

INFORMATION COMMUNICATION TECHNOLOGY (ICT) CURRICULUM FOR B.ED

1. Course Title: Computer Fundamentals & Programming.
 2. Course No: ICT 311(1st paper)
 3. Nature of the course: Theory 75% +Practical 25%
- Total number of working periods 150 per year

4. Full Mark: 100 (75+25)
 5. Pass Mark: 35 (27+10)
 6. Periods Per/wk: 6+3
- [Note: 1 period = 50 min]

COURSE DESCRIPTION:-

This course contains Computer Fundamentals, Hyper Text Markup Language (HTML), Application packages (Word processing, Spreadsheet, Data processing and Presentation Package including Windows Operating System) and Programs in QBASIC. In the Computer fundamentals Introduction to Computer system including its evolution, generation, classification, working speed, measurement units, Logic functions and Boolean Algebra, etc. covered as well as it studies hardware details, storing medias, networking, communication technology and Internet, E-mail etc. HTML covers the webpage designing skills. In application packages Windows Operating system, Word Processing skills, simple mathematical record keepings including logical, statistical, trigonometrical, arithmetical functions graphic and database management system (DBMS) skills are studied. This paper contains 75% theoretical part and 25% practical part.

OBJECTIVES:-

On completion of this course students will be able to:

- describe fundamentals of computer including evolution, classification, I/O devices and architecture.
- get familiarized with data representation like bit, byte, word and number system including their conversion.
- explain the functional block diagram of various systems and peripherals.
- get familiarized with information communication technology and cyber law.
- develop algorithms, flowchart and pseudo codes.
- write programs in QBASIC and HTML.
- use computer, printer, CD, pen drive and multimedia.
- run general application packages of the Open source office packages (like word processing, spreadsheet, database management system, and presentation packages.)
- explain telecommunication concept, computer networks.

S N	Objectives	Contents	Period	Testing Strategies	Reference	Evaluation
1	<p><u>COMPUTER FUNDAMENTALS</u></p> <p>To define, use, demonstrate and apply the computer system.</p>	<p><u>1. Introduction to computer system:</u> Introduction, features, types, generations, CPU, ALU, CU, memory, computer architecture. Unit of the computer working speed and its memory size. Bits, Bytes words.</p> <p><u>2. Memory Units:</u> RAM, ROM, PROM, EPROM, EEPROM, Flash memory. Measuring units of the storage capacity.</p> <p><u>3. Storage devices:</u> Tape, Floppy, Hard disk, Zip disk, Super disk, Jaz disk, CD-ROM, CD-R drive, CD-RW drive, Magneto-Optical drive, Pen drive.</p> <p><u>4. Input devices:</u> Key board, Mouse, Trackball, Joystick, Scanner, Digital camera, MICR, OMR, Bar code reader, Speech Input devices, Touch screen, Touch pad, Light pen.</p> <p><u>5. Output devices:</u> Monitor, its type, characteristics, size, bandwidth Dot pitch, convergence, video standard, VGA, SVGA, XGA. Printer, Ink jet, Laser printer, LCD, LED printer, Line printer, Plotter. Speakers</p>	6 Periods (Theory only)	<ol style="list-style-type: none"> 1. Interaction. 2. Discussion. 3. Writing test. 4. Group discussion 	Leon Chapter (1 to 9)	<ol style="list-style-type: none"> 1. Question & answer. 2. Writing test 3. Discussion.
	<p>To get familiarized with computer software, operating system, programming languages general software features and trends and data processing.</p>	<p><u>6. Computer Software:</u> Introduction, Operating System(OS), Utilities, Compilers, Interpreters, Word processor Spreadsheet, DBMS, Graphics, Image processor.</p> <p><u>7. Operating System(OS):</u> Introduction, Functions of the OS, Classification of OS, like Multi user, Multi processing, Multi tasking, Multi threading, and Real time.</p> <p><u>8. Programming Languages:</u> Introduction, Machine languages, Assembly languages, High-level languages, Types of High-level languages. The compilation Process.</p> <p><u>9. General Software Features &Trends:</u> Introduction, GUI, Ease of use more features,</p>	8 Periods (Theory only)	<ol style="list-style-type: none"> 1. Interaction. 2. Discussion. 3. Writing test. 4. Group discussion 	Leon Chapter (10 to 13)	<ol style="list-style-type: none"> 1. Question & answer. 2. Writing test 3. Discussion

