

**CENTRAL UNIVERSITY OF HIMACHAL PRADESH**  
[ESTABLISHED UNDER THE CENTRAL UNIVERSITIES ACT 2009]  
PO BOX: 21, DHARAMSHALA, DISTRICT KANGRA - 176215 (HP)  
[www.cuhimachal.ac.in](http://www.cuhimachal.ac.in)

**Course Code:** LIS 410

**Course Name:** Fundamentals of Information and Communication Technology

**Credits Equivalent:** 4 Credits (One credit is equivalent to 10 hours of lectures / organised classroom activity / contact hours; 5 hours of laboratory work / practical / field work / Tutorial / teacher-led activity and 15 hours of other workload such as independent individual/ group work; obligatory/ optional work placement; literature survey/ library work; data collection/ field work; writing of papers/ projects/dissertation/thesis; seminars, etc.)

**Course Objectives:**

- To provide students with basic knowledge of computers and networks and their application to library and information activities.
- Familiarity with the Internet technology.

**Attendance Requirements:**

Students are expected to attend all lectures in order to be able to fully benefit from the course. A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination.

**Evaluation Criteria:**

1. Mid Term Examination: 25%
2. End Term Examination: 50%
3. Continuous Internal Assessment : 25%
  - i. Assignment: 10%
  - ii. Surprise Test: 10%
  - iii. Class work :5%

**Course Content:**

**UNIT - I: Computer Fundamentals and Hardware  
(5 Hours)**

- Basics: Von Neumann Architecture, Computer Generations, And Classification of computers, Computer Organisation, Processor Types: CISC, RISC
- Data Representation: ASCII, BCD, UNICODE & Numbering systems (Binary, Octal, Hexadecimal)
- computer memory: Memory Hierarchy: Register, Cache, RAM, ROM, DRAM, Flash Memory, Secondary Storage: Characteristic of Hard disk and CD-ROM, DVDs,
- Printers and Scanners; Types and characteristics

**UNIT - II:      Computer software**

**(5 Hours)**

- System and application software; Programming concepts: System analysis, flowcharts, and algorithms.
- Open source and proprietary software.
- Operating Systems: M S- DOS, Windows
- Operating Systems: UNIX / LINUX.

**UNIT - III:      Database management Systems**

**(10 Hours)**

- Database: concepts and components
- Database Management system: Basic Functions, potential uses
- Database Structures, file organization : Sequential, Indexed Sequential and Direct file
- Database type; relational database

**UNIT - IV:      Fundamentals of Networking**

**(10 Hours)**

- Network Devices : NIC, Modem, Amplifier, Repeater, Hub, Bridge, Switches, Router, Wi-Fi devices
- serial and parallel data communication, analog & digital data communication, synchronous and asynchronous mode of data communication Introduction to Computer Networks,
- Classification : LAN, MAN, WAN: Internet, Intra-net, Extra-net Networking Models : ISO OSI, TCP/IP reference Model
- Network Topologies : Bus, Ring, Star, Mesh; Switching Techniques : Circuit Switching, Packet Switching

**UNIT - V:      Internet: Basic features, Tools, protocols & Services**

**(10 Hours)**

- origin and stages of development of the internet; introduction to intranets and extranets
- Internet connectivity: Dial-up, Leased Line, ISDN, wi-fi. Addressing: MAC addressing, port-address, domain address, ip address.
- Internet security: authentication, firewalls, virus, spyware maintenance , Proxy servers
- Protocols & services: IP, TCP, Telnet, FTP, SMTP, POP, DNS, News groups

**Prescribed Text Books:**

1. ANITA GOEL. Computer Fundamentals, New Delhi, Pearson, 2010.
2. TANENBAUM, ANDREW S. Computer network, 3rd ed. New Delhi, Pearson, 2010
3. CLARK M P: Networks and telecommunication: design and operation. 2nd ed. 1997.

### Suggested Extra Readings:

1. COMER D E: Computer networks and internets. 1997.
2. DUATO J, YALAMANCHILI S and NI L: Interconnection networks. 1997
3. DEESON, ERIC. Managing with Information Technology, Great Britan, Kogan page Ltd. 2000.
4. Forrester W.H. and Rowlands, J.L. The Online searcher s companion. London, Library Association, 2002.
6. ROWELY, JENNIFER: Information Systems, Ed.2, London, Clive Bingley, 2001.

