

LECTURE PLAN

MCA

SEMESTER I

FOR PRIVATE CIRCULATION

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LECTURE PLAN

FUNDAMENTALS OF INFORMATION TECHNOLOGY

MCA-101

COURSE OUTLINE
MCA-I SEMESTER
FUNDAMENTALS OF INFORMATION TECHNOLOGY
MCA 101

L T C
3 1 4

OBJECTIVE:

The course covers a foundational understanding of computer hardware, software, operating systems, peripherals and troubleshooting to make students aware of the computer technology.

Software turns a computer into a powerful tool for creating, finding, organizing, and communicating information. The course also examines how software and hardware work together to perform computing tasks and how software is developed and upgraded.

INTERNAL ASSESSMENT AND ASSIGNMENT

(25 marks)

1. Class Test-I – (Written Test)

15 marks

2. Class Assessment + Attendance

10 marks

COURSE CONTENTS:

A. INTRODUCTION TO DIGITAL ELECTRONICS

(10 Hours)

- Digital Signals and Logic gates
- Number systems
- Binary octal and hexadecimal number systems
- Signed binary number
- Binary arithmetic, 2's complement arithmetic
- Microprocessors Introduction -System Bus, Architecture and operation of 8085 microprocessor
- Instruction set

B. INTRODUCTION TO SOFTWARE AND GRAPHIC PRIMITIVES

(12 Hours)

- Types of software
- Software development activities (Requirement, Design (algorithm, flowchart, decision table and tree), Coding, Testing, Installation, Maintenance).
- Low level & High level languages
- Assemblers, Compilers & Interpreters
- Display Devices: Refresh Cathode Ray Tube, Raster Scan Display, Plasma Display, Liquid Crystal Display, Plotters, Printers, Keyboard, Trackball, Joystick, Mouse, Light Pen, Tablet and Digitizing Camera.
- External Storage devices.

C. OPERATING SYSTEMS & DATABASE MANAGEMENT SYSTEM (10 Hours)

- Functions of operating system
- Types of operating system and its working
- DOS commands
- File Structure and Storage
- Process Management
- Database Management Systems
- Types of DBMS

D. COMMUNICATION NETWORKS (10 Hours)

- Elements of a Communication System
- Data Transmission Media
- Digital & Analog Data Transmission
- Network Topologies
- Types of Networks
- Communication Protocols
- Inter networking tools

STUDY MATERIAL FOR THE SUBJECT

Following will be the study material for topics of computers and students are advised to go through the material for thorough understanding of the subject.

➤ TEXT BOOK

1. **Author's Name(s):** P.K Sinha & Priti Sinha.
Title: Computer Fundamentals
Edition: VI **Year:** 2013
Publisher: BPB Publications (ibid 1)

➤ REFERENCE BOOKS

1. **Author's Name(s):** Alex Leon & Mathews Leon
Title: Fundamentals of Information Technology
Edition: II **Year:** 2011
Publisher: Vikas Publishing House (ibid 2)
2. **Author's Name(s):** Behrouz A. Forouzan
Title: Data Communication & Networking
Edition: V **Year:** 2013
Publisher: Tata Mcgraw Hill (ibid 3)
3. **Author's Name(s):** S Salivahanan, S Arivazhagan
Title: Digital Circuit and Design
Edition: IV **Year:** 2013
Publisher: Vikas Publishing House (ibid 4)
4. **Author's Name(s):** Ramesh Gaonkar
Title: Microprocessors Architecture, Programming, & Application with the 8085
Edition: V **Year:** 2012
Publisher: Penram International Publishing (India) Pvt. Ltd (ibid 5)
5. **Author's Name(s):** V. Rajaraman
Title: Fundamentals of Computers
Edition: V **Year:** 2011
Publisher: PHI (ibid 6)

➤ PERIODICALS

- Operating Systems Review
- International Journal of Information Technology and Knowledge Management
- The IUP Journal of Information Technology

LECTURES 1-2

DIGITAL SIGNALS AND LOGIC GATES

OBJECTIVE:

The objective of these lectures is to familiarize the students with basic building blocks of digital circuit which are used in processors of computer systems. The students will learn elementary logic gates which are used to build up logic circuits of different types for performing necessary arithmetic operations.

CONTENTS:

- Digital Signals
- Basic Gates
 - AND Gate
 - OR Gate
 - NOT Gate
- Universal Gates
 - NAND Gate
 - NOR Gate
 - NAND Gate
 - NOR Gate
 - EXOR Gate
 - EXNOR Gates
 - NAND-NAND Circuit
 - NOR-NOR circuit

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit 1 Section II Q7, 8, 10, 11, 15
- 2 Refer to Unit 1 Section IV Q3

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 101 Q1-12
- 2 ibid 4, Page No. 120 Q1-19

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 79-95

REFERENCE BOOKS:

- 1 ibid 4, Page No. 83-104
- 2 ibid 6, Page No. 112-138

ARTICLE:

- 1 “Hybrid Model for Data Security in Cloud”, Ogwueleka Francisca Nonyehem and Moses Timothy, the IUP Journal of Information Technology, Vol.XII, Number 4, Sepember 2015. Page No. 7-21.

LECTURES 3-6

NUMBER SYSTEM

OBJECTIVE:

Every computer stores numbers, letters, and special characters in coded form. Before going to any other details, it is essential to have a basic understanding of number system. These lectures introduce students to Binary number system other than Decimal Number System and basic arithmetic operations that are performed inside a computer by using binary numbers. It also explains the utility of these systems in computer system.

CONTENTS:

- Number System
 - Binary Numbers
 - Decimal-Binary Conversion
 - Octal Numbers
 - Octal - Binary Conversion
 - Hexadecimal Numbers
 - Hexadecimal-Binary Conversion
 - Hexadecimal-Octal Conversion
- Arithmetic operation
 - Binary Arithmetic
 - 1's and 2's Complements
 - 1's complement Subtraction
 - 2's compliment Subtraction
 - Signed Binary Number Representation
 - Addition in the 2's complements system
 - Arithmetic overflow
 - Comparison Between 1's and 2's compliments

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit I Section I Q1-8

- 2 Refer to Unit I Section II Q1-6
- 3 Refer to Unit I Section III Q11-12, 18

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 37 Q1-18
- 2 ibid 2, Page No. 74 – 76 Q1-15

SUGGESTED READINGS:

REFERENCE BOOKS:

- 1 ibid 2, Page No. 62-73
- 2 ibid 4, Page No. 1-35
- 3 ibid 6, Page No. 14-28

LECTURES 7-10

MICROPROCESSOR

OBJECTIVE:

The microprocessor is the heart of any normal computer, whether it is a desktop machine, a server or a laptop. A microprocessor also known as CPU or central processing unit is a complete computation engine that is fabricated on a single chip. The objective of these lectures is to discuss the architecture of a microprocessor.

CONTENTS:

- Microprocessor
 - Introduction
 - An Ideal Microprocessor
 - The Data Bus
 - The Address Bus
 - The Control Bus
 - Microprocessor Based System- Basic Operation
 - Microprocessor Operation
 - Microprocessor Architecture
 - Instruction Set
 - The 8085A Microprocessor
 - The 8086 Microprocessor

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer to Unit IV Section IV Q5 – 7, 13
- 2 Refer to Unit I Section III Q14

SUGGESTED READINGS:

REFERENCE BOOK:

- 1 ibid 5, Page No. 4-13, 32-52, 58-63, 96-109
- 2 ibid 6, Page No. 222-229

WEBSITE:

- 1 <http://zebu.uoregon.edu/~rayfrey/432/DigitalNotes.pdf>

ARTICLES:

- 1 “Cooperative Group Provisioning with Latency Guarantees in Multi- Cloud Deployments”, Sean Yaw, Eben Howard , Brendan Mumey, Mike P.Wittie, ACM SIGCOMM Computer Communication Review , Volume 45, Number 3, July 2015. Page No. 5 – 11.

LECTURES 11-12

COMPONENTS OF A COMPUTER

OBJECTIVE:

A computer cannot do anything on its own. It must be instructed to do a job desired by us. The terms Hardware and software are frequently used in connection with computers. The physical devices (input, storage, control and output devices) of computer system are called Hardware. Thus, to instruct a computer to do a job, we need software. These lectures deal with the meaning, types and functions of software.

CONTENTS:

- Definition of a software
- Types of software
 - System software
 - Application software

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit II Section II Q 1, 4, 12, 16
- 2 Refer to Unit II Section III Q 1, 2

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 22, Q 1,8
- 2 ibid 2, Page No. 166-168, Q 1-8

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 18-21

REFERENCE BOOK:

- 1 ibid 2, Page No. 149-166

WEBSITES:

- 1 <http://study.com/academy/lesson/what-is-application-software-definition-examples-types.html>
- 2 <http://uwf.edu/clemley/cgs1570w/notes/concepts-3.htm>

LECTURES 13-16

SOFTWARE DEVELOPMENT CYCLE

OBJECTIVE:

The objective of these lectures is to make student understand the various phases of software development.

CONTENTS:

- Requirement Analysis
- Software Design
- Implementation & Coding
- Testing
- Maintenance

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit II, Section III Q4, 10
- 2 Refer to Unit II, Section II Q 17, 22, 23

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 195, Q 37, 38
- 2 ibid 2, Page No. 186-190, Q 1-25

SUGGESTED READINGS:

TEXT BOOK:

1 ibid 1, Page No. 189-190

REFERENCE BOOK:

1 ibid 2, Page No. 170-185

ARTICLES:

- 1 Manish Sharma, "A Survey of Project Scenario Impact in SDLC Models Selection Process", International Journal of Scientific & Engineering Research, Volume 2, Issue 7, Page No. 1-4, July-2011.
- 2 Naresh Kumar, A. S. Zadgaonkar, Abhinav Shukla, "Evolving a New Software Development Life Cycle Model SDLC-2013 with Client Satisfaction", International Journal of Soft Computing and Engineering (IJSCE) ISSN: 2231-2307, Volume-3, Issue-1, March 2013.
- 3 Velmourougan S, Dhavachelvan P, Baskaran R, Ravikumar B., "Software development Life cycle model to build software applications with usability." International Journal of Advances in Computing, Communications and Informatics , (ICACCI), page No. 271-276 , Volume 4, Sept 2014 .

LECTURE 17

PROGRAMMING LANGUAGES

OBJECTIVE :

This lecture discusses the development of computer programs which has to be written in a language acceptable to a computer system, called computer language or programming language. It also discusses different translators used to convert high level languages to machine language.

CONTENTS:

- High Level & Machine Level Language
 - Assemblers
 - Compilers
 - Interpreters

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit II, Section II Q 12, 18
- 2 Refer to Unit II, Section III Q3,6

OTHER ASSIGNMENT:

- 1 ibid 1, Page No. 254, Q 1-34

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 220-235

REFERENCE BOOK:

- 1 ibid 4, Page No. 49

WEBSITES

1. <http://c2.com/cgi/wiki?HighLevelLanguage>
2. http://www.teachict.com/gcse_computing/ocr/216_programming/programming_languages/m\niweb/pg4.htm
3. <https://www.macs.hw.ac.uk/~pjbk/pathways/cpp1/node22.html>

ARTICLES

- 1 Ray B, Posnett D, Filkov V, Devanbu P. , “A large scale study of programming languages and code quality “,SIGSOFT International Symposium on Foundations of Software Engineering , page no. 155-165, Nov, 2014.

LECTURES 18-21

I/O DEVICES

OBJECTIVE:

The major constituents of computer system are input and output devices. The objective of these lectures is to explain the students the various input & output devices along with their functionality and usage.

CONTENTS:

- Input Devices
 - Keyboard
 - Mouse

- Trackball
- Joystick
- Light pen
- Scanner
- Output Devices
 - Printers
 - Plotters
 - Monitor
 - Audio output
 - Digitizing Camera

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit II, Section III Q 2, 5, 8, 9, 14, 15, 16, 18, 19

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 177, Q 1-19
- 2 ibid 2, Page No. 128, Q 1-10

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 155-175

REFERENCE BOOK:

- 1 ibid 2, Page No. 111-127, 132-146

WEBSITES:

- 1 http://research.microsoft.com/en-us/um/people/kenh/papers/crc_iochapter.pdf
- 2 <http://my.unp.edu.ph/claroline/backends/download.php>
- 3 <http://users.csc.calpoly.edu/~fkurfess/Courses/486/S12/Slides/486-S12-03-IO-Devices.pdf>

LECTURE 22

STORAGE DEVICES

OBJECTIVE:

The other major components of computer system are storage devices, which are of two types: Primary and secondary storage Devices. The lecture explains the structure and functioning of different primary & secondary storage devices.

CONTENTS:

- Classification of Memory
 - Primary Memory
 - RAM (SRAM,DRAM)
 - ROM(Masked, PROM, EPROM. EEPROM, Flash ROM)
 - Secondary Memory
 - Magnetic Devices
 - Magnetic Tapes
 - Magnetic Disks
 - Optical Devices
 - CD ROM
 - Magneto Optical Devices
 - CD RW

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit II, Section II Q 8, 10, 20
- 2 Refer to Unit II, Section IIIQ 1, 7, 11, 12, 13

OTHER ASSIGNMENT:

- 1 ibid 1, Page No. 120, Q 40-48

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 112-118

REFERENCE BOOK:

- 1 ibid 2, Page No. 95-107

LECTURES 23-29

OPERATING SYSTEMS

OBJECTIVE:

The objective of the lectures is to make students understand the different concepts of operating systems namely its functions, types & structure. It also aims to discuss the DOS & UNIX commands.

CONTENTS:

- Definition of OS
- Functions of OS
 - File Management
 - Device Management
 - Memory Management
 - Process management
 - Security
 - Command Interpretation
- Structure of OS
 - Layered Architecture
 - Kernel(Monolithic & Microkernel)
- Types of OS
 - Batch Operating System
 - Uni-programming
 - Multiprogramming
 - Time sharing
 - Real Time
- DOS Commands
- UNIX/LINUX Commands
- Process synchronization
- Threads

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit III, Section II Q 1, 2, 3, 4, 5, 6, 7, 8, 9, 17, 18
- 2 Refer to Unit III, Section III Q 1, 2, 3, 6, 7, 8, 10, and 11
- 3 Refer to Unit IV, Section II Q- 4,5 7,8 and 9

OTHER ASSIGNMENT:

- 1 ibid 1, Page No. 298, Q 1-20, 79-83

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 270-294

REFERENCE BOOK:

- 1 ibid 2, Page No. 200-204

ARTICLES:

- 1 Bruce W. Arden, Alan D. Berenbaum, “A Multi-Microprocessor Computer System Architecture”, Operating Systems Review Volume 9, Number 5, November, 1975, Page No. 114-121.
- 2 SumanSaha, Julia Lawall , Gilles Muller, “Finding Resource-Release Omission Faults in Linux”, Operating Systems Review, Volume 45, Number 3, December, 2011, Page No. 5-9.
- 3 Chandley AM, Magendanz CL, Schoppa CA, Crosier DC, Anderson JM, Perez JJ, Stufflebeam Jr KW, DeMaio P, Kaneko ST, Westerinen WJ, inventors. Task-oriented processing as an auxiliary to primary computing environments. United States patent US 7,152,171. 2006 Dec 19.

LECTURES 30-32

DATABASE MANAGEMENT SYSTEMS

OBJECTIVE:

The objective of the lectures is to make students understand the different concepts related to database, its comparison with traditional file processing systems.

CONTENTS:

- Definition of DBMS
- Comparison of File processing systems & Database Management Systems
- Types of DBMS
 - Hierarchical
 - Network
 - RDBMS
 - OODBMS
- Entity Relationship Modeling
 - Entities
 - Relationships
 - Keys
 - Constraints

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit III, Section II Q 10, 11, 12, 13, 14, 15, 16, 20, and 21
- 2 Refer to Unit III, Section III Q 4, 5, 9

OTHER ASSIGNMENT:

- 1 ibid 1, Page No. 343, Q 6-8, 33-53, 64

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 330-340

REFERENCE BOOK:

- 1 ibid 2, Page No. 223-232

ARTICLES:

- 1 Michael J. Fischer, Nancy A. Lynch, Michael S. Paterson,” **Impossibility of Distributed Consensus with one Faulty Process**”, **Journal of the ACM (JACM)**, Volume 32, Issue 2, Page No. 374 - 382 , <http://doi.acm.org/10.1145/3149.214121>.
- 2 Michael Stonebraker, “Object-Relational DBMS - The Next Wave”, Philip A. Bernstein, Vassos Hadzilacos, Nathan Goodman, “Concurrency control and recovery in database systems”.
- 3 “Research Challenges in Future Multi- domain Network Performance Measurement and Monitoring “, Prasad Calyam , Martin Swamy, ACM SIGCOMM Computer Communication Review , Volume 45, Number 3, July 2015. Page No. 29 – 34.

LECTURES 33-42

COMMUNICATION NETWORKS

OBJECTIVE:

These lectures will help students to understand the concepts of a data communication system & technologies. They will learn how to use these technologies for building different types of computer networks.