	<p>Requirement of more powerful hardware, Multi-platform capacity network capability, Capability with other software, object linking and embedding, Group work capabilities, Mail enabling, Web enabling.</p> <p>10. Data Processing: Introduction, Data versus Information, File Processing, Database Processing, Types of the data processing.</p>				
<p>To describe the DBMS, Introduction to telecommunication, compute network, communication system, www, Intranets and multimedia.</p>	<p>11. Database Management System: Introduction to history, quality and processing of information, Databases, DBMS, Why DBMS ?, Types of the DBMS like Hierarchical model, Network model, Relational model, Object oriented model.</p> <p>12 Introduction to Telecommunication Introduction, Analog & Digital signals, Modulation, Types of Modulation like AM, FM, PM, Modem, Transfer speeds.</p> <p>13. Computer Network Introduction, overview of Network, Communication processor, Communication media, Tele Communication software, Types of Networks, Network protocols, Network Architecture.</p> <p>14. Communication System: Introduction to Communication, Radio, TV, Microwave System, Communication satellites, Radar, Fiber Optics, ISDN.</p> <p>15. Internet and World Wide Web (www). Introduction, Special about Internet, Internet Access, Internet Basics, Internet Protocols, Internet Addressing, WWW, WebPages and HTML, Web Browsers, Searching the web, Internet Chat.</p>	<p>10 Periods (Theory only)</p>	<ol style="list-style-type: none"> 1. Interaction. 2. Discussion. 3. Writing test. 4. Group discussion 	<p>Leon Chapter (15, 17, 18, 19, 21)</p>	<ol style="list-style-type: none"> 1. Question & answer. 2. Writing test 3. Discussion
	<p>16. Electronic Mail:</p>			<p>Leon Chapter (22, 23, 24,</p>	<ol style="list-style-type: none"> 1. Question &

	Introduction, Email- Names & Address, Mailing basics, E-mail, Ethics, Internet Code of conduct, Tips for effective e-mail use. Advantages and disadvantages. 17 Intranets: Introduction, Characteristics of Intranet Advantages and disadvantage of Intranet, why does an origination need intranet? Internet Vs Group ware, Extranet. 18.Multimedia Introduction, Multimedia in the education, entertainment, trainings, office work and business.			25 and Appendix A)	answer. 2. Writing test 3. Discussion
To get familiarized with compute security, IT policies, cyber law, data representations and history of computers.	19.Computer Securities Hardware Security and Software Security. 20. IT Policies and Cyber Laws: Introduction, IT policy of Nepal. Cyber Laws of Nepal, Cyber Laws of USA, Computer ethics. 21.Data representations. Integers, Real numbers, Strings, Bits, Bytes, Nibble Positional and non positional numbers, Binary systems, Decimal system octal system, Hexadecimal and their conversions. 22. History of computer.	5 Periods (Theory only)	1. Interaction. 2. Discussion. 3. Writing test. 4. Group discussion	Use reference books	1. Question & answer. 2. Writing test 3. Discussion
To describe impact of ICT and e-Technologies.	23. Impact of the Computer Technology in the society. 24.e-Technology	1 Periods (Theory only)	1. Interaction. 2. Discussion. 3. Writing test. 4. Group discussion	Use reference books	1. Question & answer. 2. Writing test 3. Discussion
2 HTML: To define and use the general and simple concept of program writing steps. To gain skill in web site designing.	- Introduction - Creating & Opening - Formatting - Setting - Creating links - Inserting Image - Working with table	12 hr (T+P)	1. Oral test. 2. Writing test. 3. Practical test.	Use reference books	1. Writing test. 2. Practical test.
3 (A) WINDOWS XP:	- Introduction to OS its classification.		1. Oral test.	Any reference book Nepali	1. Writing test.