### LECTURE PLAN

Lectures	Topics	Prescribed Text Book	Chapter No.
Lecture – 1	Basics: Von Neumann Architecture, Computer Generations, And Classification of computers	Book – 1	Chapter - 1
Lecture – 2	Processor Types: CISC, RISC	Book – 1	Chapter - 1
Lecture – 3	Data Representation: ASCII, BCD, UNICODE	Book – 1	Chapter - 5
Lecture – 4	Numbering systems (Binary,Octal,Hexadecimal)	Book – 1	Chapter - 5
Lecture – 5	computer memory; Memory Hierarchy:	Book – 1	Chapter - 3
Lecture – 6	Register ,Cache RAM, ROM, DRAM, Flash	Book – 1	Chapter - 3
Lecture – 7	Secondary Storage: Characteristic of Hard disk and CD-ROM, DVDs,	Book – 1	Chapter - 3
Lecture – 8	Printers and Scanners; Types and characteristics	Book – 1	Chapter - 4
Lecture – 9	System and application software;	Book – 1	Chapter - 6
Lecture – 10	Programming concepts: System analysis	Book – 1	Chapter - 6
Lecture – 11	Flowcharts and algorithms.	Book – 1	Chapter - 6
Lecture – 12	Open source and proprietary software.	Book – 1	Chapter - 7
Lecture – 13	Operating Systems: M S- DOS, Windows	Book – 1	Chapter - 7
Lecture – 14	Operating Systems: UNIX / LINUX.	Book – 1	Chapter - 7
Lecture – 15	Database: concepts and components	Book – 1	Chapter - 12
Lecture – 16	Database Management system: Basic Functions, potential uses	Book – 1	Chapter - 12
Lecture – 17	Database Structures, file organization :	Book – 1	Chapter - 12
Lecture – 18	Sequential, Indexed Sequential and Direct file	Book – 1	Chapter - 12
Lecture – 19	Database type; relational database	Book – 1	Chapter - 12
Lecture – 20	Network Devices : NIC, Modem, Amplifier,	Book – 1	Chapter - 9
Lecture – 21	Repeater, Hub, Bridge, Switches, Router, Wi-Fi	Book – 1	Chapter - 9
Lecture – 22	serial and parallel data communication	Book – 1	Chapter - 9

Lecture – 23	analog& digital data communication,	Book – 2	Chapter - 9
Lecture – 24	synchrons and asynchrnous mode of data communication	Book – 2	Chapter - 9
Lecture – 25	Introduction to Computer Networks, uses	Book – 2	Chapter - 1
Lecture – 26	Classification : LAN, MAN, WAN	Book – 2	Chapter - 1
Lecture – 27	Internet, Intra-net, Extra-net	Book – 2	Chapter - 1
Lecture – 28	Networking Models : ISO OSI	Book – 2	Chapter - 6
Lecture – 29	TCP/IP reference Model	Book – 2	Chapter - 6
Lecture – 30	Network Topologies : Bus, Ring, Star, Mesh;	Book – 2	Chapter - 2
Lecture – 31	Switching Techniques : Circuit Switching, Packet Switching	Book – 2	Chapter - 2
Lecture – 32	origin and stages of development of the internet	Book – 2	Chapter - 7
Lecture – 33	introduction to intranets and extranets	Book – 2	Chapter - 1
Lecture – 34	Internet connectivity: Dial-up, Leased Line, ISDN,	Book – 2	Chapter - 5
Lecture – 35	Wi-Fi. Addressing: MAC addressing	Book – 2	Chapter - 5
Lecture – 36	Port-address, domain address, ip address.	Book – 2	Chapter - 5
Lecture – 37	Internet security: authentication, firewalls, virus,	Book – 2	Chapter - 7
Lecture – 38	spyware maintence , Proxy servers	Book – 2	Chapter - 5
Lecture – 39	Protocols & services: IP,TCP,	Book – 2	Chapter – 6
Lecture – 40	Telnet,FTP,SMTP,POP,DNS,News groups	Book – 2	Chapter - 7

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**Course Code:** LIS 408

**Course Name:** Knowledge Organization and Information Processing (Practical):  
Classification

**Faculty:** Prof.I.V.Malhan

**Credits Equivalent:** 4 Credits (One credit is equivalent to 10 hours of lectures / organised classroom activity / contact hours; 5 hours of laboratory work / practical / field work / Tutorial / teacher-led activity and 15 hours of other workload such as independent individual/ group work; obligatory/ optional work placement; literature survey/ library work; data collection/ field work; writing of papers/ projects/dissertation/thesis; seminars, etc.)

**Course Objectives:**

1. train students in techniques of classifying titles of documents according to the Dewey Decimal Classification 23<sup>rd</sup>.ed.
2. To train students in techniques of classifying titles of documents according to the universal Decimal classification, standard Edition.

**Learning outcomes:**

After completing this course, students will be able to classify documents according to DDC and UDC schemes of classification.

**Attendance Requirements:**

Students are expected to attend all lectures to learn classification systems and have adequate knowledge and practical experience of classifying all types of document titles. However, a minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination.

**Evaluation Criteria:**

4. Mid Term Examination: 50 Marks
5. End Term Examination: 100 Marks
6. Internal Assessment: 50 Marks
  - iv. Surprise Test I : 20 Marks
  - v. Surprise Test II : 20 Marks
  - vi. Assignment : 10 Marks

**Prescribed Practical Manuals:**

- A. DDC, (23<sup>rd</sup> Ed.) 2011
- B. UDC, Standard Ed, 2005