CONTENTS:

- Elements of a communication system
 - Sender
 - Receiver
 - Transmission Medium
 - Message
- Data Transmission Modes
 - Simplex

- Half Duplex
- Full Duplex
- Data Transmission speed
 - Bandwidth
- Transmission media
 - Guided Media
 - Co axial cable
 - Twisted pair
 - Fiber optics
 - Unguided Media
 - Radio waves
 - Microwaves
 - Satellite Communication
- Network Topologies
 - Star
 - Mesh
 - Tree
 - Bus
 - Hybrid
- Types of Networks
 - LAN
 - MAN
 - WAN
- Communication Protocols
 - OSI Model (7 Layers)
 - Physical Layer
 - Data Link Layer
 - Network Layer
 - Transport Layer
 - Session Layer
 - Presentation Layer
 - Application Layer
- Internetworking Tools
 - Repeaters
 - Hubs
 - Switches
 - Routers
 - Gateways

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit IV, Section II Q 1-20, 21, 22, 23, 24, 25
- 2 Refer to Unit IV, Section III Q 1-5, 12, 13, 14, 15, 16

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 379, Q 1-55
- 3 ibid 2, Page No. 300, Q 1-15

SUGGESTED READINGS:**TEXT BOOK:**

- 1 ibid 1, Page No. 346-377

REFERENCE BOOKS:

- 1 ibid 2, Page No 288-300
- 2 ibid 3, Page No. 1.1-1.18

WEBSITES:

- 1 <http://compnetworking.about.com/od/networkdesign/a/topologies.htm>
- 2 <http://study.com/academy/lesson/types-of-networks-lan-wan-wlan-man-san-pan-epn-vpn.html>

ARTICLES:

1. Liu Z, Huang N, Li D., “An Algorithm for Delay-Reliability in Communication Networks Based on Probabilistic User Equilibrium Model”, in Information Science and Cloud Computing Companion (ISCC-C), page no. 135-141, Dec, 2014.
2. “Algorithmic Nuggets in Content Delivery “, Bruce M. Maggs , Ramesh K. Sitaraman , ACM SIGCOMM Computer Communication Review , Volume 45, Number 3, July 2015. Page No. 52-66.

LECTURE PLAN

PROGRAMMING IN C

MCA-103

**COURSE OUTLINE
MCA-I SEMESTER
PROGRAMMING IN C– MCA 103**

**L T C
3 1 4**

OBJECTIVE:

C is one of the most popular programming languages. It is widely used on many different software platforms. C has greatly influenced many other popular programming languages, most notably C++, which originally began as an extension to C.

Moreover, in industry where newer languages, tools and technologies emerge and vanish day in and day out, a language that has survived for more than three decades has to be really good.

The objective is to learn four important aspects of the language namely data storage methods, data operation, input and output operation and the sequence of execution of instructions in a program. This will help the programmers to use C programming for developing system applications.

INTERNAL ASSESSMENT AND ASSIGNMENT

(25 marks)

1. Class Test-I – (Written Test)

20 marks

2. Class Assessment + Attendance

5 marks

COURSE CONTENTS

UNIT I

(10 hours)

- C Basics
 - History of C
 - Characteristics of C
 - C Program Structure
 - Variables
 - Defining Global Variables
 - Printing Out and Inputting Variables
 - Constants
 - Arithmetic Operations
 - Comparison Operators
 - Logical Operators
 - Order of Precedence
- Conditionals
 - The if statement
 - The? operator
 - The switch statement
- Looping and Iteration

- The for statement
- The while statement
- The do-while statement
- break and continue
- Arrays and Strings
 - Single and Multi-dimensional Arrays
 - Strings
- Functions
 - Function Prototyping
 - Passing parameters
 - Returning values
 - Recursion
- Storage Classes
 - Auto
 - Extern
 - Static
 - Register

UNIT II

(12 hours)

- Further Data Types
 - Structures - Defining New Data Types
 - Unions
 - Coercion or Type-Casting
 - Enumerated Types
 - Low Level Operators and Bit Fields (Bitwise Operators , Bit Fields)
- Pointers
 - Pointers arithmetic and Arrays
 - const Pointers
 - void pointers
 - near, far and huge pointers
- Dynamic Memory Allocation and Dynamic Structures
 - Malloc, Calloc and Realloc
 - Sizeof, and Free
 - Linked Lists
 - Dynamic 2- dimensional arrays
- Advanced Pointer Topics
 - Pointers to Pointers
 - Pointer to array
 - Array of pointers
 - Command line input
 - Pointers to a Function
 - Implementing Callbacks

UNIT III

(11 hours)

- The C Preprocessor
 - #define
 - #undef
 - #include
 - #if -- Conditional inclusion
 - Other Preprocessor Commands
- C, LINUX and Standard Libraries
 - Advantages of using LINUX with C
 - Using LINUX System Calls and Library Functions
- Integer Functions, Random Number, String Conversion, Searching and Sorting: <stdlib.h>
 - Arithmetic Functions
 - Random Numbers
 - String Conversion
 - Searching and Sorting
- Mathematics: <math.h>
 - Math Functions
 - Math Constants
- Input and Output (I/O):stdio.h
 - Reporting Errors (perror() , errno , exit())
 - Streams (Predefined Streams , Redirection)
 - Basic I/O (Formatted I/O , Printf , scanf)
 - String Handling: <string.h> (Basic String Handling Functions , String Searching)
 - Character conversions and testing: ctype.h
- Files
 - Character and Line based I/O
 - Formatted I/O
 - Block I/O
 - File Positioning
 - Status Functioning
 - Deletion and Renaming
 - Temporary Files

UNIT IV

(9 hours)

- File Accessibility and Directories (access, stat, chmod, chown...., chdir, chroot....)
 - Process Control: <stdlib.h>,<unistd.h>
 - Running LINUX Commands from C
 - exec()
 - fork()
 - wait()
 - exit()
- Thread Creation – a simple implementation

STUDY MATERIAL FOR THE SUBJECT

Following will be the study material for topics of C Programming and students are advised to go through the material for thorough understanding of the subject.

➤ TEXT BOOKS

1. **Author's Name(s):** YashawantKarnetkar
Title: Let Us C
Edition: XII **Year:** 2012
Publisher: BPB Publications (ibid 1)
2. **Author's Name(s):** Kernighan, Ritchie
Title: The C Programming Language
Edition: 2nd **Year:** 2012(Reprint)
Publisher: PHI (ibid 2)

➤ REFERENCE BOOKS

1. **Author's Name(s):** E. Balagurusamy
Title: Programming in ANSI C
Edition: VI **Year:** 2012
Publisher: Tata McGraw Hill Publishing Co. Ltd (ibid 3)
2. **Author's Name(s):** YashawantKarnetkar
Title: Understanding Pointers in C
Edition: VI **Year:** 2011
Publisher: BPB Publications (ibid 4)
3. **Author's Name(s):** K R Venugopal
Title: Mastering C
Edition: V **Year:** 2012
Publisher: Tata McGraw Hill Publishing Co. Ltd (ibid 5)

➤ PERIODICALS

1. SOFTWARE– Practice and Experience
2. ACM SIGPLAN Conference on Programming Language Design and Implementation
3. International Journal of Current Engineering and Technology

LECTURES 1- 3

C BASICS

OBJECTIVE:

The objective is to make students aware of the basic concepts of C such as C character set, keywords, data types, operators etc. There are different types of operators like Arithmetic operators, unary operators, relational and logical operators, assignment operators, conditional operators, bit operators.

CONTENTS:

- History of C
- Characteristics of C
- C Program Structure
- Variables
- Defining Global Variables
- Printing Out and Inputting Variables
- Constants
- Arithmetic Operations
- Comparison Operators
- Logical Operators
- Order of Precedence

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 1 Section 2 Q 1-34, 38-39
- 2 Refer Unit 1 Section 3 Q1&7, 27
- 3 Refer Unit 1 Section 2 Q 35, 36

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 36-42 Q A-I
- 2 ibid 3, Page No. 20-22, Q 1.1- 1.15, Page No. 49-51, Q 2.1- 2.20, Page No. 81-83, Q 3.1- 3.10.

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 1-35
- 2 ibid 2, Page No. 35-52

REFERENCE BOOKS:

- 1 ibid 3, Page No. 1-78
- 2 ibid 5, Page No. 33-60

ARTICLE:

- 1 Michael Siff, Satish Chandra, Thomas Ball , “Copying with Type Casts in C”, <http://research.microsoft.com/en-us/um/people/tball/papers/coping-tr.pdf>

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

LECTURE 4

DECISION MAKING

OBJECTIVE:

The objective is to make students aware of the fact that C has three major decision making instructions-if, if-else and switch. These statements control the flow of execution. The conditional statement also known ternary operator will also be discussed.

CONTENTS:

- Conditionals
 - The if statement
 - The? operator
 - The switch statement

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 1 Section 3 Q9 to 14
- 2 Refer Unit 1 Section 2 Q 35-36
- 3 Refer Unit 1 Section 2 Q37-39

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 73-88 Q A-K ,Page No. 141-146, Q A-D
- 2 ibid 3, Page No. 148-151, Q 5.1- 5.15

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 43-71,127-141

REFERENCE BOOKS:

- 1 ibid 3, Page No. 114-138
- 2 ibid 5, Page No. 101-106, 125-130

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

LECTURE 5

LOOPING STRUCTURE IN C

OBJECTIVE:

Looping structure in c would be discussed in this lecture. With the working and explanation of while statement, do...while statement, for statement, nested control statement differentiation between them would also be briefed upon. Also the concepts of break statement continue statement and goto statement would be explained.

CONTENTS:

- Looping and Iteration
 - The for statement
 - The while statement
 - The do-while statement
 - Break and continue

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 1 Section 3 Q8, Q13, 14
- 2 Refer Unit 1 Section 2 Q35

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 116-126 Q A-E
- 2 ibid 3, Page No. 186-189, Q 6.1- 6.20

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 89-116

2 ibid 2, Page No. 60-65

REFERENCE BOOKS:

3 ibid 3, Page No. 152-174

4 ibid 5, Page No. 113-124, 131

WEBSITE:

1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

LECTURES 6-7

STRINGS AND ARRAYS

OBJECTIVE:

The objective of these lectures is to explain the basic concepts of arrays and strings, how they can be created and implemented. The C language provides a capability that enables user to design a set of similar data types, called array. C library supports a large number of string handling functions that can be used to carry out many of the string manipulations. Some major functions would be taken in detail.

CONTENTS:

- Arrays and Strings
 - Single and Multi-dimensional Arrays
 - Strings

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 1 Section 2 Q15 -19
- 2 Refer Unit 1 Section 4 Q6-11
- 3 Refer Unit 1 Section 3 Q25-26

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 304-307, Q A-D
- 2 ibid 3, Page No. 225-228, Q 7.1-7.15, Page No. 259-261, Q 8.1-8.15

SUGGESTED READINGS:

TEXT BOOKS:

- 4 ibid 1, Page No. 267-303, 325-351
- 5 ibid 2, Page No. 93-122

REFERENCE BOOKS:

- 1 ibid 3, Page No.190-252
- 2 ibid 5, Page No. 221-248

WEBSITES:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>
- 2 <http://www.learn-c.org/>
- 3 <http://freevidelectures.com/Course/2519/C-Programming-and-Data-Structures#>
- 4 <http://www.tutorialspoint.com/cprogramming/>

LECTURES 8- 9

FUNCTIONS IN C

OBJECTIVE:

The objective of these lectures is to demonstrate the power of C functions. In C, a function (also called procedure, method, subroutine or subprogram, or routine) is a portion of code within a larger program, which performs a specific task and is relatively independent of the remaining code. After getting students acquainted with methods the concept of recursion would also be discussed.

CONTENTS:

- Functions
 - Function Prototyping
 - Passing parameters
 - Returning values
 - Recursion

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 1 Section 3 Q20, 21, 24-26
- 2 Refer Unit 1 Section 2 Q38, Q39

OTHER ASSIGNMENTS:

- 3 ibid 1, Page No. 192-202 Q A-G
- 4 ibid 3, Page No. 315-316, Q 9.1-9.20

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 147-168
- 2 ibid 2, Page No. 67-88

REFERENCE BOOKS:

- 1 ibid 3, Page No. 262-310
- 2 ibid 5, Page No. 157-191

WEBSITES:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>
- 2 <http://www.learn-c.org/>
- 3 <http://fresh2refresh.com/c-programming/>

ARTICLE:

- 1 R.A. Olsson and G.R. Whitehead, “A Simple Technique for Automatic Recompilation in Modular Programming Languages”, SOFTWARE– Practice and Experience 19(8) Page No. 757–773.

LECTURE 10**STORAGE CLASSES IN C****OBJECTIVE:**

The objective of this lecture is to make students understand the storage classes in C. A storage class defines the scope (visibility) and life time of variables and/or functions within a C Program. There are four types of storage classes available in C, clear distinction between them would be taught to students.

CONTENTS:

- Storage Classes
 - Auto
 - Extern
 - Static
 - Register

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 1 Section 3 Q22-23
- 2 Refer Unit 2 Section 2 Q16

OTHER ASSIGNMENT:

- 1 Refer ibid 1, Page No. 227-232 Q A-C

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 213-226
- 2 ibid 2, Page No. 80-84

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>
- 2 <http://www.programiz.com/c-programming>

LECTURES 11-13

FURTHER DATA TYPES

OBJECTIVE:

The objective of these lectures is to make students understand the derived and user defined data types in C. Derived data types are Structures, Unions etc. User defined data types are- Enumerated data types. Also, Low level operators and Bit Fields would be discussed briefly.

CONTENTS:

- Structures - Defining New Data Types
- Unions
- Coercion or Type-Casting
- Enumerated Types
- Low Level Operators and Bit Fields (Bitwise Operators, Bit Fields)

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 2 Section 3 Q7-12
- 1 Refer Unit 2 Section 4 Q1-4

OTHER ASSIGNMENT:

- 1 ibid 3, Page No. 348-350, Q 10.1 – 10.15

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 369-392
- 2 ibid 2, Page No. 127-149

REFERENCE BOOKS:

- 2 ibid 3, Page No. 350, 317-340
- 3 ibid 5, Page No. 325-362

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

LECTURES 14-16**POINTERS IN C****OBJECTIVE:**

The objective is to make students understand the concepts of pointers. In C a pointer is a variable that points to or references a memory location in which data is stored. Pointers to data improve performance for repetitive operations such as traversing string and tree structures, and pointers to functions are used for binding methods in Object-oriented programming and run-time linking to dynamic link libraries (DLLs).

CONTENTS:

- Pointers
 - Pointers arithmetic and Arrays
 - Const Pointers
 - Void pointers
 - Near, Far And Huge Pointers

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 2 Section 3 Q1, Q6, Q15
- 2 Refer Unit 2 Section 4 Q5
- 3 Refer Unit 2 Section 2 Q18

SUGGESTED READINGS:**TEXT BOOKS:**

- 1 ibid 1, Page No. 168-191
- 2 ibid 2, Page No. 93-122

REFERENCE BOOKS:

- 1 ibid 3, Page No. 364-379
- 2 ibid 4, Page No. 189-415
- 3 ibid 5, Page No. 259-310

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

- 2 <http://www.programiz.com/c-programming/c-pointers>

ARTICLES:

- 1 Vishwanath Raman, “Pointer Analysis – A Survey”,2004, www.soe.ucsc.edu
- 2 Nick Parlanthe, “Pointers and Memory”, www.cslibrary.stanford.edu
- 3 R. P. Wilson and M. S. Lam,“Efficient context-sensitive pointer analysis for C programs”, ACM SIGPLAN Conference on Programming Language Design andImplementation, Page No. 1–12, La Jolla, CA
- 4 Cohen J., Garbage collection of linked data structures, ACM Computing Surveys, 13(3), 341-367, 2015.

LECTURES 16-19

DYNAMIC MEMORY ALLOCATION

OBJECTIVE:

In the following lectures students will learn about C Programming Dynamic Memory Allocation. In programming we may come across situations where we may have to deal with data, which is dynamic in nature. The number of data items may change during the execution of a program. Dynamic memory allocation provides different operators and methods to handle such data items efficiently.

CONTENTS:

- 5 Dynamic Memory Allocation and Dynamic Structures
- 6 Malloc, Calloc and Realloc
- 7 Sizeof, and Free
- 8 Linked Lists
- 9 Dynamic 2- dimensional arrays

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 2 Section 3 Q2-3
- 2 Refer Unit 2 Section 2 Q17

OTHER ASSIGNMENT:

- 1 ibid 3, Page No. 442, Q 13.1-13.15
- 2 ibid 5, Page No. 407-424

SUGGESTED READINGS:

REFERENCE BOOK:

- 1 ibid 3, Page No. 411-434

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

ARTICLES:

- 1 NileshVishwasraoPatil and Prabhudev S Irabashetti, “Dynamic Memory Allocation: Role in Memory Management”, International Journal of Current Engineering and Technology Vol.4, No.2, Page No:531-535

LECTURES 20-22

ARRAY AND POINTERS

OBJECTIVE:

The objective is to make students understand the relationship between arrays and pointers, how they can be both used collectively. This is a short text on arrays and pointers in C with an emphasis on using multi-dimensional arrays, pointer arithmetic. It also makes students understand the relationship between functions and pointers. Function pointers can be used to simplify code by providing a simple way to select a function to execute based on run-time values.

CONTENTS:

- Advanced Pointer Topics
 - Pointers to Pointers
 - Pointer to array
 - Array of pointers
 - Command line input
 - Pointers to a Function
 - Implementing Callbacks

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 2 Section 3 Q1, 6, 11
- 2 Refer Unit 2 Section 2 Q18-19
- 3 Refer Unit 2 Section 3 Q14, Q16

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 294-309
- 2 ibid 2, Page No. 107-110

REFERENCE BOOKS:

- 1 ibid 3, Page No. 93-122
- 2 ibid 4, Page No. 391-410
- 3 ibid 5, Page No. 277-287

WEBSITE:

1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

LECTURES 23-25**PREPROCESSOR DIRECTIVES****OBJECTIVE:**

In these lectures students will learn about the Preprocessor directives, Macros, #define identifier string, Simple macro substitution, Macros as arguments, nesting of macros, undefining a macro and File inclusion.