<p>To run windows operating system DOS basic concepts.</p>	<ul style="list-style-type: none"> - Role of OS, Booting and shut down a pc. - Basic terms of Dos commands. - DOS Commands (Internal + Externals). - GUI Environments. - Introduction to Windows OS. - Working with Files & Folders - Working with a windows application programs. - Customizing the Taskbar and desktops. - Customizing windows. - Use of Accessories. 	<p>6 hr (T+P)</p>	<ol style="list-style-type: none"> 2. Writing test. 3. Practical test. 	<p>author</p>	<ol style="list-style-type: none"> 2. Practical test.
<p>(B) WORDS PROCESSING: To run a word processing package.</p>	<ul style="list-style-type: none"> - Introduction to Word-processing. - Types of Bars. - Typing text, saving a file on your folder. - Selecting text. - Spell checking. - Formatting documents. - Header and Footer. - Pg No, Page Break. - Using word Arts, Picture Art. - Making tables. - Printing text & Preview. - Copy a file on a pen drive or CD. - Copy a file in HD from CD or CD. 	<p>18 hr (T+P)</p>	<ol style="list-style-type: none"> 1. Oral test. 2. Writing test. 3. Practical test.. 	<p>Any reference book</p>	<ol style="list-style-type: none"> 1. Writing test. 2. Practical test.
<p>(C) SPREAD SHEET: Run a spread sheet package.</p>	<ul style="list-style-type: none"> - Introduction to Spreadsheet. - Creating table with data. - Insert & delete, Rows & Columns. - Using formula (+,-,*, /). - Using logical functions (If, AND, OR). - Using colours, fonts & font size. - Using different types of Functions. - Creating different types of the charts. - Save the file on your folder. 	<p>12 hr (T+P)</p>	<ol style="list-style-type: none"> 1. Oral test. 2. Writing test. 3. Practical test. 	<p>Any reference book</p>	<ol style="list-style-type: none"> 1. Writing test. 2. Practical test.
<p>(D) DATABASE MANAGEMENT SYSTEM (DBMS): Run a Database Management System</p>	<ul style="list-style-type: none"> - Introduction to DBMS, - Create a Database - Create table, Fields and their properties 		<ol style="list-style-type: none"> 1. Oral test. 2. Writing test. 3. Practical test. 	<p>Any reference book</p>	<ol style="list-style-type: none"> 1. Writing test. 2. Practical test.

	(DBMS) package.	<ul style="list-style-type: none"> - Create Relational Database, - Create and Run Queries - Working with Forms, - Generate Report, - Formatting Forms and Reports. 	12 hr (T+P)			
	<p>(E) PRESENTATION PACKAGE:</p> <ul style="list-style-type: none"> - To enable creating and editing presentation - To enable designing of custom animation -To enable to work with table, graphic, word Art - To enable to work with multimedia 	<ul style="list-style-type: none"> - Concept of presentation - Type and use of presentation program - Editing a presentation program - Designing and formatting presentation - Transition of presentation - Animation and custom Animation - Working with Table, Graphics, Word Art - Working with Graphics and Organization Charts - Working with Multimedia 	6 hrs. (T+P)	<ol style="list-style-type: none"> 1. Interaction. 2. Discussion. 3. Writing test. 4. Group discussion 	Any reference book	<ol style="list-style-type: none"> 1. Writing test 2. Practical test
4	<p><u>QBASIC PROGRAM:</u></p> <p>Draw a flow chart according to a given problem.</p> <p>Convert a flow chart into QBASIC program codes.</p> <p>Entry the program codes into the computer as a self made program.</p> <p>Process the data using self made program.</p>	<ul style="list-style-type: none"> - General concept of a program. - Introduction to QBASIC Program - Elements of QBASIC programming language. - Control statements (Using with procedures and file handling) - Library functions - Functions and Sub procedures. - File handling - Project in QBASIC. 	54 hr (T+P)	<ol style="list-style-type: none"> 1. Oral test. 2. Writing test. 3. Practical test. 	Any reference book	<ol style="list-style-type: none"> 1. Writing test 2. Practical test

Text Book

1. Alexis Leon and Mathew Leon- *Fundamentals of Information Technology* –Bikash Publishing House Pvt. Ltd. New Delhi.

Reference Book:

1. Hari Gopal Shrestha - *Computer Paricharya Bhag (1) and Bhag (2)*, Ratna Pustak Bhandar.
2. Donald H, Sanders, *Computer Today with Basic 3rd Edition*, McGraw- Hill, Inc.
3. B.Ram, *Computer Fundamentals Architecture and Organization, 3rd Edition*, New Age International Pvt. Ltd. India.
4. Basandra SK, *Computers Today Updated Edition*, Galgotia Publication, 2008
5. URL: [http// www.w3.org/html/](http://www.w3.org/html/)

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