COMPUTER APPLICATION IN MANAGEMENT

(For Undergaraduate Classes)

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PREFACE

Knowledge of computers and its applications in management and planning is essential for management personnel's. This book is designed with a view to help management graduate with basic knowledge of computer and its applications in the field of management. Even though this book is prepared in accordance with the syllabus given in this book, it also covers in depth information about the application of computers in Management Information Systems and Office Automation.

This book is divided into five chapters. Each chapter covered one unit of the syllabus. The first chapter deals with the introduction to computer. Here we deal with the characteristics of computer and its classifications. Finally we deal with the application of computers in accounting. In the second chapter we deal with interconnection computers. We conclude the chapter with the concepts of databases.

In third chapter, we introduce Management Information System. Here we deal with the characteristics and components of information system. Critical success factors of MIS and its implementation is also dealt in this chapter. Fourth chapter also continues with the MIS, with an emphasis on the characteristics of MIS and it role in decision making. Finally the last chapter deals with other application of computers namely the office automation. Here we deal with the virtual office and its role in modern office.

I am grateful to United Publishers, Mangalore for undertaking the publication of this book. Any suggestions for improvement of this book would be welcomed and gratefully acknowledged and made use in subsequent editions.

Mangalore **Mani Bushan D'Souza**

Syllabus

Unit 1 : **Introduction to computer-** Types of computer: Based on their Construction and Working, Based on Applications, Based on Size, Speed and Capability- Characteristics of a computer- Components of computer with block diagram: Input Unit, Memory Unit, Central Processing Unit (CPU), Arithmetic Logic Unit (ALU), Output unit- Computer software and its classification: A) System Software 1. System Control Software; Operating System-Introduction and definition of Operating System-Function of operating system. 2. System Support Software and 3. System Development Software. B) Application software: Open-ended Software (General-purpose software), Application Specific Software, User-specific Software- Accounting Packages- Introduction to Tally-uses of Tally

12 hours

Unit 2 : Introduction to computer networking-uses-Advantages of computer networks-Types of networks: LAN(Local Area Network), WAN(Wide Area Network), MAN(Metropolitan Area Network)-Network topology: Meaning of network topology-Types of network topologies: Bus Topology, Star Topology, Ring Topology, Mesh Topology-Introduction to Internet-Services of Internet: E-mail, Bulletin Boards, Usenet and Newsgroups, FTP(File Transfer Protocol), Telnet or Remote Login, Chat- Introduction to Database and Database Management System(DBMS)-Concept of Database and Database Management System - Advantages or Facilities of DBMS- Database Models: Relational Model, Hierarchical Model and Network Model. **12 hours**

Unit 3 : **Introduction to Management Information Systems -** Concept of information - Definition of information -Concept of MIS - Definition of MIS - Objectives of MIS - Characteristics of MIS - Need for MIS - Benefits of MIS - Limitations of MIS. Functions of MIS: Collect data, Store and process data and Present information to managers. The role of MIS - Importance of MIS - Components of information system: Hardware, Programs, Data, Procedures and People. Structure of information system - MIS organization: Top management or strategic level, Middle

management or tactical level and supervising management or operational level.

Framework for information systems: Strategic Planning, Managerial Control and Operational Control - Critical success factors of MIS implementation. 12 hours

Unit 4 : MIS as -a communication process - MIS planning: Determination of the users needs in specific terms, Identification of inputs and human machine interface, Determination of scope of the system, Budgets, Scheduling.

Establishing an MIS - Process of establishing an MIS: (planning, designing, implementing and improving the MIS). Data and Information- Concept of data - Data v/s Information - Concept of data processing - Nature of information - Manager and information - Characteristics of information: Quality, Timeliness, Completeness and Relevance. Sources of information: Internal and External.

MIS and decision making - Phases of decision making process: Intelligence, Design and Choice. **12 hours**

Unit 5 : Office Automation Systems - Concept of office - Traditional and Modern concept (Location and functional concept) - Definition of office - Functions of office - Primary or routine functions and auxiliary or administrative functions. Nature or characteristics of office. Concept of office automation - Model of office automation system - Advantages of office automation and Disadvantages of office automation.

Virtual office - Concept of Virtual office - Advantages of virtual office - Disadvantages of virtual office - Measures for making virtual office effective - Office automation applications: Word processing, Desktop processing, Videotex, Document, Imaging, Electronic mail, Voice mail, Electronic calendaring, Audio and Video conferencing, Computer conferencing and Facsimile transmission - Role of office automation in problem solving. 12 hours

Total hours 60

CONTENTS

UNIT I: INTRODUCTION TO COMPUTER

Introduction to computer- Types of computer: Based on their Construction and Working, Based on Applications, Based on Size, Speed and Capability- Characteristics of a computer- Components of computer with block diagram: Input Unit, Memory Unit, Central Processing Unit (CPU), Arithmetic Logic Unit (ALU), Output unit- Computer software and its classification: A) System Software 1. System Control Software; Operating System-Introduction and definition of Operating System-Function of operating system. 2. System Support Software and 3. System Development Software. B) Application software: Open-ended Software (General-purpose software), Application Specific Software, User-specific Software- Accounting Packages-Introduction to Tally-uses of Tally

Introduction:

We are familiar with a word 'compute'. It means 'to calculate'. In our day today life we do some or other calculation. These may include some mathematical operations like addition, subtraction, multiplication, etc. Simpler calculations take less time, but complex calculations take much longer time. From the past history we have learnt that man had discovered many machines that can perform arithmetic calculations faster and with more accuracy. These innovations gave birth to a new type of a device called 'computer'.

