

# MICROPROCESSORS

L T P  
4 - 4

## RATIONALE

The study of microprocessors in terms of architecture, software and interfacing techniques leads to the understanding of working of CPU in a microcomputer. The development in microprocessors of 32 bit architecture brings them face-to-face with mainframe finding employment in R&D, assembly, repair and maintenance of hardware of microprocessors and computers.

Microprocessors find application in process control industry. They also form a part of the electronic switching system between source and destination in long distance telecommunications. Thus the microprocessor is an area of specialization. Students of electronics and related engineering branches often use microprocessors to introduce programmable control in their projects, in industrial training.

## DETAILED CONTENTS

1. Memories (4 Hrs)
 

Basic RAM cell, N x M bit RAM, word length and capacity, static and dynamic RAM, basic idea of ROM, PROM, EPROM, EEPROM
2. A/D and D/A Converters (4 hrs)
 

General principle of A/D and D/A conversion and brief idea of their applications. Binary resistor network and resistance ladder network methods of D/A conversion
3. Decoders, Display Devices and Associated Circuits (4 hrs)
  - 3.1 LED, LCD, seven segment display, basic operation of various commonly used display types
  - 3.2 Four bit decoder circuits for 7 segment display and decoder/driver ICs
4. Evolution of Microprocessor (2 hrs)
  - 4.1 Typical organization of a microcomputer system and functions of its various blocks
  - 4.2 Microprocessor, its evolution, function and impact on modern society
5. Architecture of a Microprocessor (With reference to 8085 microprocessor) (8 hrs)
  - 5.1 Concept of Bus, bus organization of 8085
  - 5.2 Functional block diagram of 8085 and function of each block
  - 5.3 Pin details of 8085 and related signals
  - 5.4 Demultiplexing of address/data bus of read/write control signals

- 5.5 Steps to execute a stored programme
6. Memories and I/O interfacing (6 hrs)
- 6.1 Memory organization, Concept of memory mapping, partitioning of total memory space. Address decoding, concept of I/O mapped I/O and memory mapped I/O. Interfacing of memory mapped I/O devices.
- 6.2 Concept of stack and its function
7. Programming (with respect to 8085 microprocessor) (12 hrs)
- 7.1 Brief idea of machine and assembly languages, Machines and Mnemonic codes.
- 7.2 Instruction format and Addressing mode. Identification of instructions as to which addressing mode they belong.
- 7.3 Concept of Instruction set. Explanation of the instructions of the following groups of instruction set
- 7.4 Data transfer groups, Arithmetic Group, Logic Group, Stack, I/O and Machine Control Group.
- 7.5 Programming exercises in assembly language. (Examples can be taken from the list of experiments).
8. Instruction Timing and Cycles (6 hrs)
- 8.1 Instruction cycle, machine cycle and T-states
- 8.2 Fetch and execute cycle.
9. Interrupts (6 hrs)
- Concept of interrupt, maskable and non-maskable, software interrupt, restart interrupts and its use. Various hardware interrupts of 8085.
10. Data transfer techniques (6 hrs)
- Concept of programmed I/O operations, sync data transfer (hand shaking), interrupt driven data transfer, DMA, serial output data, serial input data.
11. Interfacing peripherals with 8085 and their application (6 hrs)

### LIST OF PRACTICALS

1. Write an assembly level program w.r.t. 8085 microprocessor
2. Addition of two 8 bit numbers
3. To obtain 2's complement of 8 bit number.
3. To subtract a 8 bit number from another 8 bit number using 2's complement.

5. Count the number of bits in high state in accumulator.
6. Check even parity and odd parity of a binary number.
7. Addition of two sixteen bit numbers.
8. Subtraction of a sixteen bit number from an other sixteen bit number.
9. Multiplication of two 8-bit numbers by repetitive addition.
10. Divide two 8-bit numbers by repetitive subtraction.
11. To find:
  - a) Smallest number of three numbers
  - b) Largest number of three numbers
12. To sort an array of unsigned binary numbers in descending/ascending order.

### **INSTRUCTIONAL STRATEGY**

The digital systems in microprocessors have significant importance in the area of electronics. Adequate competency needs to be developed by giving sufficient practical knowledge in microprocessors (programming as well as interfacing), A/D, D/A Converters and other topics. Help may be taken in the form of charts, simulation packages to develop clear concepts of the subject. Programming exercises other than the tested in circulation may be given to the students.