CONTENTS:

- The C Preprocessor
 - #define
 - #undef
 - #include
 - #if -- Conditional inclusion
 - Other Preprocessor Commands

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 2 Section 2 Q18-19, Q20
- 2 Refer Unit 2 Section 3 Q8-9

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 263-266 Q A,B,C
- 2 ibid 3, Page No. 457, Q 14.1-14.8

SUGGESTED READINGS:**TEXT BOOKS:**

- 1 ibid 1, Page No. 233-263
- 2 ibid 2, Page No. 241-258

REFERENCE BOOK:

- 1 ibid 3, Page No. 444-455

WEBSITE:

1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

LECTURE 25

C, LINUX AND STANDARD LIBRARIES

OBJECTIVE:

There is a very close link between C and most operating systems that run our C programs. Almost the whole of the LINUX operating system is written in C. This lecture will look at how C and LINUX interface together.

CONTENTS:

- Advantages of using LINUX with C
- Using LINUX System Calls and Library Functions

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 4 Section 2 Q1-4
- 2 Refer Unit 4 Section 2 Q11-14
- 3 Refer Unit 4 Section 3 Q10-12

SUGGESTED READINGS:

REFERENCE BOOK:

- 4 ibid 2, Page No. 169-178
- 5 ibid 5, Page No. 655-690

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>
- 2 <http://www.cprogramming.com/tutorial/shared-libraries-linux-gcc.html>

LECTURES 26-30

INTEGER FUNCTIONS, RANDOM NUMBER, STRING CONVERSION, SEARCHING AND SORTING: <STDLIB.H>

OBJECTIVE:

In these lectures the students will learn how to use different functions in Library. Basically there are three different types of functions. These lectures will also look at many forms of I/O. Some important functions in each category would be discussed with example.

CONTENTS:

- Arithmetic Functions
 - Random Numbers
 - String Conversion
 - Searching and Sorting
- Mathematics: <math.h>

- Math Functions
- Math Constants
- Input and Output (I/O):stdio.h
 - Reporting Errors (perror() , errno , exit())
 - Streams (Predefined Streams , Redirection)
 - Basic I/O (Formatted I/O , Printf , scanf)
 - String Handling: <string.h> (Basic String Handling Functions , String Searching)
 - Character conversions and testing: ctype.h

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 3 Section 2 Q11
- 2 Refer Unit 3 Section 3 Q7-8

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 391-408

REFERENCE BOOK:

- 1 ibid 3, Page No. 482-485

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

LECTURES 31-34

FILES

OBJECTIVE:

In these lectures students will learn different functions on files using LINUX. They will also learn different operations that are to be performed on files using C & LINUX.

CONTENTS:

- Character and Line based I/O
- Formatted I/O
- Block I/O
- File Positioning
- Status Functioning
- Deletion and Renaming
- Temporary Files

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 3 Section 2 Q1-6, Q12-15
- 2 Refer Unit 3 Section 3 Q13,Q15

SUGGESTED READINGS:

TEXT BOOK:

1 ibid 1, Page No. 415-453

REFERENCE BOOK:

1 ibid 5, Page No. 371-390

LECTURES 35-37

FILE ACCESSIBILITY AND DIRECTORIES

OBJECTIVE:

In the lectures the students will learn the use of different directories and file accessibility. Files are organized in directories and thus security can be ensured by adding permissions to these directories. The concept of authorization would be discussed upon in context with directories.

CONTENTS:

- File permission chmod()
- Change Directory chdir()
- Change owner permissions chown()
- Change root chroot()

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit 4 Section 1 Q1-4
- 2 Refer Unit 4 Section 3 Q12
- 3 Refer Unit 3 Section 3 Q13-15

SUGGESTED READINGS:

TEXT BOOK:

1 ibid 2, Page No. 169-179

REFERENCE BOOKS:

- 1 ibid 3, Page No. 179-185
- 2 ibid 5, Page No.392-397

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

- 2 http://www.gnu.org/software/libc/manual/html_node/Accessing-Directories.html

LECTURES 38-40

PROCESS CONTROL

OBJECTIVE:

A process is basically a single running program. It may be a “system” program (*e.g* login, update, csh) or program initiated by the user (textedit, dbxtool or a user written one). A program usually runs as a single process. However, in these lectures we will see how we can make programs run as several separate communicating processes.

CONTENTS:

- Running LINUX Commands from C
- Looking at processes-
 - Process ID’s,
 - Viewing Active Process,
 - Killing a Process
- Creating a process using exec() and fork() commands
- Waiting for Process Termination using wait() command
- Zombie Processes
- exit()

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit 4 Section 2, Q7-8, Q11-14
- 2 Refer Unit 4 Section 3, Q1-2, Q8, Q9

SUGGESTED READINGS:

TEXT BOOKS:

- 1 *ibid* 1, Page No. 639-654
- 2 *ibid* 2, Page No. 607-636

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>

ARTICLE:

- 1 Baishakhi Ray, Daryl Posnett, Vladimir Filkov, Premkumar T Devanbu, “A Large Scale Study of Programming Languages and Code Quality in Github”, FSE’14 November 16–22, 2014, Hong Kong, China Copyright 2014 ACM.

LECTURES 41-42

THREAD CREATION – A SIMPLE IMPLEMENTATION

OBJECTIVE:

In the lectures we will examine different aspects of threads and multiprocessing (and multithreading). We will also look at how threading can be effectively used to make programs more efficient.

CONTENTS:

- 2 Thread Creation
- 3 Passing data to threads
- 4 Joining Threads
- 5 Thread Attributes
- 6 Thread Cancellation

ASSIGNMENTS FROM QUESTION BANK:

- a. Refer Unit 4 Section 2, Q9-10, Q14, Q15
- b. Refer Unit 4 Section 3, Q6-7, Q9, Q11, Q12

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 2, Page No. 169-185

REFERENCE BOOK:

- 1 ibid 3, Page No. 612-616

WEBSITE:

- 1 <http://www.cs.cf.ac.uk/Dave/C/CE.html>
- 2 <http://www.geeksforgeeks.org/multithreading-c-2/>

LECTURE PLAN

DISCRETE MATHEMATICS

MCA-105

COURSE OUTLINE
MCA-I SEMESTER
DISCRETE MATHEMATICS – MCA 105

L - 4 Credits - 04

OBJECTIVE:

Discrete mathematics is an important branch of modern mathematics and it targets on the structure of discrete quantities and the relationship between them. The objective of the course is to let the students learn the essential mathematical concepts, solution of combinatorial problems, the knowledge of some important algebraic structures and basic concepts of graph theory.

INTERNAL ASSESSMENT AND ASSIGNMENT

(25 marks)

1. Class Test-I – (Written Test)

15 marks

2. Class Assessment + Attendance

10 marks

COURSE CONTENTS:

UNIT I

(12 Hours)

- Formal Logic
- Normal forms
- Propositional Logic
- Predicate logic
- Methods of Proof.
- Mathematical Induction
- Pigeon Hole Principle
- Permutations and Combinations
- Pascal's Triangles
- Binomial theorem
- Sets & Relations.
- Relations and Properties of Relations.
- Principle of Inclusion and Exclusion
- Functions.

UNIT II

(08 Hours)

- Lattices
- Direct product
- Boolean Algebra
- Isomorphic structure
- Homomorphism
- Sub algebra
- Boolean function and expression

- Principle of well ordering Recursive definitions
- Solution method for linear, first order recurrence relations

UNIT III

(12 Hours)

- Greatest common Divisor
- Least common multiple
- Permutation function
- Composition of cycles
- Fundamental theorem of Arithmetic
- Primes
- Congruence
- Euler's phi function
- Fermat's little theorem
- Primality and Factoring
- Cryptosystems
- Groups
- Coset and Lagrange's theorem
- Cayley's theorem
- Error correcting codes and groups
- Normal subgroups
- Quotient groups

UNIT IV

(10 Hours)

- Graphs Terminology
- Isomorphism and isomorphism as relations
- Cut vertices and planer graphs
- Euler's formula
- Four color problem and chromatic number of a graph
- Euler graphs and Hamiltonian graphs
- Five color problem
- Vertex and edge coloring
- Tree terminology
- Directed graphs
- Computer representation of graphs

STUDY MATERIAL FOR THE SUBJECT

Following will be the study material for topics of Discrete Mathematics and students are advised to go through the material for thorough understanding of the subject.

➤ TEXT BOOKS

1. **Author's Name(s) :** Kolman, Busby and Ross
Title: Discrete Mathematical Structures
Edition: VI **Year:** 2013
Publisher: Prentice Hall of India Pvt Ltd. (ibid 1)
2. **Author's Name(s):** K H Rosen
Title: Discrete Mathematics and Its Applications
Edition: VII **Year:** 2014
Publisher: Tata McGraw Hill (ibid 2)

➤ REFERENCE BOOKS

1. **Author's Name(s):** Swapan Kumar Sarkar
Title: A Text Book of Discrete Mathematics
Edition: XI **Year:** 2013
Publisher: S.Chand (ibid 3)
2. **Author's Name(s) :** Narsingh Deo
Title: Graph Theory with Application to Engineering and Computer Science
Edition: XXIV **Year:** 2013(Reprint)
Publisher: Prentice Hall of India Pvt Ltd. (ibid 4)

➤ PERIODICALS

1. Journal of The Experimental Analysis of Behavior
2. International Journal of Advanced Research in Computer Science and Software Engineering
3. Lecture Notes Comp. Science, Springer, Berlin
4. Discrete Mathematics
5. Open journal of Discrete Mathematics
6. Discrete Applied Mathematics

LECTURES 1-3

FORMAL LOGIC

OBJECTIVE:

To understand the elementary concepts of Logic statements, Symbolic representation and Tautologies, predicates and validity, normal forms, propositional and predicate logic. Logic is concerned with reasoning and has provided the theoretical basis for many areas of computer science.

CONTENTS:

- Formal Logic
 - Statement
 - Symbolic Representation And Tautologies
 - Quantifiers
 - Predicates And Validity
 - Normal Forms
 - Proposition Logic
 - Predicate Logic

ASSIGNMENTS FROM QUESTION BANK:

1. Refer Unit I Section II Q 35, 39,45,46
2. Refer Unit I Section III Q 20,22,23,27, 33-35,42

OTHER ASSIGNMENTS:

1. ibid 1, Page 56 Q19-36
2. ibid 2, Page 28-29, Q20-30, 36-50

TEXT BOOKS:

1. ibid 1, Page No. 51-60
2. ibid 2, Page. No. 1-43

REFERENCE BOOK:

1. ibid 3, Page. No. 6-26

LECTURES 4-5

PROOFS

OBJECTIVE:

In these lectures we discuss resolution which is special proof technique which includes basic concepts of proofs, Direct Proof, Proof by contraposition, proof by exhaustive cases and proof by contradiction.

CONTENTS:

- Proofs and Induction
 - Direct Proof
 - Proof by Contraposition
 - Proof by Exhaustive Cases
 - Proof by Contradiction
 - Proof of Equivalence
 - Conditional Proof
 - Proof by elimination of cases

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q4 & 7, 29, 42
- 2 Refer Unit I Section III Q11 to 14,21,25,29, 37, and 38

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 67 Q20-34
- 2 ibid 2, Page 83 Q25-42

TEXT BOOKS:

- 1 ibid 1, Page No. 62-67
- 2 ibid 2, Page. No. 73-82

REFERENCE BOOK:

- 1 ibid 3, Page. No. 27-35

LECTURES 6-7

UNIT 1

MATHEMATICAL INDUCTION

OBJECTIVE:

The objective is to understand the concept of mathematical induction. It is one of the most important techniques to prove many mathematical statements or formulae which cannot be derived easily by direct methods.

CONTENTS:

- Mathematical induction
 - Principle of Mathematical induction
 - Extended principle of mathematical induction
 - Principle of Complete Induction
 - Different types of questions on PMI
- Pascal's triangles
- Binomial theorem

ASSIGNMENT FROM QUESTION BANK:

- 1 Refer Unit I Section III Q15-19, 26, 30, 41

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 73-74, Q19-33
- 2 ibid 2, Page 289-290, Q3-33
- 3 ibid 3, Page 58, Q1-7

TEXT BOOKS:

- 1 ibid 1, Page No. 68-77
- 2 ibid 2, Page No. 273-297

REFERENCE BOOK:

- 1 ibid 3, Page. No. 35-40, 373-375

LECTURES 8-9**COMBINATORICS****OBJECTIVE:**

In many discrete problems we are confronted with problem of counting. Because of the importance of counting, a variety of useful aids, some quite sophisticated, have been developed. In these lectures we discuss the Basics of counting, Pigeonhole principle, Permutation and Combination. These are used to derive Binomial theorem.

CONTENTS:

- Basics of counting
 - The sum rule
 - The product rule
 - The pigeonhole principle
 - Extended pigeonhole principle
 - Permutation
 - Combination
 - Generalized Permutation and combination
 - Principle of inclusion and exclusion

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q8 to 11,16,25,26,28,30-32, 36-38,43,47, 51
- 2 Refer Unit I Section III Q6 to 10,36

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 103, Q1-18
- 2 ibid 2, Page 354, Q33-43, Page 368, Q32-44
- 3 ibid 3, Page 396-397 Q1-30

TEXT BOOKS:

- 1 ibid 1, Page No. 92-103
- 2 ibid 2, Page. No. 335-384

REFERENCE BOOK:

- 1 ibid 3, Page. No. 353-373

LECTURES 10-11

SETS

OBJECTIVE:

The objective is to understand the elementary concepts of Sets and elements, the Notation of Set, Algebra of Sets (Set Laws), Power set. Set theory is one of the principal foundations of mathematics; our goal is to learn how to describe and manipulate sets and to develop the techniques for the construction of new sets.

CONTENTS:

- Set Theory and its Basic Concepts

- Sets
- Subsets
- Power sets
- Binary and unary operation on a set
- Set operations/set identities
- Finite and infinite sets
- Fundamental Counting Principles
- Principle of inclusion and exclusion

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q1-4, 12, 19, 23, 33, 44, 49
- 2 Refer Unit I Section III Q1, 32, 40

OTHER ASSIGNMENT:

- 1 ibid 1 Page 5 Q24-37, Page 12 Q24-35

TEXT BOOKS:

- 1 ibid 1, Page No. 1-10
- 2 ibid 2, Page. No. 121-139

REFERENCE BOOK:

- 1 ibid 3, Page. No. 112-132

LECTURES 12-14

RELATIONS AND FUNCTIONS

OBJECTIVE:

In these lectures we discuss the mathematics of relations and functions defined on sets, various ways of representing relations and various properties they may have.

CONTENTS:

- Relations and its properties
 - Reflexive relations
 - Symmetric relations
 - Transitive relations
- Representing relations using
 - Graphical representation
 - Matrix representation
- Closure of relations

- Reflexive Closure
- Symmetric Closure
- Transitive Closure
- Equivalence relations
 - Properties of equivalence relation
 - Equivalence classes
 - Partitions
 - Partial Ordering
- Functions
 - Properties of functions
 - Composition of functions
 - Inverse

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q5,6, 13, 24,27,34, 40, 41, 48,50,52
- 2 Refer Unit I Section III Q3 to 5, 24,28, 31 39 and 43

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 135, Q23-37,Page 140 Q1-19, Page 146 Q1-27, Page 151 Q5-16
- 2 ibid2, Page500, Page Q1-26

TEXT BOOKS:

- 1 ibid 1, Page No. 123-169,181-188
- 2 ibid 2, Page No. 459-499

REFERENCE BOOK:

- 1 ibid 3, Page. No. 248-273

ARTICLES:

1. Johanson, C., Meleshkevich, O., Dube, W.V.“Merging Separately Established StimulusClassesWith Outcome-Specific Reinforcement”, Journal Of The Experimental Analysis Of Behavior 2014, 101, 38–50 Number 1 (January), <http://www.necc.org/uploadDocs/2/johnson-et-al.-2014.pdf>.
2. Uri Andrews, Steffen Lempp, Joseph S. Miller, KengMeng Ng, Luca San Mauro, Andrea Sorbi, “Universal Computably Enumerable Equivalence Relations”, www.newton.ac.uk/preprints/NI12020.pdf.

LECTURES 15-17

LATTICES

OBJECTIVE:

To understand the basics of Lattices. Lattice is a special case of poset which is under partial ordering; in which every pair of elements have supreme.

CONTENTS:

- Introduction to Posets
- Properties of lattices
- Distributive inequalities
- Principle of duality
- Product of lattices
- Sub lattices
- Distributive lattice
- Complemented lattice
- Complete lattice
- Direct product of Lattices

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit II Section II Q1 to 3 and Q4 to 12, 18-21,24,26- 28
- 2 Refer Unit II Section III Q1 to 7, 33, 35, 37, 39,42, 45, 47,48,50

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 224-225, Q17-27, Page 232-233, Q1-30
- 2 ibid 2, Page 518-519, Q1-35

TEXT BOOKS:

- 1 ibid 1, Page No. 218-241
- 2 ibid 2, Page No. 503-517

REFERENCE BOOK:

- 1 ibid 3, Page. No. 320-345

ARTICLE:

- 1 N. Sauer, X. Zhu, "Multiplicative posetsOrder", <http://www.math.nsysu.edu.tw/~zhu/papers/multi/multiposet.pdf>

LECTURES 17-19

BOOLEAN ALGEBRA

OBJECTIVE:

The lectures will help student understand basics of Boolean algebra and minimizations of Boolean expressions using K maps. Boolean algebra is algebra of logic and an indispensable tool to computer scientists as it is directly applicable to switching theory and logical design of digital computers.

CONTENTS:

- Boolean functions
- Representation of Boolean functions
- Isomorphic structures
- Sub algebra
- Homomorphism
- Direct product of Boolean Algebras
- Minimization of expressions
- Karnaugh Maps

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit II Section II Q13 to 15,25, 29
- 2 Refer Unit II Section III Q8 to 19, 34, 36, 38-40,43,44, 49, 51

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 249, Q11-25
- 2 ibid 2, Page 694 Q1 to 6, Page718 Q12 -14

TEXT BOOKS:

- 1 ibid 1, Page No. 243-248
- 2 ibid 2, Page No. 687-712

REFERENCE BOOK:

- 1 ibid 3, Page. No. 78-100

LECTURES 20-21

RECURRENCE RELATION

OBJECTIVE:

To understand the recurrence relation and their characteristics. Recurrence relation is a recursive formula for a sequence. There is no general algorithm for solving all recurrence relations, however; generating functions will be introduced to solve recurrence relations.

