COMPUTER STUDIES

SYLLABUS

INTRODUCTION

This course is designed to develop student's knowledge: skills, values and attitudes in computer technology that will be transferable to their profession and future life directions. It provides students with basic knowledge of computer technology that enhances their personal and professional productivity. Studying of Computer science helps to communicate effectively through the use of technological innovations.

Student should know:

- basic concepts, theories, and laws of computer science and their applications;
- basic skills in using computer software for research purposes.

Student should be able to:

- organize, analyze and evaluate information from electronic sources;
- identify and describe a variety of information systems;
- apply knowledge and skills in creating solutions to information problems using a range of software;
- identify different ways of safeguarding important data and computer hardware and software.

Student should obtain:

- techniques of creating well-designed documents using word processing;
- practical skills of usage of spreadsheets and databases;
- techniques of creating multimedia presentations using a range of hardware and software devices;
- different search techniques to search for information using Internet.

CONTENTS

Introduction to subject

Course overview. Course requirements and student responsibilities. Laboratory safety requirement. Organization of practical classes. Definition and examples of data and information. Differences between data and information. Information technology. Uses of computers in human beings. The use of computers and computer technology in medicine.

Computer evolution

Generations and types of computers: prehistoric and early calculating devices. Generations of computers. Types of computers.

Fundamentals of computing

Definition of a computer. Two main constituents of a computer: computer hardware, computer software. Classification and examples of hardware and software. Functional parts of a computer. Characteristics of computers: accuracy, speed, interactive, etc.

Definition and examples of input devices. The use of keyboard, mouse, scanner, etc. Classification of keys on the keyboard into function, numeric, alphabetic. Cursor keys. Features, function and operation of the mouse. Output devices: monitor, printer, speaker. Differences between input and output devices. Components of C.P.U.: arithmetic and logic unit, control unit. Function of ALU and control unit. Memory unit. Types of memory unit: primary and secondary memory. Components of primary memory unit: ROM and RAM. Differences and uses of ROM and RAM. Examples of seconadry memory devices: floppy disk, hard disk, compact disk (CD), flash disk, digital video disk (DVD). Unit of storage in memory devices: bits, bytes, kilobytes, megabytes, gigabytes, terabytes. Interconversion of unit of storage.

Managing computer files

Definition of some terms: computer file, record, field, data item. File structure organization. Types of file organization system: FAT, NTFS. Logical discs. File manager program. Total commander file manager. Main settings. Basic operation on computer files: open, delete, retrieve, insert, copy, view, close.

File archiving

Main principles of file archiving. Popular file archive programs: WinRAR, 7z, Allzip. Packing (creation) of RAR or ZIP archives. Unpacking files. Creating multi-volume (split) archives, self-extracting files. Adding comments to archive.

Computer software

Definition and types of software: system software, application software. system software and their examples. Examples of operating system: MS Windows, Linux, UNIX, MS-DOS, etc. Definition and types of application software. Common

application packages and their examples: word processing (MS Word), spreadsheet (MS Excel), database (MS Access), graphics. Packages for spreadsheet purpose: accounting software, payroll program, banking software, education management software, statistical packages, hospital management software.

Standard Windows applications: Notepad, WordPad, MS Calc, MS Paint.

Word Processing

Introduction to MS Word processor. Elements of program environment (menu, toolbars, status bar, rulers, scrollbars, etc.). Changing default settings. Creating, saving and opening the documents. Copying, moving, deleting and formatting text (font, size, color, alignment, line and paragraph spacing). Finding and replacing text. Creating and manipulating tables. Inserting header, footer, footnotes, endnotes, page numbers, file, page break, section break, graphics, pictures, charts, word art, symbols and organization chart. Borders and shading. Opening and saving different types of document. Autocorrect, spelling and grammar checking, and thesaurus. Customizing menu and toolbars. Master document, cross reference, index, table of content. Setting page layout, previewing and printing documents.

Spreadsheet

Introduction to MS Excel spreadsheet program. Elements of MS Excel environment (menu, toolbars, status bar, formula bar, scrollbars, etc.). Changing default settings. Creating, saving and opening the documents. Definition of basic terms in MS Excel (worksheet, workbook, cells, cell ranges). Data types in MS Excel: number, labels. Basic operation in MS Excel (data entry, saving, retrieve, copy, move). Arithmetic calculations using formulas and built-in functions. Additional operation in MS Excel (editing, formatting, printing, drawing charts, etc).

Database

Definition of database and database packages. MS Access. Basic terms in database: file, record, field, key. Types of database organization, methods and their features: hierarchical, network, relational. Features of database format: files designed as tables, tables comprise row and columns, row containing related information about a record, column containing specific type of information about a field. Steps in creating database: define the structure, indicate field type (numeric, character, data, text, etc), enter data, save data. Basic operations on already created database: searching, modifying, sorting, reporting, selecting, inserting, etc.

Security and reliability

Sources of security breaches: virus, worms and trojan horses, poor implementation of network, poor implementation or lack of ICT policies, carelessness as giving out personal and vital information on the net without careful screening, hackers, spammers etc. The affect of a virus on a computer system. Preventive measures. Use of antivirus software e.g. Norton, Mcafee, Avast, etc. Use of firewall. Exercising care in giving out vital and personal information. Encryption. Proper

network implementation and polies. Using sites with web certificates. Exercising care in opening e-mail attachments. Antivirus programs: installing, changing default settings. Scanning files, folders, logical disks.

Presentation package

MS PowerPoint presentation package. Features of PowerPoint environment. Steps in activating and exiting PowerPoint. PowerPoint operations: create new presentation, insert pictures, text, graphs, animated contents, add new slide, save presentation. Run slide show. Print presentation. Close presentation.

Internet technologies

Definition of Internet and some Internet terms (homepage, browse, browser, chatroom, cybercafe, HTTP, HTML, ISP, webpage, website, etc). Features of Internet browsers: title bar, menu bar, tool bar, address bar, etc. Types of Internet services: electronic mail (email), e-mail discussion group, instant messaging, telnet, usenet, file transfer protocol (FTP), worldwide web (www), chatting, etc. Definition of electronic mail. E-mail Services: sending and receiving mail, chatting, etc. Steps involved in creating e-mail account. Steps involved in opening mail box. Features in an e-mail address.