### **RECOMMENDED BOOKS**

1. Digital Electronics and Applications by Malvino Leach; Publishers McGraw Hills, New Delhi
2. Digital Logic and Computer Design by Mano, M Morris; Prentice Hall of India, New Delhi
3. Digital Integrated Electronics by Herbert Taub and Donald Sachilling; Prentice Hall of India Ltd., New Delhi
4. Digital Electronics by Rajaraman; Prentice Hall of India Ltd., New Delhi
5. Microprocessor Architecture, Programming and Applications with 8080/8085 by Ramesh S Gaonker, Willey Eastern Ltd. New Delhi
6. Microprocessor and Applications by B Ram

7. Microprocessor and Microcontrollers by Dr BP Singh, Galgotia Publications, New Delhi
8. Introduction to Microprocessors by Mathur, Tata McGraw Hill, New Delhi
9. Microprocessors and Microcomputers by Refiquzzaman, Prentice Hall of India Ltd., New Delhi

### SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	4	5
2.	4	5
3.	4	5
4.	2	3
5.	8	12
6.	6	10
7.	12	20
8.	6	10
9.	6	10
10.	6	10
11.	6	10
<b>Total</b>	<b>64</b>	<b>100</b>

# OBJECT ORIENTED PROGRAMMING USING C++ (Common with Computer Engineering)

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4 - 4

## RATIONALE

Object orientation is a new approach to understand the complexities of the real world. In contrast to the earlier approaches like procedural etc, object orientation helps to formulate the problems in a better way giving high reliability, adaptability and extensibility to the applications. The students are already familiar with this concept of programming in C which is the basic for C++. This course offers the modern programming language C++ that shall help the students to implement the various concept of object orientation practically. The students will be able to programme in the object oriented technology with the usage of C++.

## DETAILED CONTENTS

1. Introduction and Features (8 hrs)
  - 1.1 Fundamentals of object oriented programming – procedure oriented programming Vs. object oriented programming (OOP)
  - 1.2 Object oriented programming concepts – Classes, reusability, encapsulation, inheritance, polymorphism, dynamic binding, message passing, data hiding
2. Language Constructs (12 hrs)
 

Review of constructs of C used in C++ : variables, types and type declarations, user defined data types; increment and decrement operators, relational and logical operators; if then else clause; conditional expressions, input and output statement, loops, switch case, arrays, structure, unions, functions, pointers; preprocessor directives
3. Classes and Objects (6 Hrs)
  - 3.1 Creation, accessing class members
  - 3.2 Private Vs Public
  - 3.3 Constructor and Destructor
  - 3.4 Objects
4. Member Functions (6 Hrs)
  - 4.1 Method definition
  - 4.2 Inline functions implementation
  - 4.3 Constant member functions
  - 4.4 Friend Functions and Friend Classes
  - 4.5 Static functions

5. Overloading Member Functions (6 hrs)  
Need of operator overloading, operator overloading, instream/outstream operator overloading function overloading, constructor overloading
6. Inheritance (12 hrs)  
Definition of inheritance, protected data, private data, public data, inheriting constructors and destructors, constructor for virtual base classes, constructors and destructors of derived classes, and virtual functions, size of a derived class, order of invocation, types of inheritance, single inheritance, hierarchical inheritance, multiple inheritance, hybrid inheritance, multilevel inheritance
7. Polymorphism and Virtual Functions (6 hrs)  
Importance of virtual function, function call binding, virtual functions, implementing late binding, need for virtual functions, abstract base classes and pure virtual functions, virtual destructors
8. File and Streams (8 hrs)  
Components of a file, different operation of the file, communication in files, creation of file streams, stream classes, header files, updating of file, opening and closing a file, file pointers and their manipulations, functions manipulation of file pointers, detecting end-of-file.

### **LIST OF PRACTICALS**

- 1 Programming exercises on control flow statements in C++
- 2 Programming exercises on arrays, strings, function and pointers in C++
- 3 Writing programs to construct classes and deriving objects
- 4 Writing programs for constructors, destructors, using public and private access specifies
- 5 Programming exercises on operator overloading, type conversions and inheritance
- 6 Programming exercises on functional overloading
- 7 Writing programs on steam computation and life operations
- 8 Implementation of a mini project in C++

### **INSTRUCTIONAL STRATEGY**

Since the entire course is totally practical oriented, it is strongly intended that after discussing the individual concepts in class, the students shall be asked to write the programmes for the same in the practical class. The theory and practical shall go hand in hand. It is required that the students make a file of practical exercises which may include the problem definition, algorithms flow charts (wherever required) and the print outs for each listed practical