CONTENTS:

- Solving linear Recurrence relations with constant coefficients
 - Homogeneous recurrence relations
 - Non-homogeneous recurrence relations
- Principle of Well ordering Recursive Definitions
 - Recursively defined functions
 - Recursively defined sets and Structures

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q22, 23, 30
- 2 Refer Unit I Section III Q22 to 24,38, 41, and 46

OTHER ASSIGNMENT:

- 1 ibid 1, Page 117, Q1-7, Q12-23

TEXT BOOKS:

- 1 ibid 1, Page No. 112-117
- 2 ibid 2, Page No.402-432

REFERENCE BOOK:

- 1 ibid 3, Page No. 376-396

LECTURES 22-23**FUNDAMENTAL THEOREM OF ARITHMETIC****OBJECTIVE:**

To get hold of primes, Greatest Common Divisor, Least Common Multiple. This will also include an important theorem, the fundamental theorem of Arithmetic, asserts that every positive integer can be written uniquely as the product of prime numbers.

CONTENTS:

- Fundamental theorem of Arithmetic

- Greatest Common Divisor
- Least Common Multiple
- Permutation functions
- Primes
- Composition of cycles

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit III Section I (a) Q4 to 7 (b) Q4, Q6, Q7 (c) ,25
- 2 Refer Unit III Section II Q16, 23,39
- 3 Refer Unit III Section III Q8, 9,12,18,19

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 211, Q1-14
- 2 ibid 2, Page No.242, Q19-27

TEXT BOOKS:

- 1 ibid 1, Page No. 22-25, 205-211
- 2 ibid 2, Page No.215-246

REFERENCE BOOK:

- 1 ibid 3, Page No. 216-228

LECTURES 24-26

FERMAT'S LITTLE THEOREM

OBJECTIVE:

Here we discuss RSA cryptosystem-a method of encoding and decoding messages whose security relies primarily on lack of an efficient algorithm for finding the prime divisors of an arbitrary integer. The lectures will help the students understand Fermat's Little theorem of primes, congruence, Euler phi function.

CONTENTS:

- Congruence
- Euler Phi Function
- Fermat's Little theorem
- Primality and Factoring
- Simple Cryptosystems
- RSA Cryptosystem

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit III Section II Q14, 17
- 2 Refer Unit III Section III Q12 and 13, 20, 28

OTHER ASSIGNMENT:

- 1 ibid 2, Page No. 254-255 Q1-28

TEXT BOOKS:

- 1 ibid 1, Page No. 380-381
- 2 ibid 2, Page No. 243-254

REFERENCE BOOK:

- 1 ibid 3, Page No. 242-243

ARTICLE:

- 1 Blaze Matt,"Cryptology and Physical Security: Rights Amplification in Master-Keyed Mechanical Locks", www.crypto.com/papers/mk.pdf

LECTURES 27-32

GROUP THEORY

OBJECTIVE:

Group theory- the ultimate mathematical theory for symmetry. The lectures emphasize upon the classical definition-theorem-proof model. The structure of group is one of the simplest mathematical structures.

CONTENTS:

- Group Theory
 - Definition and properties of groups
 - Abelian and non- abelian groups
 - Definition and examples of Semi- groups
 - Properties of semi-groups
 - Sub-groups
 - Properties of sub-groups
 - Group identities and its uniqueness
 - Inverse and its uniqueness
 - Right and left coset

- Lagrange's theorem
- Cyclic groups and its properties
- Normal Sub-groups.
- Properties of normal subgroups
- Quotient groups
- Homomorphism and isomorphism
- First , second and third theorem of homomorphism
- Permutation groups
- Properties of permutation groups
- Cyclic permutations
- Cayley's theorem(without proof)

ASSIGNMENTS FROM QUESTION BANK

- 1 Refer Unit III Section II Q1 to 7, 10, 13, 15, 18, 19-22,24
- 2 Refer Unit III Section III Q1 to 11, 21-23, 25, 26, 31-37

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 371, Q13-30
- 2 ibid 2, Page No. 742, Q3-14

TEXT BOOKS:

- 1 ibid 1, Page No. 345-376
- 2 ibid 2, Page No. 724-753

REFERENCE BOOK:

- 1 ibid 3, Page. No. 406-443

LECTURES 33-34

ERROR CORRECTING CODES

OBJECTIVE:

The lectures will help the students to understand the basics of error correcting codes and decoding. Coding theory has developed techniques for introducing redundant information in transmitted data that help in detecting and correcting errors.

CONTENTS:

- Error correcting codes
 - Coding of binary information
 - Error Detection

- Decoding
- Error correction

ASSIGNMENTS FROM QUESTION BANK

- 1 Refer Unit III Section I (b) Q4 & 5
- 2 Refer Unit III Section III Q24, 27, 30,38

OTHER ASSIGNMENT:

- 1 ibid 1, Page No.439, Q1-23, Page No.447-448, Q1-28

TEXT BOOK:

- 1 ibid 1, Page No. 430-447

LECTURES 35-40

GRAPH THEORY

OBJECTIVE:

Graph theory begins with very simple geometric ideas and has many powerful applications. After studying these lectures you are able understand Graphs, representations of graphs, Euler graph, Hamiltonian graph, Shortest –Path Planar graph, graph coloring.

CONTENTS:

- Graph Theory
 - Basic terminology of graphs
 - Directed and undirected graphs
 - Simple and multiple graphs
 - Finite and infinite graphs
 - Cut-Vertices
 - Types of graphs
 - Subgraphs
 - Isomorphic graphs
 - Isomorphism as Relations
 - Computer representation of graphs
 - Path, simple paths
 - Cycles
 - Connected and disconnected graphs
 - Euler’s formula with proof
 - Eulerian graphs
 - Hamiltonian graphs
 - Planar graphs

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit IV Section II Q1 to 4, 12-14,16-19, 20(b), 20(c),21-27
- 2 Refer Unit IV Section III Q1 to 8, 10, 18, 20, 22, 25-27, 29, 32, 33ii), 33iii)

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No.310, Q1-24, Page No.316, Q1-8, Page 320 Q1-7
- 2 ibid 2, Page No.546-549,Q12-20,PageNo.557-558, Q13-31, Q35-46, Page No. 567-569, Q5-21.

TEXT BOOKS:

- 1 ibid 1, Page No. 306-320
- 2 ibid 2, Page No. 536-599

REFERENCE BOOKS:

- 1 ibid 3, Page No. 472-529
- 2 ibid 4, Page No.1-34

ARTICLE:

- 1 M. Isabel, “A Generalization of the Graph Coloring Problem”, www-2.dc.uba.ar/alio/io/pdf/clai098/paper-10.pdf
- 2 Movarraei, N., Boxwala S.A., “On the Number of Cycles in a Graph”, Open Journal of Discrete Mathematics, 2016, 6, 41-69. <http://file.scirp.org/pdf/OJDM2016033114174333.pdf>

LECTURES 41-43

GRAPH COLORING

OBJECTIVE:

The lecture will help students to understand various chromatic number and coloring of graph. Coloring and partitioning of vertices is applicable to many practical problems such as coding theory and logic in digital computers.

CONTENTS:

- Coloring problem
 - Four color problem
 - Chromatic number of a graph

- Five color problem
- Vertex coloring
- Edge coloring

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit IV Section II Q5 & 6,
- 2 Refer Unit IV Section III Q9, 19, 23, 28, 30

OTHER ASSIGNMENT:

- 1 ibid 1, Page No.328, Q1-15

TEXT BOOKS:

- 1 ibid 1, Page No. 334-338
- 2 ibid 2, Page. No. 606-612

REFERENCE BOOKS:

- 1 ibid 3, Page. No.529-534
- 2 ibid 4, Page. No.165-168

ARTICLE:

- 1 Tiwari, S. P., Bansal K.K. & Chauhan T., “Survey Paper on Solving Graph Coloring Problem”, International Journal of Advanced Research in Computer Science and Software Engineering, Volume 4, Issue 2, February 2014.
[pp.26-27.http://www.ijarcsse.com/docs/papers/Special_Issue/icadet2014/Lord_07.pdf](http://www.ijarcsse.com/docs/papers/Special_Issue/icadet2014/Lord_07.pdf)
- 2 Zhang, Y., Zhang, Y. & Chen Y, “The Ramsey numbers of wheels versus odd cycles”, Discrete Mathematics, Volume 323, 28 May 2014, Pages 76–80.
<http://ac.els-cdn.com/S0012365X14000296/1-s2.0-S0012365X14000296main.pdf>

LECTURES 43-45

TREE TERMINOLOGY

OBJECTIVE:

Tree form is one of the most widely used subclass of graphs. The objective of the lectures is to introduce various tree terminologies and their usage in practical world.

CONTENTS:

- Basic Tree terminology
- Tree Traversal Algorithms
 - In order
 - Pre order
 - Post order

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit IV Section II Q7,15,
- 2 Refer Unit IV Section III Q 18,21, 31, 33i)

OTHER ASSIGNMENTS:

- 1 ibid 1, Page No. 286, Q1-12
- 2 ibid 2, Page No. 634, Q14-23, 27

TEXT BOOKS:

- 1 ibid 1, Page No. 271-284
- 2 ibid 2, Page No.623-632

REFERENCE BOOKS:

- 1 ibid 3, Page No.578-605
- 2 ibid 4, Page No. 39-46

ARTICLE:

- 1 T. Colcombet, “A combinatorial theorem for trees: Applications to monadic logic and infinite structures, in Automata, languages and programming”, Page 901–912, Lect. Notes Comp. Sci.Vol.4596, Springer, Berlin, 2007,rd.springer.com/chapter/10.1007/978-3-540-73420-8_77.
- 2 K. Meeks, “The challenges of unbounded treewidth in parameterised subgraph counting problems”, Discrete Applied Mathematics 198 (2016) 170–194. http://ac.els-cdn.com/S0166218X15003054/1-s2.0-S0166218X15003054-main.pdf?_tid=86e5e64c-5488-11e6-8e35-00000aab0f02&acdnat=1469685783_a17e21bc35506b4ce800eb7dcc0ec910.

LECTURE PLAN

COMPUTER ORGANIZATION

MCA 107

COURSE OUTLINE
MCA - I SEMESTER
COMPUTER ORGANIZATION MCA 107

L - 4 Credits - 04

OBJECTIVE:

The purpose of this course is to enable the students to understand basic digital electronics, and the way digital electronics components are organized to constitute computer architecture.

INTERNAL ASSESSMENT AND ASSIGNMENT **(25 Marks)**

- | | |
|----------------------------------|----------|
| 1. Class Test-I – (Written Test) | 20 Marks |
| 2. Class Assessment + Attendance | 5 Marks |

COURSE CONTENTS:

UNIT – I **(12 Hours)**

- **Introduction and overview**
 - Multiplexers
 - De-multiplexers
 - Decoders
 - Adders
 - Flip Flops
 - S-R
 - J-K
 - D
 - T
 - Master Slave and Edge Triggered
 - Registers
 - Shift Registers
 - Bi-directional shift registers

- **Register Transfer and Micro--operation**
 - Register transfer language
 - Register transfer
 - Bus Transfer
 - Memory transfer
 - Arithmetic micro operations
 - Logic micro operations
 - Shift micro operations.

UNIT – II

(11 Hours)

- **Basic Computer Organization and Design**
 - Instruction Codes
 - Computer Registers
 - Computer Instructions
 - Timing & Control
 - Instruction cycle
 - Memory reference Instructions
 - Input-Output Instructions
 - Interrupts
 - Design of Basic Computer
 - Design of Accumulator logic

- **Micro-programmed Control Unit**
 - Control memory
 - Address sequencing.

- **Central Processing Unit**
 - Introduction
 - General register organization
 - Stack organization
 - Instruction formats
 - Addressing modes.

UNIT – III

(10 Hours)

- **Pipeline and vector processing**
 - Parallel Processing
 - Pipelining
 - Arithmetic pipeline
 - RISC Pipeline
 - Vector Processing
 - Array Processors.

- **Input-Output Organization**
 - Peripheral devices
 - Input-Output interface
 - Asynchronous data transfer
 - Modes of data transfer
 - Priority interrupt
 - Direct memory access
 - Input-output processor.

UNIT – IV

(9 Hours)

➤ **Memory organization**

- Memory hierarchy
- Main memory
- Auxiliary memory
- Associative memory
- Cache memory
- Virtual memory
- Memory management hardware.

➤ **Multiprocessors**

- Characteristics of multiprocessor
- Interconnection Structure
- Inter-processor Communication & Synchronization.

STUDY MATERIAL FOR THE SUBJECT

Following will be the study material for topics of Computer Organization, and students are advised to go through the material for thorough understanding of the subject.

The students are expected to actively participate in the discussions in the class, so that they may be able to gain deep insights and familiarize themselves with concepts and theories.

➤ TEXT BOOKS

- 1. Author's Name(s):** Mano Morris
Title: Computer System and Architecture
Edition: III Year: 2013(Reprint)
Publisher: Pearson Education (ibid 1)
- 2. Author's Name(s):** Stallings William
Title: Computer Organization & Architecture
Edition: Ninth Year: 2013
Publisher: Pearson Education (ibid 2)

➤ REFERENCE BOOKS

- 1. Author's Name(s):** S,Salivahanan, S Arivazhagan
Title: Digital Circuit and Design
Edition: IV Year: 2012
Publisher: Vikas Publishing House (ibid 3)
- 2. Author's Name(s):** Ramesh Gaonkar
Title: Microprocessor Architecture Programming and Application with 8085
Edition: VI Year: 2013
Publisher: PHI (ibid 4)
- 3. Author's Name(s):** Nicholas P Carter
Title: Computer architecture and Organization
Edition: II Year: 2014
Publisher: McGrawHill (ibid 5)

➤ PERIODICALS

1. Int. Journal of Applied Sciences and Engineering Research

➤ **WEBSITES**

1. <http://iram.cs.berkeley.edu/papers/direction/paper.html>
2. <http://www.ece.ucdavis.edu/~vojin/CLASSES/EEC70/W2001/architct-chpt.pdf>
3. <http://www.csrl.unt.edu/~kavi/Research/cache-paper.pdf>
4. <http://www.scm.tees.ac.uk/users/u0000408/Microprogramming/MicroprogIntro.pdf>
5. <http://www.hindawi.com/isrn/electronics/2013/187127/>
6. <http://arxiv.org/ftp/arxiv/papers/1306/1306.2556.pdf>
7. <http://www.microarch.org/micro35/keynote/Agerwala.pdf>
8. <http://www.ijaser.com/articles/vol3issue42014/vol3issue4/JASER31090.pdf>
9. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4327018/>
10. http://www.ijirt.org/vol1/paperpublished/IJIRT102035_PAPER.pdf
11. <http://ijoer.in/3.2.15/436-440%20SATHIA%20PRIYA%20M.pdf>
12. <http://ijcsmc.com/docs/papers/March2014/V3I3201499a31.pdf>
13. http://www.ijarcsse.com/docs/papers/Volume_4/4_April2014/V4I4-0466.pdf
14. http://www.ijarcsse.com/docs/papers/Volume_5/8_August2015/V5I8-0294.pdf

LECTURES 1-3

INTRODUCTION AND OVERVIEW

OBJECTIVE:

Digital systems being more accurate and noise resistant than analog systems have become popular choice in the world of Information Technology. Digital electronics is the underlying concept of computer organization and these lectures aim at revising the basic concepts that are foundation of digital components.

CONTENTS:

- Introduction and overview
 - Number System
 - Binary Number system
 - Octal Number system
 - Hexadecimal Number system
 - Boolean Algebra
 - Basic Definitions
 - Boolean logic Operations
 - Basic Laws of Boolean Algebra
 - Demorgan's Theorem
 - Karnaugh Map
- Logic Gates
 - OR Gate
 - AND Gate
 - NOT Gate
 - NAND Gate
 - NOR Gate
 - EXOR Gate
 - EXNOR Gate

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q 2, 17
- 2 Refer Unit I Section II Q 12
- 3 Refer Unit I Section I Q 6-20, Q 31-40

OTHER ASSIGNMENTS:

- 1 ibid 1, Q.1.1-1.21
- 2 ibid 3, Page No. 74 -75,Q 21-29

SUGGESTED READINGS:

TEXT BOOK:

1 ibid 1, Page No. 1-38

REFERENCE BOOK:

1 ibid 3, Page No. 43 - 120

LECTURE 4

ARITHMETIC CIRCUIT

OBJECTIVE:

Digital computers consist of arithmetic and logic circuits which contain logic gates to add, subtract, multiply and divide binary numbers. The basic building blocks of arithmetic circuits are adders and subtractors that are used in all computation. The objective of this lecture is to explain the design of arithmetic circuits.

CONTENTS:

- Types of Arithmetic Circuit
 - Half Adder
 - Full Adder
 - Half Subtractor
 - Full Subtractor
 - Parallel Binary Adder /Subtractor

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit I Section II Q 16, 21, 22
- 2 Refer to Unit I Section III Q 3

OTHER ASSIGNMENTS:

- 1 ibid 3, Page No. 186, Q 1-18

SUGGESTED READINGS:

REFERENCE BOOK:

1 ibid 3, Page No. 174-198

LECTURES 5-7

COMBINATIONAL CIRCUITS

OBJECTIVE:

Computer system uses two different types of circuits - one in which no past history of output is considered and one in which past history is a deciding factor for circuit operation. The objective is to explain the difference between these two types and explain different types of combinational circuit and their use.