To put it in simple terms a computer is an electronic machine that can perform arithmetic calculations much faster than a calculator. For a common man computer is simply a calculator, which works automatically and is quite fast. For a person who knows much about it, *a computer is an electronic machine that operates under the control of a set of instructions. It is a tool for accomplishing the data processing functions. It processes data and delivers information in large volumes, efficiently, and at relatively low cost*.

A computer is different from any other machines because it performs its actions according to the instructions that are given to it. Thus we can control the activities of a computer according to the instructions that are supplied to it. The set of sequenced instructions that are

supplied to the computer to perform a particular operation is called as a **program**.

Thus we can define as a computer as **an electronic device that is capable of solving problems by processing information according to the given instructions.** It accepts data from an input device and processes them into useful information. It then displays the results of operations on an output device. It can thus be considered as a universal information manipulator.

The computers we see today are quite different from the past ones, their speed, accuracy and application areas have changed drastically from the past. They are used in many aspects of daily life. Such as in tickets reservation for Airlines and Railways, payment of telephone and electricity bills, deposits and withdrawals of money from banks, business data processing, medical diagnosis, weather forecasting, etc. Thus computer plays an important role in almost every part of our lives. It has become so important that without it we would not be able to live a modern life.

Types of computers:

Computers can be divided into different categories depending upon the size, efficiency, memory and number of users. Broadly they can be classified according to the following criteria.

1. Classification based on their construction and working.
2. Classification based on applications.
3. Classification based on size speed and capability.

1. Classification based on construction and working.

Based on the operating principles, computers can be classified as one of the following.

Analog Computers: These computers are used to monitor continuously changing signals. They contain analog devices and handle information which is of physical nature. Analog computers derive all their data from some form of measurement. They represent fractional or irrational values exactly, with no round off. The accuracy of data used in an analog computer is directly related to the precision of its measurements. They use continuous physical phenomena such as electrical, mechanical, or hydraulic quantities to model the problem being solved. Analog computers find applications in chemical plants to process variation of temperature and pressure or in petrol service

station's pump that converts fuel flow measurements into quantity and price values.

Digital Computers: These computers can accept discrete data such as digits and other symbols process them and give output in a human readable form. For instance, a binary digital computer uses two discrete states, such as positive/negative, high/low, on/off, used to represent the binary digits zero and one. It process data, which is essentially in a binary state. Unlike the analog computer, which is limited to the accuracy of the measurements made, the digital computer can accurately represent data using as many positions and numbers as necessary. Digital computers have high memory capacity and are used in applications such as preparation of bills and word processing applications, as well as in specialised application such as solving simultaneous equations etc.

Hybrid computers: These computers use the principles of both analog and digital computers. Hybrid computer is a digital computer that accepts analog signals, converts them to digital and processes them in digital form. This integration is obtained by digital to analog and analog to digital converter. A hybrid computer may use analog data and produce analog or digital data. During its operation a hybrid computer accepts a continuously varying input, which is then converted into a set of discrete values for digital processing. In general a hybrid computer capable of real-time solution is less expensive than any equivalent digital computer. Hybrid computers offer a cost-effective method for performing complex simulations. They are also used in hospitals to measure the heartbeat of the patient in scientific applications or in controlling industrial processes.

2. Classification based on applications.

Computers are available in different shapes, sizes and weights, due to these different shapes and sizes they perform different sorts of jobs from one another. A computer that is used in a home differs in size and shape from the computer being used in a hospital. Computers act as a server in large buildings, while the computer also differs in size and shape performing its job as a weather forecaster. Let us look at the classification of computers based on their application

General Purpose computers:

These are designed to meet the needs of many different applications. In these computers the instructions needed to perform a particular

task are not wired permanently into the internal memory. Thus new instructions can be loaded as and when required for processing. They can be used to prepare pay bill, manage inventories, print sales reports etc.

Special purpose computers:

These computers are dedicated to cater the requirements of a particular task or application. These do not possess unnecessary options and thus costs less. Examples, Computers that are built into high-end digital camera, automobile fuel and ignition control etc.

3. Classification based on size speed and capability.

Based on size, speed and capability to handle volume of data, computers can be classified into one of the following type.

Supercomputers:

Fig. 1.1 Supercomputers

Supercomputers are the fastest computers with extremely large storage capacities and computing power. These are more powerful than mainframes and are ideal for computing applications that involve large volumes of data and intensive computing. They can process upto a billion instructions per second. To support such extreme computations they are required to retrieve the stored data rapidly. Therefore, in addition to large storage capacity, the super computers have a very fast Input-Output capability.