific Research Institute in India
- National Union Catalogue of Scientific Serials in India
- Directory of S&T Awards in India
- Proceedings of the Seminar on Learned Periodical publication in India, etc.

Besides above services, following services also provided through this division:

- Document Copy Supply Services
- Services from Chemical Abstracts
- Full Text Journal Service
- Patent Watch Service
- Global Tender Watch Service
- Competitor Watch Services
- Indigenous Database Service
- On Line Database Service
- E-mail Service

- Interpretation Service
- Cover Design Service, etc.

For above services, they compile a user's/reader's/customer's profile and assign him a code number for identification of the subscribers. In this regard, I have gained knowledge about different process of this division, such as Registration of the customer, Account entry, Billing process, etc. which is useful knowledge for management of the marketing related function of the information centre.

### **8.11 DESIGN AND DEVELOPMENT OF INDIGENOUS DATABASE USING ORACLE RDBMS:**

A database is a collection of related records. In order to manage data a good and systematic database management system is required. After advent of the computers and different information technologies, it plays important role in database management, because the electronic database can store large numbers of information or data and enables quick retrieval according to our need.

Oracle is a UNIX based RDBMS. Oracle is relational database management system. Oracle RDBMS can perform a wide array of tasks. In general it acts as a transparent interface between the physical storage and logical representation of data. It provides a set of flexible and sophisticated tools for handling information. Because it gives so much control over data a RDBMS can serve as the foundation for products that generate application extracts data.

The prominent features of the Oracle RDBMS are:

- consistency
- back up facility
- privacy and security
- easy access to all data
- flexibility in data modeling
- reduced data storage
- oracle is a high level data manipulation language
- independence of physical storage and logical data design
- portability, connectivity and compatibility
- provision of a set of computer aided software engineering products, etc.

In this context I have gained following knowledge about ORACLE RDBMS and its different command too:

- SQL (Structured Query Language)
- SQL\*FORMS = A form is an arrangement of information on the screen of the computer.

#### **Main functions of SQL\*FORMS are data addition, modification, deleting, query, etc.**

- SQL\*REPORT = For designing report in desire format
- SQL\*LOADER = Load data in oracle table from a text file.
- PROGRAMME\*C = C language and SQL command
- Creating different tables for database management
- Creating different SQLforms
- Desc command
- Insert command
- Delete command
- Rollback command
- Drop table command
- committ command
- select\*from command
- searching tachniques

**9. LIBRARY AND INFORMATION/DOCUMENTATION CENTRES VISIT:**

INSDOC also arranged my visits to different libraries and Information Centres. In this context I have visited following libraries and information centres for observation:

<b>S.No</b>	<b>Name of the Library/Information Centres</b>	<b>Date of Visit</b>
1.	Indian National Scientific Documentation Centre (INSDOC)	October 24, 1997
2.	National Informatics Centre (NIC)	October 31, 1997
3.	Indian Council of Medical Research Library (ICMRL)	November 21, 1997

**10. EXTRA ACTIVITIES (Tour):**

INSDOC also arranged tour's programme of the different local sight seeing places on 25th October 1997 and Agra, the city of Taj Mahal on 1st November 1997.

**11. TRAINING TIME:**

The classes and practical were conducted in the morning from 9:30 to evening 5:30 P.M. except holidays.

**12. ACCOMMODATION:**

INSDOC provided me accommodation at CSIR Scientist Apartment's Room No. B64, Maharani Bagh, New Delhi - 110 065.

**13. PERDIUM:**

Rs. 300:00 (Three hundred) were provided me as per dium.

**14. TRANSPORTATION:**

INSDOC either provided me transport for up and down in INSDOC for attending the course or they provided me Rs. 50:00 (Fifty Rupees) per day (except holidays) as transportation cost.

**15. CONCLUSION:**

Status of Library services and information professional is not high in Nepal. Main constraints for the advancement of Librarianship are lack of less professional man power, visit programme, exchange of knowledge, attachment programme, modern information technology and training courses for library professional, etc. because model of library education and professional training that are available in Nepal are not sufficient. To overcome this scenario and to give better information services, this type of training programmes are very essential. So this training programme had been meaningful and fruitful for me to provide effective information service and better management of information services in Nepal.

I have learned and gained a lot of knowledge about various modern information technologies during this three month's training programme which are useful for me.