CONTENTS:

- Multiplexer
 - Basic Four Input Multiplexer
 - Higher Order Multiplexer
 - Applications of Multiplexer
- De-multiplexer
 - 1-to-4 De-multiplexer
 - 1-to-8 De-multiplexer
- Decoder
 - Basic Binary Decoder
 - 3-to-8 Decoder
 - 4-to16 Decoder
- Encoder
 - Octal to binary Encoder
 - Decimal-to-BCD Encoder
 - Priority Encoder

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q 10, 11, 12, 13, 23, 24, 25
- 2 Refer Unit I Section III Q 8, 10, 11

OTHER ASSIGNMENTS

- 1 ibid 3, Page No. 259, Q 1-20

SUGGESTED READINGS:

REFERENCE BOOKS:

- 1 ibid 3, Page No. 200-253
- 2 ibid 5, Page No. 2.29-3.53

LECTURES 8-9

FLIP-FLOP

OBJECTIVE:

Sequential circuits are the one in which output depends upon present as well as past input to the circuits. Flip-flops are 1 bit memory elements, used in all sequential circuits like registers, counters etc. The objective is to introduce these basic building blocks of sequential circuits.

CONTENTS:

- Introduction
- Latches
 - Set-Reset(S-R) Latch
 - NOR-based S-R Latch
 - NAND-based $S' - R'$ Latch
 - State Diagram and Characteristics Equation of S-R Latch
- Flip-flops
 - Types of Flip-flops
 - S-R Flip-flop
 - D Flip-flop
 - J-K Flip-flop
 - T Flip-flop
 - Triggering of Flip-flops
 - Level Triggering in Flip-flops
 - Edge Triggering in Flip-flops
- Asynchronous Inputs in Flip-flops
 - The Race-around Condition
 - Master-Slave J-K Flip-flop

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit I Section II Q 15, 18, 19, 20
- 2 Refer to Unit I Section III Q 17, 18

OTHER ASSIGNMENTS:

- 1 ibid 3, Page No. 301-304, Q 1-14

SUGGESTED READINGS:

REFERENCE BOOK:

- 1 ibid 3, Page No.265-300

ARTICLES:

1. Hung-Chi Chu, Jin-Fa Lin, and Dong-Ting Hu, Novel Low Complexity Pulse-Triggered Flip-Flop for Wireless Baseband Applications, 2013, ISRN Electronics.
<http://www.hindawi.com/isrn/electronics/2013/187127/>
2. Pradeep Singla, Aakash Gupta, Ashutosh Bhardwaj, Pulkit Basia, An Optimized Design of Reversible Sequential Digital Circuits, Proceedings of NCECST-2013.
<http://arxiv.org/ftp/arxiv/papers/1306/1306.2556.pdf>
3. Kaphungkui N K , Design of low-power, high performance flip-flops , Int. Journal of Applied Sciences and Engineering Research, Vol. 3, Issue 4, 2014,
<http://www.ijaser.com/articles/vol3issue42014/vol3issue4/JASER31090.pdf>
4. Dharmender Aswal, Mahipal Butola, Narendra Singh Intrenational Journal of Innovative Resaerch in Technology, Vol 1 Issue 12, 2015.
http://www.ijirt.org/vol1/paperpublished/IJIRT102035_PAPER.pdf
5. Sathiya Priya M, Sridevi A, Biini Roy, Implementing Efficient Embedded Logic in Low Power Twin Dynamic Pulsed Hybrid Flip Flop, International Journal of Engineering Research, Vol 3, Issue 2, 2015.
<http://ijoer.in/3.2.15/436-440%20SATHIA%20PRIYA%20.M.pdf>

LECTURE 10

REGISTERS

OBJECTIVE:

Registers play an important role in computation as they hold the operands and perform shift operations needed for the computations .The objective of this lecture is to introduce register element of the system, their types and their applications.

CONTENTS:

- Introduction
- Shift Registers
 - Serial-in-Serial-out Shift Register
 - Serial-in-Parallel-out Shift Register
 - Parallel-in-Serial-out Shift Register
 - Parallel-in-Parallel-out Register
- Bi-directional Shift Registers

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer to Unit I Section II Q 1,26-30
- 2 Refer to Unit I Section III Q 19, 21-25

OTHER ASSIGNMENTS:

- 1 ibid 3, Page No.394-396, Q 1-10

SUGGESTED READINGS:

REFERENCE BOOK:

- 1 ibid 3, Page No. 358-394

ARTICLE:

- 1 Rashid Anwar, Jobbin Ben, A Novel Design for Universal Shift Register, International Journal of Computer Science and Mobile Computing, Vol 3, Issue 3 issue 3 2014, <http://ijcsmc.com/docs/papers/March2014/V3I3201499a31.pdf>.

LECTURES 11-14

REGISTER TRANSFER AND MICROOPERATION

OBJECTIVE:

The components that carry out operations at micro level are registers and operations performed within registers are called micro-operations. Symbolic representation of these operations is called register transfer language and it describes unique feature of any system. The objective is to specify the operations taking place inside the registers and circuits that perform arithmetic and logic operations along with the interaction of memory with registers.

CONTENTS:

- Register Transfer Language
 - System's registers
 - Data transformations in registers
 - Data transfers between registers
- Register Transfer
 - Registers
 - Control Functions
- Bus and Memory Transfers
 - Common Bus
 - Bus Selection

- Three State Gates
- High Impedance
- Buffer
- Bus System
- Memory Transfer
 - Memory Read
 - Memory Write
- Arithmetic Micro operations
 - Binary Adder
 - Binary Adder-Subtractor
 - Binary Incrementer
 - Arithmetic Circuit
- Logic Micro operations
 - Micro operations
 - Hardware List of Logic Implementation
 - Applications Of Logic Micro operations
 - Selective set
 - Selective complement
 - Selective clear
 - Mask operation
 - Insert operation
- Shift Micro operations
 - Logical shift
 - Circular shift
 - Arithmetic shift
 - Hardware Implementation
- Arithmetic Logic Shift Unit

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit I Section II Q 3, 4, 5, 6, 7, 8, 9, 14,44-50
- 2 Refer Unit I Section III Q 1, 2, 4, 5, 6, 7, 9, 13, 14, 15, and 16

OTHER ASSIGNMENTS:

- 1 ibid 1, Q.4.6-4.15,Q 4.19-4.22

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 93-120

REFERENCE BOOK:

- 1 ibid 5,Page 4.1- 4.5

LECTURES 15-20

BASIC COMPUTER ORGANIZATION AND DESIGN

OBJECTIVE:

A complete program consists of set of instructions which are broken into micro-operations to be executed in registers. This section familiarizes students with concept of type of instructions and their format in registers.

CONTENTS:

- Basic Computer Organization and Design
 - Instruction Codes
 - Introduction
 - The basic computer
 - Instructions
- Basic Computer Registers
 - Common Bus System
- Basic Computer Instructions
 - Instruction Set Completeness
- Timing and Control
- Instruction Cycle
 - Fetch and decode
 - Determine the type of instruction
 - Register reference instructions
- Memory Reference Instructions
 - STA: Store AC
 - BUN: Branch Unconditionally
 - BSA: Branch and Save Return Address
 - ISZ: Increment and Skip-if-Zero
 - Flowchart for Memory Reference Instructions
- Input-Output and Interrupt
 - Input-Output Configuration
 - Input-Output Instructions
 - Program Controlled Input/Output
 - Interrupt Initiated input/output
 - Flowchart for interrupt cycle
 - Complete Computer Description
 - Flowchart of Operations
 - Design of accumulator logic
 - Control of AC Register
 - ALU (Adder and Logic Circuit)

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit II Section IQ 6-10
- 2 Refer Unit II Section II, Q 4, 5, 6, 9
- 3 Refer Unit II Section III Q 4, 6, 7, 9, 10, 15, 16, 17, 18, 23, 25

OTHER ASSIGNMENTS:

- 1 Refer ibid 1, Q.5.1, 5.3, 5.9-5.13
- 2 ibid 4, Chapter 2 Q 1-9

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 125-167

REFERENCE BOOKS:

- 1 ibid 4, Page No, 37-53
- 2 ibid 5, Page No, 5.1-5.18

ARTICLES:

- 1 Christoforos E. Kozyrakis, David A. Patterson, “A New Direction for Computer Architecture Research”, <http://iram.cs.berkeley.edu/papers/direction/paper.pdf>
- 2 Vojin G. Oklobdzija, “Computer Organization Architecture”, <http://www.ece.ucdavis.edu/~vojnin/CLASSES/EEC70/W2001/architct-chpt.pdf>

LECTURES 21-23

MICRO PROGRAMMED CONTROL

OBJECTIVE:

The function of the control unit in a digital computer is to initiate sequences of micro-operations. Two methods to implement control unit is hard wired and micro-programmed. These lectures explain the important concepts of micro-programmed control including branching, subroutine and their mapping to microinstructions.

CONTENTS:

- Control Memory
- Address Sequencing

- Conditional Branching
- Mapping of Instruction
- Subroutines
- Micro program Example
 - Computer Configuration
 - Microinstruction Format
 - Symbolic Microinstructions
 - The Fetch Routine
 - Symbolic Micro program
 - Binary Micro program
- Design of Control Unit
 - Micro program Sequencer

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit II Section II Q 10, 11, 12, 14, 15,16,17,18,19,20,21-25
- 2 Refer Unit II Section III Q 22, 24

OTHER ASSIGNMENTS:

- 1 Refer ibid 1, Q.7.1-7.10

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 215-237

REFERENCE BOOK:

- 1 ibid 5, Page No, 5.20-5.23

ARTICLE:

- 1 Micro-programmed Control Unit, <http://www.scm.tees.ac.uk/users/u0000408/Microprogramming/MicroprogIntro.pdf>

LECTURES 24-26

CENTRAL PROCESSING UNIT

OBJECTIVE:

The part of computer that performs the bulk of data processing operations is called central processing unit .The CPU consists of three major part arithmetic logic unit, registers, and control

unit. These lectures explain the working of CPU through register organization and current trends of instruction set computers.

CONTENTS:

- Introduction
- General Register Organization
 - Control Word
 - Example of Micro operations
- Stack Organization
 - Register Stack
 - Memory Stack
 - Reverse Polish Notation
 - Evaluation of Arithmetic Expressions
- Instruction Formats
 - Three-Address Instructions
 - Two-Address Instructions
 - One-Address Instructions
 - Zero-Address Instructions
 - RISC Instructions
- Addressing Modes
 - Numerical example
- Data Transfer and Manipulation
 - Data Transfer Instructions
 - Data Manipulation Instructions
 - Arithmetic Instructions
 - Logical and Bit Manipulation Instructions
 - Shift Instructions
- Program Control
 - Status Bit Conditions
 - Conditional Branch Instructions
 - Subroutine Call and Return
 - Program Interrupt
 - Types of Interrupts
- Reduced Instructions Set Computer (RISC)
 - CISC Characteristics
 - RISC Characteristics
 - Overlapped Register Windows
 - Berkeley RISC I

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit II Section II Q 1, 2, 3, 7, 8, 13,41-50
- 2 Refer Unit II Section III Q 1, 2, 3, 5, 11, 12, 13, 14, 19, 20, and 21

OTHER ASSIGNMENTS:

- 1 ibid 1, Q.8.13-8.18
- 2 ibid 2, Page No. 447, Q11.1-11.7

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 243-290
- 2 ibid 2, Page No. 418-444, 498-522

REFERENCE BOOK:

- 1 ibid 4, Page No, 627-628

LECTURES 27-31

PIPELINE AND VECTOR PROCESSING

OBJECTIVE:

Parallel processing is used to increase computational and processing speed of the system and can be achieved through pipelining, vector processing and array processing. These lectures aim to make students understand the concept of parallel processing through pipelining, vector processing and array processing.

CONTENTS:

- Parallel Processing
- Pipelining
 - General Considerations
- Arithmetic Pipeline
- Instruction Pipeline
 - Example: Four-Segment Instruction Pipeline
 - Data Dependency
 - Handling of Branch Instructions
- RISC Pipeline
 - Example: Three-Segment Instruction Pipeline
 - Delayed Load
 - Delayed Branch
- Vector Processing
 - Vector Operations
 - Matrix Multiplication
 - Memory Interleaving

- Supercomputers
- Array Processors
 - Attached Array Processor

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit III Section II Q 5, 6, 11, 12, 34-40,41-50
- 2 Refer Unit III Section III Q 8-17, 19

OTHER ASSIGNMENTS:

- 1 ibid 1, Q.9.3-9.14

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 301-331
- 2 ibid 2, Page No. 458-479, 568
- 3 ibid 5, Page No, 6.1-6.16

ARTICLES:

- 1 Nakazawa Kisaburo, Nakamura Hiroshi,Pseudo , “Vector Processor based on Register-Windowed Superscalar pipeline”, http://pdf.aminer.org/000/575/283/pseudo_vector_processor_based_on_register_windowed_superscalar_pipeline.pdf
- 2 Song, X., Jian, Z., Zhang, G., Liu, M., Guo, N., & Zhang, W. (2014). New research on MEMS acoustic vector sensors used in pipeline ground markers.*Sensors*, 15(1), 274-284.,<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4327018/>
- 3 Anil Rajput and Sarita Khado ,Parallel Processing Unit with MIMD Architecture,Volume 4, Issue 4, 2014, http://www.ijarcsse.com/docs/papers/Volume_4/4_April2014/V4I4-0466.pdf

LECTURES 32-37

INPUT-OUTPUT ORGANIZATIONS

OBJECTIVE:

The input-output subsystem of a computer, referred to as I/O provides an efficient mode of communication between the central system and outside environment. These lectures explore different methods of performing input and output operations and their advantages depending on the devices being used.

CONTENTS:

- Peripheral Devices
 - ASCII Alphanumeric Characters
- Input-Output Interface
 - I/O Bus and Interface Modules
 - I/O versus Memory Bus
 - Insolated versus Memory-Mapped I/O
 - Example of I/O Interface
- Asynchronous Data Transfer
 - Strobe Control
 - Handshaking
 - Asynchronous Serial Transfer
 - Asynchronous Communication Interface
 - First-In, First-Out Buffer
- Modes of Transfer
 - Example of Programmed I/O
 - Interrupt-Initiated I/O
 - Software Considerations
- Priority Interrupt
 - Daisy-Chaining Priority
 - Parallel Priority Interrupt
 - Priority Encoder
 - Interrupt Cycle
 - Software Routines
 - Initial and Final Operations
- Direct Memory Access (DMA)
 - DMA Controller
 - DMA Transfer
- Input-Output Processor (IOP)
 - CPU-IOP Communication
 - IBM 370 I/O Channel
 - Intel 8089 IOP

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit III Section II Q 1, 2, 3, 4, 7, 8, 9, 10, 13-33.34-40
- 2 Refer Unit III Section III Q 1-7, 18,

OTHER ASSIGNMENTS:

- 1 ibid 1, Q 11.5-11.10
- 2 ibid 2, Q 7.1-7.11

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 383-430
- 2 ibid 2, Page No. 237-262

REFERENCE BOOKS:

- 1 ibid 4, Page No, 139-157
- 2 ibid 5, Page No, 11.1-1.58

LECTURES 38-42

MEMORY ORGANISATION

OBJECTIVE:

The memory unit is an essential component in any digital computer since it is needed for storing programs and data. The storage of computer ranges from micro level registers to fast semi conductor memories and mass storage. These lectures explain various types of memories and their organizations.

CONTENTS:

- Memory Hierarchy
- Main Memory
 - RAM and ROM Chips
 - Memory Address Map
 - Memory Connection to CPU
- Auxiliary Memory
 - Magnetic Disks
 - Magnetic Tape
- Associative Memory
 - Hardware Organization
 - Match Logic
 - Read Operation
 - Write Operation
- Cache Memory
 - Associative Mapping
 - Direct Mapping
 - Set-Associative Mapping
 - Writing into Cache
 - Cache Initialization
- Virtual Memory
 - Address Space and Memory Space

- Address Mapping Using Page No.
- Associative Memory Page No. Table
- Page No. Replacement
- Memory Management Hardware
 - Segmented-Page No. Mapping
 - Numerical Example
 - Memory Protection

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit IV Section II Q 1, 2, 4-18, 21-25
- 2 Refer Unit IV Section III Q 1, 3, 4, 5, 7, 8, 9, 11-18, 20, 21, 24

SUGGESTED READINGS:

TEXT BOOKS:

- 1 ibid 1, Page No. 447-485
- 2 ibid 2, Page No. 128-169

REFERENCE BOOK:

- 1 ibid 4, Page No, 63-80
- 2 ibid 5, Page No, 9.1-9.29,10.1-10.34

ARTICLES:

- 1 Krishna M. Kavi, “Cache Memories” ,http://www.csrl.unt.edu/~kavi/Research/cache_paper.pdf
- 2 Meenu, Monika , Vinay Dhall ,Computational Study of Static and Dynamic Memory Allocation,International Journal of Advanced Research in Computer Science and Engineering, Volume 5, Issue 8, 2015, http://www.ijarcsse.com/docs/papers/Volume_5/8_August2015/V5I8-0294.pdf

LECTURES 42-45

MULTIPROCESSORS

OBJECTIVE:

Today parallel processing to enhance the speed of the system is achieved by using more than one processor in a system. The concept of parallel processing is explained through multiprocessor and their different types of interconnections.

CONTENTS:

- Characteristics of Multiprocessors
- Interconnection Structures
 - Time-shared Common Bus
 - Multiport Memory
 - Crossbar Switch
 - Multistage Switching Network
 - Hypercube Interconnection
- Inter-processor Arbitration
 - System Bus
 - Serial Arbitration Procedure
 - Parallel Arbitration Logic
 - Dynamic Arbitration Algorithms
- Inter-processor Communication and Synchronization
 - Inter-processor Synchronization
 - Mutual Exclusion with a Semaphore
- Cache Coherence
 - Conditions for Incoherence
 - Solutions to the Cache Coherence Problem

ASSIGNMENTS FROM QUESTION BANK:

- 1 Refer Unit IV Section II, Q 3, 19, 20, 38-40
- 2 Refer Unit IV Section III, Q 2, 6,10, 19, 22, 23, 25
- 3 Refer Unit IV Section II, Q 2, 6,10, 19, 22, 23, 25

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No. 491-512

REFERENCE BOOKS:

- 1 ibid 4, Page No. 607-636
- 2 ibid 5, Page No, 12.1-12.51

ARTICLE:

- 1 TilakAgerwala, System Trends and their Impact on Future Microprocessor Design, IBM Research Centre, 2013, <http://www.microarch.org/micro35/keynote/Agerwala.pdf>

LECTURE PLAN

PRINCIPLES AND PRACTICES OF MANAGEMENT

MCA - 109

**COURSE OUTLINE
MCA - I SEMESTER
PRINCIPLES AND PRACTICES OF MANAGEMENT - MCA 109**

L - 4 Credits - 04

OBJECTIVES:

This course is designed to expose the students to the basic concepts of management in order to aid the students in understanding how an organization functions, and in understanding how an organization functions, and in understanding the complexity and wide variety of issues managers face in today's business firms.

INTERNAL ASSESSMENT AND ASSIGNMENT

(25 marks)

- | | |
|----------------------------------|----------|
| 1. Class Test-I – (Written Test) | 15 marks |
| 2. Class Assessment + Attendance | 10 marks |

COURSE CONTENTS:

UNIT I

- Management: Concept, Nature, Importance
- Management: Art, and Science,
- Management as a Profession
- Management vs. Administration
- Management skills, characteristics of Quality managers
- Levels of management
- Evolution of Management Thought: Early contributors, Taylor and Scientific Management, Fayole Administrative Management
- Bureaucracy, Hawthorne Experiments and Human Relations
- Social system Approach, Decision Theory Approach
- Business Ethics and Social Responsibility

UNIT II

- Introduction to functions of Management
 - Planning
 - Nature, Scope, Objectives and significance
 - Types, Process, Barriers to effective planning
 - Planning Premises and Forecasting
 - Decision Making
 - Organizing
 - Concept, Organization theories

- Organizational structure
- Departmentation
- Span of control
- Delegation of Authority, Authority and Responsibility

UNIT III

- Staffing
 - Concept
 - System Approach, Manpower planning
 - Job Design
 - Recruitment and Selection
 - Training and Development
 - Performance Appraisal
- Directing
 - Direction and supervision
 - Motivation
 - Theories of Motivation
 - Approaches for improving Motivation
 - Quality of work life

UNIT IV

- Leadership
 - Meaning, Functions of leaders
 - Leadership Styles, Leadership Development
- Communication
 - Process
 - Importance
 - Channels of Communication
 - Barriers of Communication
- Controlling
 - Concept, Types of control, methods
 - An integrated control system
 - Developing a quality control system
 - Total Quality Control
- Change and Development
 - Forces, Need of change
 - Model for managing change

STUDY MATERIAL FOR THE SUBJECT

Following will be the study material for topics of Principles and Practices of Management and students are advised to go through the material for thorough understanding of the subject:

➤ MAIN TEXT BOOKS

1. **Author's Name(s):** C.B. Gupta
Title: Management - Theory and Practice
Edition: XVI **Year:** 2013
Publisher: Sultan Chand and Sons (ibid 1)
2. **Author's Name(s):** T.N. Chhabra
Title: Essentials of Management
Edition: III **Year:** 2011
Publisher: Sun India Publication. (ibid 2)

➤ REFERENCE BOOKS

1. **Author's Name(s) :** Stephen P Robbins, Mary Coulter
Title: Management
Edition: XII **Year :**2013
Publisher: Pearson Education (ibid 3)
2. **Author's Name(s) :** Harold Koontz, Heinz Weihrich
Title: Essentials of Management: An International and Leadership Perspective
Edition: IX **Year:**2012
Publisher: Tata McGraw Hill Publications (ibid 4)

➤ PERIODICALS

1. EMPI Research and Business Review
2. Synergy
3. International Journal of Management
4. HR Magazine
5. Journal of Banking, Information Technology and Management
6. Effulgence
7. Tecnia Journal of Management Studies
8. The IUP Journal of Soft Skills
9. Abhigyan Quest for Excellence Management Journal
10. The IUP Journal of Organisational Behaviour
11. OIMT Business Review
12. The Chartered Accountant
13. Saaransh, RKG Journal of Management
14. The Management Accountant

15. IMR – Management Speak
16. Financial Executive

WEBSITES:

1. <http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.psych.55.090902.142105>
2. <http://ideas.repec.org/p/dgr/vuarem/2004-27.html>
3. <http://ideas.repec.org/a/alu/journal/v2y2009i11p21.html>
4. <http://hum.sagepub.com/cgi/content/abstract/37/12/1047>
5. <http://ideas.repec.org/a/pet/annals/v4y2004p95-98.html>

LECTURES 1 -2

MANAGEMENT

OBJECTIVE:

All organizations exist for certain purposes or goals and managers are responsible for combining and using organizational resources to ensure that their organizations achieve their purposes. The role of Management is to move an organization towards its purposes or goals by assigning activities that organization members' perform. The objective of these lectures is to introduce the students with the concept of Management, its characteristics and definitions given by various theorists.

CONTENTS:

- Meaning of Management
- Definitions of Management
- Features of Management
 - Organized activity
 - Existence of objective:
 - Relationship among Resources.
 - Working with and through people.
 - Decision-making.
- Characteristics of Management like
 - Management is Universal
 - Management is Purposeful
 - Management is integrative force
 - Management is a social process
 - Management is multidisciplinary
 - Management is a continuous process
 - Management is intangible

ASSIGNMENT FROM QUESTION BANK:

UNIT I

SHORT ANSWER TYPE QUESTIONS: 1, 5, 8

LONG ANSWER TYPE QUESTIONS: Q1, 2, 20, 21, 30, 44

OTHER ASSIGNMENTS:

1. ibid 1, Page 1.29, Q 7, 8, 9, 10, 11
2. ibid 2, Page 20, Q 1, 2, 3, 4, 5, 6
3. ibid 3, Page 24, Q 2

TEXT BOOKS:

1. ibid 1, Page 1.4 -1.11
2. ibid 2, Page 1-7

REFERENCE BOOK:

1. ibid 3, Page 4-8

ARTICLES:

1. Prof. SenjutiGoswami, Ms. Nastiya Mukherjee, Ms. UjjainiBasu, “Bringing corporate transformation through human capital valuation”, EMPI Research and Business Review, Vol. II, Issue 3, July – December 2011, Pg. 31 – 34.
2. Prof. GirishKathuria, Col. ArunDhongde (Retd.), “Culture change and its impact on marketing and business environment of an organization”, EMPI Research and Business Review, Vol II, Issue 3, July – Dec. 2011, Pg. 35 – 38.
3. Dr. U.K. Neogi, “A study of management styles in different cultures”, EMPI Research and Business Review, Vol. III, Issue 4, Jan – June 2012, Pg. 1 – 4.
4. Col. (Dr.) C. K. Singh, Neelesh Kumar, “Cross cultural management: Challenges and issues in Indian context”, Synergy, Vol. 8, No. 2, July 2010, Pg. 41 – 56.
5. William David Brice, “The effects of ethnic culture on Managerial Attitudes and Practices: A survey in Hong Kong, Taiwan and China”, William David Brice, International Journal of Management, Vol. 29, No. 1, Part 2, March 2012, Pg. 267 – 278.
6. CA. (Dr.) ShitalJhunjunwala, “Women on boards – the statistics speak”, CA. (Dr.) ShitalJhunjunwala, The Chartered Accountant, Jan. 13, Vol. 61, No. 7, Pg. 140 – 143.
7. RachitaSambyal, “Impact of Total Quality Service on brand equity,” Saaransh, RKG Journal of management, Vol. 3, No. 2, Jan. 12, Pg. 31 – 35.
8. NeelamSarawat, GyanPrakash, “Changing side of Indian culture with reference to power distance dimension of Hofstede model,” Saaransh, RKG Journal of management, Vol. 3, No. 2, Jan. 12, Pg.64 – 68.
9. Amit Kumar Jain, “Employee engagement”, Saaransh, RKG Journal of management, Vol. 3, No. 2, Jan. 12, Pg. 81 – 86.

10. William, David Brice, “The effects of ethnic culture on managerial attitudes and practices: A survey in Hong Kong, Taiwan and China”, International Journal of Management, Vol. 29, No. 2, Part 2, March 2012, Pg. 267 – 278.
11. Alfredo De Massis, Josip Kotlar and Federico Frattini, “Is Social Capital Perceived As A Source Of Competitive Advantage Or Disadvantages For Family Firms? An Exploratory Analysis Of CEO Perceptions”, The Journal Of Entrepreneurship, Vol. 22, No. 1, March 2013, Pg. No. 15-43.
12. Dr. Narinder Kaur, “Customer Relationship Management In Indian Banking Sector”, BVIMR Management Edge, Vol. 6, No.1, January-June 2013, Pg. No. 33-43.
13. Madan Lal Bhasin, “Corporate Governance And Forensic Accountant: An Exploratory Study”, MAIMS Journal Of Management, Vol. 8, No.1, April 2013.
14. Nagapaven Chintalapati, “Protecting the Competitive Advantages Derived through HR: Challenges for IT Industry”, The IUP Journal of Management Research, Vol XII, No.3, July 2013, Pg. No. 29-44.
15. K.M.Nagendra, S Radha & C G Naidu, “Enhanced Industrial Employability through New Vocational Training Framework with Attitude-Skill-Knowledge (ASK Model)”, The IUP Journal of Management Research, Vol XII, No.3, July 2013, Pg. No.45-54.

LECTURE 3

MANAGEMENT AS SCIENCE, ART AND PROFESSION

OBJECTIVE:

A question is often raised as to whether management is an art, a science, a profession or all the three. This question will be discussed in this lecture to explain the nature of management.

CONTENTS:

- Detail of why Management is an Art
 - Personal skills
 - Practical know-how
 - Result-orientation
 - Creativity
 - Constant practice aimed at profession
- Detail of why Management is a science
 - Systematized body of knowledge
 - Cause and effect relationship
 - Test of validity and predictability
- Detail of why Management is a Profession

- A well- defined and organized body of knowledge
- Learning and experience
- Entry restricted by qualifications
- Recognized national body
- Ethical code of conduct
- Dominance of service motive

ASSIGNMENT FROM QUESTION BANK:

UNIT I

LONG ANSWER QUESTIONS: Q 3, 41, 43, 44

OTHER ASSIGNMENTS:

1. ibid 1, Page 1.29-1.30, Q 1, 3, 12
2. ibid 2, Page 20, Q 7, 8, 9, 10, 11, 12

TEXT BOOKS:

- 1 ibid 1, Page 1.14 – 1.18
- 2 ibid 2, Page 7-11

LECTURE 4

MANAGEMENT AND ADMINISTRATION

OBJECTIVE:

The administration of a business is interchangeable with the performance or management of business operations, maybe including important decision making. The objective of this lecture is to understand the similarities and differences between management and administration.

CONTENTS:

- Meaning of Administration
- Administration is above Management
- Administration is a part of Management
- Administration and Management are one
- Distinction between Administration and Management
- Nature
- Scope
- Level
- Influence
- Direction of human efforts

- Main functions
- Skills required
- Usage
- Illustrations

ASSIGNMENT FROM QUESTION BANK:

UNIT I

SHORT ANSWER QUESTIONS: B (1)

LONG ANSWER QUESTIONS: Q 6

OTHER ASSIGNMENTS:

1. ibid 1, Page 1.29-1.30, Q 2, 6
2. ibid 2, Page 20, Q 14

TEXT BOOKS:

- 1 ibid 1, Page 1.11 – 1.13
- 2 ibid 2, Page 15-18

ARTICLE:

- 1 Mr. Dipanvita Sehgal,” Shakespeare as a Management Wizard”, MERI Journal of Management & IT, Vol. 7, No.2, April 2014, Pg. No. 10-12.

LECTURE 5

MANAGEMENT SKILLS AND LEVELS OF MANAGEMENT

OBJECTIVE:

The objective of this lecture is to explore the skills of managers and deliberate upon the various levels of management.

CONTENTS:

- Skills of Managers
 - Technical skills
 - Human skills
 - Conceptual skills
 - Diagnostic skills
- Levels of Management
 - Top level Management

- Intermediate level management
- Supervisory Management

ASSIGNMENT FROM QUESTION BANK:

UNIT I

SHORT ANSWER QUESTIONS: II-A(2), B(2)

LONG ANSWER QUESTIONS: Q 7, 8, 22, 23, 24

OTHER ASSIGNMENTS:

1. ibid 1, Page 1.29-1.30, Q 4, 15, 16, 20
2. ibid 2, Page 38, Q 8, 9, 10, 12, 18
3. ibid 3, Page 24, Q 4, 5

TEXT BOOKS:

- 1 ibid 1, Page 1.20-1.23
- 2 ibid 2, Page 31-35

REFERENCE BOOK:

1. ibid 3, Page 10-14

LECTURE 6

ROLE OF MANAGERS AND IMPORTANCE OF MANAGEMENT

OBJECTIVE:

The lecture aims to acquaint the students with the managerial work roles along with the importance of management.

CONTENTS:

- Roles of Managers
 - Figurehead
 - Leader
 - Liasion
 - Monitor
 - Disseminator
 - Spokesman

- Entrepreneur
- Disturbance Handler
- Resource Allocator
- Negotiator
- Importance of Management
 - Achievement of group goals
 - Optimum utilization of resources
 - Fulfillment of social Obligations
 - Stability
 - Human Development

ASSIGNMENT FROM QUESTION BANK:

UNIT I

LONG ANSWER TYPE QUESTIONS: Q 5, 8, 22, 25, 27

OTHER ASSIGNMENTS:

1. ibid 1, Page 1.29-1.30, Q 17, 19, 20
2. ibid 2, Page 39, Q 18, 19

TEXT BOOKS:

1. ibid 1, Page 1.24-1.27
2. ibid 2, Page 35-38

REFERENCE BOOK:

1. ibid 3, Page 12-14

ARTICLES:

1. The Article on “The skills Leaders need at every level “from Harvard Business Review, Jack Zenger and Joseph Folkman dated 30 July, 2014. <https://hbr.org/2014/07/the-skills-leaders-need-at-every-level>.

LECTURE 7

EVOLUTION OF MANAGEMENT

OBJECTIVE:

While appreciating the past success of ‘management’, it is obvious that today’s accelerating pace of change is putting pressure on organisations to be at the forefront of management thinking. To

maintain our standard of living, our rate of change has to be comparative to the rest of the world. So, with the aim of accelerating the development of management practice for the future, the stream of evolving management thought of the past has to be examined. The same will be done in this lecture.

CONTENTS:

- Introduction to origin of management
- Impact of Industrial revolution on Management Thought
 - Large scale production
 - Change of form of ownership
 - Factory system
 - Specialization
- Forerunners of Scientific management
 - Robert Owen
 - Charles Babagge
 - Henry Varnum Poor
 - Daniel C. McCallum

ASSIGNMENT FROM QUESTION BANK:

UNIT I

LONG ANSWER QUESTIONS: Q 9, 19, 29

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 4.39, Q 19
- 2 ibid 2, Page 102-103, Q 6, 9

TEXT BOOKS:

- 1 ibid 1, Page 4.1-4.4
- 2 ibid 2, Page 64-70

REFERENCE BOOK:

- 1 ibid 3, Page 28-32

LECTURE 8

CONTRIBUTION BY TAYLOR – SCIENTIFIC MANAGEMENT APPROACH

OBJECTIVE:

The objective of this lecture is to introduce the application of science to the management of a business concern.

CONTENTS:

- Introduction of scientific management approach
- Principles of Scientific Management
 - Replacement of old rule of thumb
 - Scientific selection and training of workers
 - Co-operation between labour and management
 - Maximum output
 - Equal division of responsibility
- Contributions
 - Scientific approach to business management and process improvement
 - Importance of compensation for performance
 - Began the careful study of tasks and jobs
 - Importance of selection criteria by management
 - Perspective of improving the productivity and efficiency of manual workers
- Benefits of scientific management
- Criticism of scientific management

ASSIGNMENT FROM QUESTION BANK:

UNIT I

LONG ANSWER QUESTIONS: Q7, 10, 31

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 4.39, Q 5(A), 7, 23
- 2 ibid 2, Page 103, Q 7

TEXT BOOKS:

- 1 ibid 1, Page 4.15-4.16
- 2 ibid 2, Page 73-76

REFERENCE BOOK:

- 1 ibid 3, Page 30-3

LECTURE 9

CONTRIBUTION BY HENRY FAYOL – ADMINISTRATIVE MANAGEMENT APPROACH

OBJECTIVE:

This lecture aims to explain the contribution made by Henry Fayol in the field of management.

CONTENTS:

- Introduction of Administrative Management approach
- Management principles
 - Division of work
 - Authority and responsibility
 - Discipline
 - Unity of command
 - Unity of direction
 - Subordination of individual interest to general interest
 - Remuneration of Personnel
 - Centralisation
 - Scalar Chain
 - Order
 - Equity
 - Stability of Tenure of personnel
 - Initiative
 - Espirit de Corps
- Difference between Taylor and Fayole

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: Q(5)

LONG ANSWER QUESTIONS: Q10, 13

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 4.39, Q 1, 2, 10, 24
- 2 ibid 2, Page 103, Q 1, 8, 11
- 3 ibid 3, Page 52, Q 1

TEXT BOOKS:

- 1 ibid 1, Page 4.16-4.20
- 2 ibid 2, Page 77-79

REFERENCE BOOK:

1 ibid 3, Page 32

LECTURE 10

HAWTHORNE EXPERIMENT AND HUMAN RELATIONS

OBJECTIVE:

The importance of human relations with the help of neo-classical theory will be discussed in this lecture.

CONTENTS:

- Importance of human relations
- Factors affecting human relations
 - Individual
 - Work – group
 - Work Environment
 - Leader
- Hawthorne Studies
 - Illumination Experiment
 - Relay Assembly Room Experiment
 - Bank wiring Observation Room Experiment
 - Mass Interview Programme
- Features of Neo-classical Approach
 - Social System
 - Social Environment
 - Informal Organisation
 - Group Dynamics
 - Informal Leader
 - Two-way Communication
 - Non-Economic Reward
- Criticisms of Human Relations Approach
 - Lack of Scientific validity
 - Limited Focus on work
 - Over-emphasis on Group
 - Over-stretching of human Relations
 - Over-stress on Socio-psychological Factors
 - Negative view of conflict

ASSIGNMENT FROM QUESTION BANK:

LONG ANSWER QUESTIONS: Q11, 14, 42

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 4.39, Q 4(b), 22
- 2 ibid 2, Page 103, Q 2

TEXT BOOKS:

- 1 ibid 1, Page 4.24-4.26
- 2 ibid 2, Page 85-87

REFERENCE BOOK:

- 1 ibid 3, Page 37

LECTURE 11

SOCIAL SYSTEM, DECISION THEORY AND BUREAUCRACY APPROACH

OBJECTIVE:

The objective of this lecture is to acquaint the students with the inter-dependence and inter-relation among various components in a system.

CONTENTS:

- Social system Approach
 - Definition of system
 - Components of systems
 - Types of system
 - Open system
 - Closed system
 - Features of systems approach
 - Contributions of systems approach
 - Limitations of Systems approach
- Decision Theory Approach
 - Evolution of decision theory
 - Characteristics of Decision theory Approach
 - Advantages of Decision theory Approach
 - Limitations of Decision theory Approach
- Bureaucracy

- Evolution of Max Weber theory of Bureaucracy
- Types of Legitimate Authority
- Characteristics of Bureaucracy
- Merits of Bureaucracy
- Demerits of Bureaucracy

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: Q(4)

LONG ANSWER QUESTIONS: Q14, 15

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 4.39, Q 12, 13, 15, 20
- 2 ibid 2, Page 103, Q 3, 4, 5, 14, 16

TEXT BOOKS:

- 1 ibid 1, Page 4.34-4.35
- 2 ibid 2, Page 79-83

REFERENCE BOOK:

- 1 ibid 3, Page 37-39

LECTURE 12

BUSINESS ETHICS AND SOCIAL RESPONSIBILITY

OBJECTIVE:

Ethics in business are not only common sense, but business sense as well, no matter if you run a huge corporation or a little home business from your garage. The objective of this lecture is to understand the moral standards or code of conduct critical to the success of the organization.

CONTENTS:

- Concept of Ethics
- Need for ethics in business
- Factors Governing Business ethics
- Value forming Institutions
- Organizational goals
- Work and career
- Superiors

- Peers and Colleagues
- Professional Codes
- Benefits of Code of Ethics
- Managerial Ethos
- Corporate Values

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: Q 9

LONG ANSWER QUESTIONS: Q16, 17, 18

OTHER ASSIGNMENTS:

- 1 ibid 1, Page 43.13 (Q 1-100), Page 44.11(1-6)
- 2 ibid 2, Page 671-672, Q 1-17

TEXT BOOKS:

- 1 ibid 1, Page 43.1-43.12, 44.1-44.11
- 2 ibid 2, Page 648-671

REFERENCE BOOK:

- 1 ibid 3, Page 116-143

ARTICLE:

- 1 Prof. S. S. Khanka, (2012). “Value based management for valuing values in organisations”, The Chartered Accountant, Vol. 61, No. 4, Oct. 12, Pg. 124 – 130
- 2 Mohsin Shakeel, Muhammad Mazhar Khan, Dr. Muhammad Aslam Khan, (2011). “Impact of culture on Business Ethics”, Far East Journal of Psychology and Business, Vol. 3, No. 2, Pg. 59-70.
- 3 Dr. Mridula Goel & Ms. Preeti E. Ramanathan, (2014). “Business ethics and CSR – Is there a dividing line?” Science Direct (Procedia Economics and Finance), Vol. 11, Pg. 49-59.

LECTURE 13

INTRODUCTION TO FUNCTIONS OF MANAGEMENT

OBJECTIVE:

The objective of this lecture is to explore the various functional areas of management.

CONTENTS:

- Nature of Management process
- Classification of Managerial Functions
 - Planning
 - Organising
 - Staffing
 - Directing
 - Controlling
- Need for principles of management
- Nature of management principles
- Universality of management principles

ASSIGNMENT FROM QUESTION BANK:

LONG ANSWER QUESTIONS: Q1, 2, 3

OTHER ASSIGNMENTS:

1. ibid 1, Page 2.12-2.13, Q 1, 2, 3, 6, 7, 11
2. ibid 2, Page 38, Q 2, 3, 4, 11, 17, 20

TEXT BOOKS:

1. ibid 1, Page 2.1-2.12
2. ibid 2, Page 22-27

REFERENCE BOOK:

1. ibid 3, Page 116-120

ARTICLES:

1. Dennis R. Self, Mark H. Jordan & Ron Portis, Mike Schraeder, (2014). "The functions of Management as mechanisms for fostering Interpersonal Trust", *Advances in Business Research*, Vol. 5, Pg. 50-62.

LECTURES 14 - 15

PLANNING

OBJECTIVE:

The importance of planning has increased all the more in view of the increasing size of organizations. In the absence of planning, it may not be impossible but certainly difficult to guess the uncertain events of future. The objective of these lectures is to introduce the concept of planning.

CONTENTS:

- Meaning of planning
- Nature of planning
- Importance of planning
- Limitations of planning
- Making planning effective
- Essentials of a sound plan
- Principles of planning
- Types of planning
- Steps in planning process
- Planning premises
- Components of planning

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: a(4), 5

LONG ANSWER QUESTIONS: Q4, 5, 21, 31

OTHER ASSIGNMENTS:

1. ibid 1, Page 7.36, Q 1, 2, 4-24
2. ibid 2, Page 172-173, Q 1-19

TEXT BOOKS:

1. ibid 1, Page 7.1-7.33
2. ibid 2, Page 149-173

REFERENCE BOOK:

1. ibid 3, Page 184-200

LECTURE 16

FORECASTING AND DECISION MAKING

OBJECTIVE:

The objective of this lecture is to understand the various elements involved in forecasting and decision making.

CONTENTS:

- Meaning and Nature of Forecasting
 - Planning and Forecasting
 - Importance of Forecasting
 - Limitations of forecasting
 - Steps in process of forecasting
 - Techniques of forecasting
- Decision making
- Nature of decision making
- Types of decisions
- Creativity in decision making

ASSIGNMENT FROM QUESTION BANK:

LONG ANSWER QUESTIONS: Q6, 7

OTHER ASSIGNMENTS:

1. ibid 1, Page 8.7, Q 1-5
2. ibid 2, Page 236, Q 1, 2, 4, 5, 7, 8

TEXT BOOKS:

1. ibid 1, Page 10.1-10.21
2. ibid 2, Page 213-236

REFERENCE BOOK:

1. ibid 3, Page 156-177

LECTURES 17 - 19

ORGANIZING

OBJECTIVE:

Organizing brings people and resources together. People are assigned with different tasks required for the attainment of basic objective of organization as well as individual goals of the employees. The objective of these lectures is to introduce the concept of organizing and the role it plays in management.

CONTENTS:

- Concept of organization
- Determinants of organization structure
- Dimension of Organisation Structure
- Concept of Organization Structure
 - Organization Charts
 - Principles of Organization
 - Span of Control
 - Scalar Chain
 - Authority And Responsibility
 - Creation of Departments
- Determinantsof Organization Structure
- Forms of organizational structure
 - Line organization
 - Functional organization
 - Line and staff organization
 - Project organization
 - Matrix organization
 - Committee organization
 - Networking organization
 - Free form Organisation

ASSIGNMENT FROM QUESTION BANK:

UNIT I

SHORT ANSWER QUESTIONS: a(3), 7

LONG ANSWER QUESTIONS: Q7, 8, 22, 32

OTHER ASSIGNMENTS:

1. ibid 1, Page 13.20, Q 3, 4, 6, 8, 9
2. ibid 2, Page 257, Q 1, 2, 3, 4, 5, 8, 9, 10

TEXT BOOKS:

- 1 ibid 1, Page 10.1-10.21
- 2 ibid 2, Page 237-257

REFERENCE BOOK:

- 1 ibid 3, Page 266-267

ARTICLES:

1. “Managing the matrix”, Eric Krell, HR Magazine, April 2011, Pg. 69 – 71
- 2 “Organisation structure, operational co-ordination and relational signals: How voluntary actions by organisations lead to formal control structures”, Ed G J Vosselman, International Journal of Management, Vol. 29, No. 2, Part 2, June 2012, Pg. 745 – 759
- 3 Quangyen Tran, Yezhuang Tian, (2013). “Organizational Structure: Influencing Factors and Impact on a Firm”, American Journal of Industrial and Business Management. Vol. 3, Pg. 229-236.
- 4 Srecko Goic (2013). “Organizational Structure, Organizational Dynamics, And Organizational Culture: A Research From Croatian Enterprises”, International Conference 2013.

LECTURE 20

DEPARTMENTATION AND SPAN OF CONTROL

OBJECTIVE:

The need of departmentation and span of control will be deliberated upon in this lecture.

CONTENTS:

- Departmentation
- Meaning of departmentation
- Need and importance of departmentation
- Types of departmentation
- Span of Management
- Concept of span of control
- Theory of Graicunas
- Factors determining span of management

ASSIGNMENT FROM QUESTION BANK:

LONG ANSWER QUESTIONS: Q 8, 33

OTHER ASSIGNMENTS:

1. ibid 1, Page 14.11, Q 1-12
2. ibid 2, Page 293, Q 1-18

TEXT BOOKS:

- 1 ibid 1, Page 14.1-14.10, 15.1-15.7
- 2 ibid 2, Page 281-295

REFERENCE BOOK:

- 1 ibid 3, Page 268-270

LECTURE 21

AUTHORITY AND RESPONSIBILITY, DELEGATION OF AUTHORITY

OBJECTIVE:

Authority and responsibility should go hand in hand for the work to be completed effectively. People will correct an imbalance of authority and responsibility, whether you want them to or not, and on their schedule, not yours. Keeping this importance in mind, the lecture will aim to introduce the relevance of authority, accountability and responsibility.

CONTENTS:

- Concept of Authority
- Power and influence
- Distinction between authority and power
- Sources of Authority
- Responsibility
- Accountability
- Meaning of Delegation of Authority
- Importance and process of delegation
- Obstacles to delegation
- Making delegation effective
- Principles of delegation

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: b(3), 6

LONG ANSWER QUESTIONS: Q5, 34

OTHER ASSIGNMENTS:

1. ibid 1, Page 17.14, Q 1, 2, 3, 6, 8, 9, 11, 12, 14, 15
2. ibid 2, Page 320-321, Q 1, 3-11, 16, 17

TEXT BOOKS:

1. ibid 1, Page 16.1-16.8, 17.1-17.8
2. ibid 2, Page 296-302

LECTURE 22

STAFFING AND MANPOWER PLANNING

OBJECTIVE:

Many a small business has failed due to financial distress exacerbated by poor human resource management. Effective staff management is essential to ensure that workplace runs smoothly and efficiently, and that the right employees are in the right positions. The objective of this lecture is to introduce concept, importance and process of staffing in the organizations.

CONTENTS:

- Meaning of Staffing
- Elements of staffing
- Need and importance of staffing
- Essentials of a good staffing policy
- Concept of manpower planning
- Process of manpower planning

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: Q 3, 4

LONG ANSWER QUESTIONS: Q 1, 2

OTHER ASSIGNMENTS:

1. ibid 1, Page 27.8, Q 1-9

2. ibid 2, Page 380, Q 1-14

TEXT BOOKS:

- 1 ibid 1, Page 27.1-27.7, 28.1-28.4
- 2 ibid 2, Page 367-380

REFERENCE BOOK:

- 1 ibid 3, Page 326-327

ARTICLE:

- 1 “Second Innings a Good HR Practice for Growth”, Ms. Mansi, MERI-Journal of management & IT, Vol 7, No. 2, April, 2014, Pg No. 13-17.
- 2 Andrew Thompson dated September 2015. Walmart’s HRM: HR Planning, Job Analysis and Design,.<http://panmore.com/walmart-human-resource-management-planning-job-analysis-design>

LECTURES 23-24

RECRUITMENT AND SELECTION

OBJECTIVE:

The objective of these lectures is to introduce the students with the concept of Recruitment and Selection

CONTENTS:

- Recruitment and Selection
 - Meaning of Recruitment
 - Process of Recruitment
 - Recruitment Policy
 - Sources of Recruitment
 - Techniques of Recruitment
 - Considerations in Recruitment
 - Meaning of Selection
 - Steps in Selection Process
 - Selection Testing
 - Selection Interviewing

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: Q 7

LONG ANSWER QUESTIONS: Q 21

OTHER ASSIGNMENTS:

1. ibid 1, Page 28.28, Q 1, 2, 6, 7, 10, 11, 12, 13
2. ibid 2, Page 392-393, Q 1, 2,3, 4, 7, 8

TEXT BOOKS:

1. ibid 1, Page 28.1-28.5
2. ibid 2, Page 381-392

REFERENCE BOOK:

1. ibid 3, Page 327-333

ARTICLES:

1. Dr. Manjunath, K.R. and Dr. Jalaja, K.R., (2013).“Talent acquisition and talent mangagement – a strategic tool for business turnaround”,The Management Accountant, Vol. 48, No. 3, Pg. 290 – 294
2. AshutoshMuduli, (2013).“Workforce Agility: A Review of Literature”, The IUP Journal of Management research, Vol XII, No.3, Pg. No. 55-65

LECTURE 25

JOB DESIGN

OBJECTIVE

The lecture aims to enable students to understand the concept, approaches, methods and issues of Job Design

CONTENTS:

- Concept of Job Design
- Factors affecting Job Design
 - Organizational Factor
 - Work Flow
 - Ergonomics

- Environmental Factor
- Employee Abilities And Availability
- Social and cultural Expectations
- Contemporary issues in job Design
- Approaches to Job Design
- Methods of Job Design

ASSIGNMENT FROM QUESTION BANK:

LONG ANSWERS QUESTIONS: Q 16,18,19,22

SUGGESTED READINGS:

TEXT BOOK:

1 ibid 1, Page No. 6.20-6.23

ARTICLE:

- 1 “An analytical study of drivers of employee engagement among executives of a manufacturing organization: With special reference to handicraft industry in Moradabad region”, Sonia Gupta, TussharMahajjn, Saaransh, Vol. 3, No. 2, Jan. 12, Pg. 87 – 92.
- 2 “Impact of Job Embeddednes on Leave Intention” Nandini Borah & Bitopi Gogoi Malakar, SCMS Journal of Indian Management, Vol XII, No. 4, Oct-Dec’15, Pg. No.- 83-91.

LECTURES 26-27

TRAINING AND DEVELOPMENT

OBJECTIVE:

Training presents a prime opportunity to expand the knowledge base of all employees, but many employers find the development opportunities expensive. Adequately planned and well executed training program can lead to numerous advantages for the organization. The importance of training and development along with the various techniques will be discussed in these lectures.

CONTENTS:

- Training
 - Concept of Training
 - Need for Training

- Importance of Training
- Types of Training
- Identifying Training Needs
- Objectives of Training
- Designing a Training Programme
- Techniques of Training
- Evaluating Training Effectiveness
- Retraining
- Development
 - Concept of Executive Development
 - Objectives of Executive Development
 - Importance of Executive Development
 - Process of Executive Development
 - Methods and Techniques of Executive Development
 - Principles of Executive Development

ASSIGNMENT FROM QUESTION BANK:

LONG ANSWER QUESTIONS: Q 6, 22

OTHER ASSIGNMENTS:

1. ibid 1, Page 28.28, Q 3, 4, 5, 8, 9, 14
2. ibid 2, Page 409, Q 1-10

SUGGESTED READINGS:

TEXT BOOKS:

1. ibid 1, Page No. 28.9-28.10
2. ibid 2, Page No. 394-409

REFERENCE BOOK:

1. ibid 3, Page 334-337

ARTICLES:

1. Shubrangshu Baruah, (2012). "Talent Retention – The Key Weapon for Developing Manager's Moral Critical Competence and Intelligence with special reference to training and development", Journal of Banking, Information Technology and Management, Vol. 9, No. 1.
2. Puneet Jain, (2012). "Retention: For an effective work culture", Saaransh, Vol. 4, No. 1, July, Pg. 93 – 96

- 3 DrChoudhuryJyotirmayee, (2013). “HR configuration, Social capital & Organisation performance -theoretical synthesis & empirical analysis”, The Journal of Commerce, Vol. 13, No. 3, Pg. 1-9.
- 4 Raja Abdul Ghafoor Khan, Furqan Ahmed Khan, Dr. Muhammad Aslam Khan, (2011). “Impact of Training and Development on Organizational Performance”, Global Journals, Vol. 11 No. 7. Pg. 62-68.

LECTURES 28-29

PERFORMANCE APPRAISAL

OBJECTIVE:

Performance appraisal are often dreaded by both the employee and the employer. Many managers also find it an extremely stressful process, so why not just do away with performance appraisals? But, performance management is the single largest contributor to organisational effectiveness. If you ignore performance management, you fail. The objective of these lectures is to introduce the students with the concept, importance and process of Performance Appraisal.

CONTENTS:

- Performance Appraisal
 - Concept of Performance Appraisal
 - Objectives of Performance Appraisal
 - Importance of Performance Appraisal
 - Performance Appraisal Process
 - Limitation of Performance Appraisal
 - Essentials of an Effective Performance Appraisal System
 - Techniques of Performance Appraisal
 - Performance Appraisal through MBO
 - 360 Degree Appraisal Technique
 - Performance Appraisal of Managers
 - Performance Appraisal Interview
 - Potential Appraisal

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: Q9

LONG ANSWER QUESTIONS: Q 5, 23

OTHER ASSIGNMENTS:

1. ibid 1, Page 29.16, Q 3, 4, 5, 6, 7

2. ibid 2, Page 432-433, Q 1, 2, 3, 4, 5, 6

SUGGESTED READINGS:

TEXT BOOKS:

1. ibid 1, Page No 29.1-29.8
2. ibid 2, Page 410-433

REFERENCE BOOK:

1. ibid 3, Page 337-338

ARTICLES:

1. "Empowerment, trust and commitment: The moderating role of work unit centrality", RachidZeffane, Hana Ameen Mohammed Al Zarooni, International Journal of Management, Vol. 29, No. 1, Part 2, March 2012, Pg. 332 – 351
2. Effects of Pay and Productivity Comparisons in the workplace on employee attitudes: An experimental investigation", Ted H. Shore, Judy Strauss, International Journal of Management, Vol. 29, No. 2, Part 2, June 2012, Pg. 677 – 686
3. The Role of Socio – cultural norms in workplace stress: An empirical study of bank employees in Nigeria", AdunolaOke, Patrick Dawson, International Journal of Management, Vol. 29, No. 1, Part 2, March 2012, Pg. 314 – 331
4. "Effects of identity variables and job performance on employee intentions to leave: A Study of Indian call centers", Diya Das, International Journal of Management, Vol. 29, No. 1, Part 2, March 2012, Pg. 368 – 378
5. "Factors influencing the performance of small to medium sized enterprises: an empirical study in Czech Republic", Roy McLarty, MikulasPichanic, JitkaSrpova, International Journal of Management, Vol. 29, No. 3, Part 1, Sept. 2012, Pg. 36 – 47
6. "Effects of Ability Utilization, Job Influence And Organization Commitment On Employee Empowerment: An Empirical Study", David Elloy, International Journal of Management, Vol. 29, No. 2, Part 2, June 2012, Pg. 627 – 632
7. "Mechanism for Improved performance: Intrinsic Motivation and Employee Engagement" TejaswiBhuvanaiah& R.P. Raya, SCMS Journal of Indian Management, Vol XII, No.4, Oct-Dec'15, Pg. No. 92-97.

LECTURE 30

DIRECTING – CONCEPT AND SCOPE

OBJECTIVE:

The objective of this lecture is to explore the scope of directing in organizations.

CONTENTS:

- Meaning of Directing
- Nature of directing
- Significance of directing
- Principles of directing
- Techniques of Directing
 - Delegation
 - Supervision
 - Orders and instructions

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWER QUESTIONS: Q 10, 11

LONG ANSWER QUESTIONS: Q 6

OTHER ASSIGNMENTS:

1. ibid 1, Page 32.9, Q 1, 2, 4, 5, 8, 9, 10
2. ibid 2, Page 444-445, Q 1, 2, 3

SUGGESTED READINGS:

TEXT BOOKS:

1. ibid 1, Page No. 32.1-32.8
2. ibid 2, Page , 434-445

LECTURES 31-32

MOTIVATION: THEORY AND TECHNIQUES

OBJECTIVE:

The key to leadership success is motivating others to do their best. These lectures will discuss the various theories of motivation as have been elucidated by management thinkers.

CONTENTS:

- Role of Motivation in Managing Human Resource
- Maslow's Hierarchy of Needs
- Alderfer's Erg Model
- McClelland's Theory
- Herzberg's Two- Factor Theory
- Financial Incentive
- Non-Financial Incentive
- Mc.Gregors's Theories "X" And "Y"
- Ouchi's Theory 'Z'

ASSIGNMENTS FROM QUESTION BANK

SHORT ANSWER QUESTIONS: Q 12, 13, 14, 15

LONG ANSWER QUESTIONS: Q 8 - 12

OTHER ASSIGNMENTS:

1. ibid 1, Page 33.34-33.35, Q 1-22
2. ibid 2, Page 505, Q 1-32

TEXT BOOKS:

1. ibid 1, Page 33.1-33.35
2. ibid 2, Page 473-508

REFERENCE:

1. ibid 3, Page 450-476

ARTICLES:

1. Gary P. Latham, Work Motivation Theory and Research at the Dawn of the Twenty-First Century, Annual Review of Psychology Vol. 56, Page: 485-516 , <http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.psych.55.090902.142105>
2. Dr. K.C. Mittal, Ms. SarvjeetKaur, Generation-Y & Fashion Leadership: Strategic Implications for apparel retailing in India, Effulgence, vol. 8, No.1, Jan-June 2010, Page 34-38.
3. Ajay Pratap Singh, Motivation & Managerial Behavior: study of managers in banks, Tecnia Journal of Management Studies, Vol.4, No. 2, October09-March2010, Page 49-54

- 4 “Developing positive habits in the workplace”, Catherine Joseph, SreeSai Lakshmi, The IUP Journal of Soft Skills, Vol. V, No. 1, Mar. 11, Pg. 37 – 44
- 5 “Motivational Factors: A Comparative Analysis of employees of India and USA”, Dr. V. G. Kondalkar, Dr. Kanchan Bhatia, EMPI Research and Business Review, Vol. 1, Issue 2, Jan – Mar. 2011, Pg. 4 – 7
- 6 The relation between learner motivation and satisfaction with aspects of management training, PihShuw Chen, Jin-Ton Chih, International Journal of Management, Vol. 29, No. 2, Part 1, June 2012, Pg. 545 – 561
- 7 “The effects of job satisfaction and work experience on employee desire for empowerment: A comparative study in Canada and India”, Amarjit Gill, Suraj P. Sharma, Neil Mathur, SmitaBhutani, International Journal of Management, Vol. 29, No. 1, Part 1, March 2012, Pg. 190 – 199.

LECTURES 33 - 34

LEADERSHIP STYLES AND INFLUENCE

OBJECTIVE:

In a competitive business environment, effective leadership is an essential requirement in order to achieve organisational goals. Leadership is crucial in implementing decisions successfully. These lectures aim to discuss the leadership styles and the different theories of leadership.

CONTENTS:

- Definition and Nature of Leadership
- Types Of Leaders
- Styles Of Leadership
- Likert’s Management System
- Traits Or Qualities Of Good Leader
- Trait Theory Of Leadership
- Behavioral Theories Of Leadership
- Situational Theories Of Leadership

ASSIGNMENTS FROM QUESTION BANK

SHORT ANSWER QUESTIONS: Q 1, 12, 13

LONG ANSWER QUESTIONS: Q 8, 9, 10, 24, 34

OTHER ASSIGNMENTS:

1. ibid 1, Page 35.28-35.29, Q 1-26
2. ibid 2, Page 470-471, Q 1-21

TEXTBOOKS:

1. ibid 1, Page 35.1-35.30
2. ibid 2, Page 446-471

REFERENCE:

1. ibid 3, Page 486-514

ARTICLES:

1. "Relationship between self awareness and transformational leadership: A Study in IT industry", VivekanadaSuri and V. M. Prasad, The IUP Journal of OrganisationalBehaviour, Vol. X, No. 1, Jan. 2011, Pg. 7 – 1
2. "Role of Interpersonal Trust and Leadership in Virtual work place", Ms. ArvindKaur Birdie, EMPI Research and Business Review, Vol. III, Issue 4, Jan. – June 2012, Pg. 18 – 22
3. "Fostering Passionate Leadership", OIMT Business Review, Vol. 1, Issue 1, Feb. 2011, Pg. 1-2.
4. "Managerial Perception of crisis leadership in public and private organisations: An interview study in the United States", Liz Thach, International Journal of Management, Vol. 29, No. 2, Part 2, June 2012, Pg. 712 – 725
5. "Changes in the role of supervisors in managerial leadership theories: A historical perspective", International Journal of Management, Vol. 29, No. 3, Part 1, September 2012, Pg.189 – 193
6. "Leadership skills and abilities for Indian hospitality managers", Dr. Musheer Ahmad, IMR – Management Speak, Vol. 5, No. 2, July – Dec. 2012, Pg. 52 – 59
7. "Financial executives as leadership stewards", Bob Vanourek and Greg Vanourek, Financial Executive, Jan/Feb 2013, Pg. 36 – 39
8. "Effective leadership styles and organizational effectiveness- A cross examination with chief executives and executives of public sector enterprises", A Senthamil Raja, P. Palanichamy, Saaransh, Vol. 3, No. 2, Jan. 12, Pg. 19 – 25
9. Eliza Sharma,"Occupational Stress and Leadership Styles: Indian Automobile Industry", SCMS Journal of Indian Management, Vol XII, No. 4, Oct-Dec'15, Pg No.- 98-109

LECTURES 35 -36

MANAGERIAL COMMUNICATION

OBJECTIVE:

The most important bearings of communication are best understood when there is a lack of it. Communication is easily overlooked, but the ability to communicate effectively is necessary to carry out the thoughts and visions of an organization to the people. The importance of speech and words whether through a paper or a voice is a communication medium to convey directions and provide synchronization. Without communication, there is no way to express thoughts, ideas and feelings. The objective of these lectures is to understand the importance of communication in organization and identify the barriers to effective communication

CONTENTS:

- Nature and Role of Communication
- Communication Network
- Formal Communication
- Informal Communication
- Flow Of Communication
- Barriers To Effective Communication
- Achieving Effective Communication

ASSIGNMENTS FROM QUESTION BANK

SHORT ANSWER QUESTIONS: Q 6, 7, 8, 14

LONG ANSWER QUESTIONS: Q 2, 3, 4,5, 35

OTHER ASSIGNMENTS:

1. ibid 1, Page 34.16-34.17, Q 1-23
2. ibid 2, Page 527-528, Q 1-17

TEXT BOOKS:

- 1 ibid 1, Page No. 34.1-34.18
- 2 ibid 2, Page No. 509-528

REFERENCE BOOK:

1. ibid 3, Page 292-305

ARTICLE:

- 1 Elida-Tomita Todorita ,Diana Elena Ranf, The Necessity And Efficient Usage of Managerial Communication Within Organisations During Crisis Situations. Drawing-Up the Content of a Crisis Planning, <http://ideas.repec.org/a/alu/journal/v2y2009i11p21.html>

LECTURE 37

MANAGERIAL CONTROL PROCESS

OBJECTIVE:

The objective of this lecture is to make the students understand the importance of control in an organization

CONTENTS:

- Concept and nature of control
- Importance of control
- Elements of control process
-
- Requirements of effective control
- Control by exception

ASSIGNMENTS FROM QUESTION BANK

SHORT ANSWER QUESTIONS: Q 2, 3, 4, 15

LONG ANSWER QUESTIONS: Q 16, 17, 25, 36

OTHER ASSIGNMENTS:

1. ibid 1, Page 40.16-40.17, Q 1-12
2. ibid 2, Page 554, Q 1-20

TEXT BOOKS:

- 1 ibid 1, Page 40.3-40.18
- 2 ibid 2, Page No. 538-555

REFERENCE BOOK:

- 1 ibid 3, Page 525-533

ARTICLES:

- 1 Nestor K. Ovalle, II, Organizational/Managerial Control Processes: A Reconceptualization of the Linkage between Technology and Performance, <http://hum.sagepub.com/cgi/content/abstract/37/12/1047>
- 2 Mihaela Ghicajanu, Strategic planning and managerial control, <http://ideas.repec.org/a/pet/annals/v4y2004p95-98.html>
- 3 “The meaning and development of the concept of management control: An etymological study”, Krister Bredmar, International Journal of Management, Vol. 29, No. 2, Part 1, June 2012, Pg. 476 – 491
- 4 “The organizational control of temporary workers: An Interview study in Sweden”, Gunner Augustsson, International Journal of Management, Vol. 29, No. 3, Part 1, Sept. 12, pg. 36- 47.

LECTURES 38-40

TECHNIQUES OF CONTROL

OBJECTIVE:

The students will be introduced to the various techniques of control in these lectures.

CONTENTS:

- Personal Observation
- Good organizational Structure
- Unity of plans
- Statistical Control Reports
- Break-even Analysis
- Budgeting
 - Types of Budget
 - Flexible Budgeting
 - Performance Budgeting
 - Zero-base Budgeting (ZEB)
- Budgetary Control
 - Objectives of Budgetary Control
 - Advantages
 - Limitations
 - Precautions in the use of budgets
 - Making Budgetary Control Effective
- Management Audit

- Control of overall Performance
- Return on Investment
- Responsibility Accounting
- Networking Techniques – PERT and CPM
 - Programming Evaluation and Review Techniques
 - Critical Path Method
- Balanced Score card
- Economic Value Added

ASSIGNMENTS FROM QUESTION BANK

SHORT ANSWER QUESTIONS: Q 5

LONG ANSWER QUESTIONS: Q 18, 19, 20, 21, 22, 33

OTHER ASSIGNMENTS:

1. ibid 1, Page 21.12, Q 1, 2, 3
2. ibid 2, Page 604, Q 1, 3

TEXT BOOKS:

1. ibid 1, Page No. 41.1-41.22
2. ibid 2, Page No. 556-585

REFERENCE BOOK:

1. ibid 3, Page 533-553

LECTURES 41

INTRODUCTION TO CHANGE MANAGEMENT

OBJECTIVE:

Change management plays an important role in any organization since the task of managing change is not an easy one. These lectures will delve upon the concept and process of change in an organization.

CONTENTS:

- Introduction to change
- Understanding vitality of change
- Evolution of organizational change
- Organizational growth as a kind of change

- Process of change
 - Unfreezing
 - Changing
 - Refreezing

ASSIGNMENT FROM QUESTION BANK:

UNIT IV

SHORT ANSWERS QUESTIONS: Q 9

LONG ANSWERS QUESTIONS: Q6, 7, 26

OTHER ASSIGNMENTS:

1. ibid 1, Page 21.12, Q 1, 2, 3
2. ibid 2, Page 604, Q 1, 3

SUGGESTED READINGS:

TEXT BOOK:

1. ibid 1, Page No.21.1-21.3

REFERENCE BOOK:

1. ibid 3, Page 356-357

ARTICLE:

1. ibid 7, Volume 7, Issue. 1, Jan-June'2009 "Changes in Management of Disciplinary Issues in Indian Industries, Pg 28-32"

LECTURE 42

IMPORTANCE AND TYPES OF CHANGE

OBJECTIVE:

The importance of change cannot be more emphasized in today's cut-throat competitive era. The objective of this lecture is to discuss the importance of change and familiarize the students with the various types of change.

CONTENTS:

- Importance of change in the organization
 - Management of risk and uncertainties
 - Brings challenges in the organization
 - Bring new business opportunities
 - Stimuli for improvement
 - To achieve the next desired goal
 - Raises motivation
 - Leads to satisfaction through improvement
- Types of change
 - Strategic Change
 - Structural Change
 - Process-oriented change
 - Cultural change

ASSIGNMENT FROM QUESTION BANK:

SHORT ANSWERS QUESTIONS: Q 10, 11

LONG ANSWERS QUESTIONS: Q 8, 9

OTHER ASSIGNMENTS:

1. ibid 1, Page 21.12, Q 7, 8
2. ibid 2, Page 604, Q 4

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No.197-198

REFERENCE BOOK:

- 1 ibid 3, Page No. 361-364

LECTURE 43

FORCES OF CHANGE

OBJECTIVE:

Analysis of the factors affecting change is of utmost importance to make the change effective in the organization. These factors, categorized into internal and external factors will be delved upon in this lecture.

CONTENTS:

- Forces affecting change
 - External factors
 - Change in government policies
 - Technological advancements/progress
 - Change in demographic characteristics
 - Market changes
 - Change in economic condition
 - Increase in raw material costs
 - Social pressures
 - Internal Factors
 - Change in leadership
 - Structural reorganization
 - Adoption or implementation of new technology
 - Decline in profitability
 - Productivity
 - Industrial-relations problems

ASSIGNMENT FROM QUESTION BANK:

LONG ANSWER QUESTIONS: Q 23

OTHER ASSIGNMENTS:

1. ibid 1, Page 21.12, Q 5, 6, 8
2. ibid 2, Page 604, Q 9, 10, 11

SUGGESTED READINGS:

TEXT BOOK:

- 1 ibid 1, Page No.199-200

REFERENCE BOOK:

- 1 ibid 3, Page 356-357.

LECTURE 44

LEVELS OF CHANGE AND CHANGE MODELS

OBJECTIVE:

Change does not necessarily bring about transformation at one level in the organization. This lecture will acquaint the students with the various levels of change and the change model.

CONTENTS:

- Levels of change
 - Knowledge Change
 - Attitudinal level change
 - Group level Change
 - Organisational-wide Change
- Change Model
 - Improving efficiency
 - Increasing Effectiveness
 - Cutting or abandoning the unnecessary things
 - Enhancing
 - Copying/imitation
 - Doing different
 - Doing impossible

OTHER ASSIGNMENT:

1. ibid 2, Page 604, Q 12

SUGGESTED READINGS:

TEXT BOOK:

1. ibid 1, Page No.201-202

REFERENCE BOOK:

1. ibid 3, Page 357-359