## RECOMMENDED BOOKS

1. Mastering C++ by KR Venugopal and Rajkumar, T Ravishankar; Tata McGraw hill Publishing Co. Ltd., New Delhi
2. Object Oriented Programming in C++ by E. Balaguruswamy, TMH Publishing Co. Ltd, New Delhi
3. C++ by Robert Lafore, Galgotia Publications Pvt. Ltd., Daryaganj, New Delhi
4. Object Oriented Programming and C++ by R Rajaram; New Age International (P) Ltd., Publishers, New Delhi
5. Schaum's Outline of Programming with C++ by John R. Hubbard

## SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	8	10
2.	12	12
3.	6	10
4.	6	15
5.	6	15
6.	12	18
7.	6	10
8.	8	10
<b>Total</b>	<b>64</b>	<b>100</b>

# COMPUTER NETWORKS

L T P  
4 - 2

## RATIONALE

The future of computer technology is in computer networks. Global connectivity can be achieved through computer networks. It is important to understand the function of computer networks. Knowledge about hardware and software requirements of networks is essential. The emphasis of the course is towards the various components and software required to make a network operational

## DETAILED CONTENTS

1. Introduction (12 hrs)  
  
Use of Computer Networks, LAN, WAN, MAN, Wireless Network, Home Network, Internetworks, Network Structures, Design issues for the layers, Connection oriented and connection- less services, The OSI reference model, TCP/IP reference model and their comparison, X.25, Frame relay and ATM
2. The Physical Layer (10 hrs)
  - Concepts of physical layer and its implementation
  - Design issues, transmission media
  - Switching techniques
  - Circuit message, packets
3. The Data Link Layer (12 hrs)  
  
Data link layer design issues, services provided to the network layer, framing, error control, flow control, error detection and correction, elementary datalink protocol, sliding window protocol, HDLC
4. The Medium Access Control Sublayer (12 hrs)  
  
Channel allocation: static and dynamic channel allocation in LAN and MAN, Multiple access protocol: ALOHA, pure ALOHA, slotted ALOHA, Persistent and nonpersistent CSMA, CSMA/CD, collision free, bit-Map protocol, 802.3 and Ethernet, 802.4 token bus, 802.5 token ring and their comparison, Cabling, Manchester encoding, MAC sub layer protocol, Switched Ethernet, Fast Ethernet, IEEE 802.2: LLC, Hub, Switch, Bridge, Routers, Gateway
5. The Network Layer (6 hrs)



Design issue, routing algorithms, congestion control algorithm (general principle), Firewalls, Network layer in internet: IP Protocol, IP Address, Subnets.

6. The Transport Layer (6 hrs)

Transport service: Service provided to the upper layers, Quality of service, Transport service primitives

7. The Application Layer (6 hrs)

Network Security: cryptography, Secret key, Private key algorithms, Domain name system, E-Mail, USENET, TELNET, FTP

## LIST OF PRACTICALS

1. Establishment of Local Area Network as per the need of Computer center
2. To perform various Network commands using the protocols E-Mail, Telnet, Usenet, and FTP
3. Network Printing
4. Recognize the physical topology of a network.
5. Identify the IP address of a workstation and the class of the address.
6. Install Net Ware Client 32 software.
7. Use NetWare Administrator to Add a user object.
8. Use User Manager for Domains to create, delete and rename a user in Windows NT.
9. Subnet a Class C IP address.
10. Configure an IP address on a workstation.
11. Install and configure a network interface card in a workstation.
12. Create a user login script in a NetWare network.
13. Edit a windows login script in a windows NT workstation.
14. Map a Network drive in a NetWare network.
15. Add and change security rights in a Windows NT network.
16. Add and change security rights in a NetWare network.
17. Implement a full backup with the Sbackup utility.
18. Use the Monitor Utility in a NetWare 5 network to analyze network performance.
19. Network trouble shooting Techniques
  - a) Trouble shooting process
  - b) Trouble shooting tools
  - c) Establishment of LAN network for homogeneous systems
  - d) Establishment of LAN network for heterogeneous systems
  - e) Use of protocols and gateways in establishing LAN
  - f) Writing small programs such as file security, file transfer, remote testing
  - g) Trouble shooting of networks

## INSTRUCTIONAL STRATEGY

The subject deals with both theory and practicals. The students should be made to practically establish LAN with various hardware and software and their integration.

### RECOMMENDED BOOKS

1. Computer Networks by Tanenbaum, Prentice Hall of India, New Delhi
2. Local Area Networks by Peter Hudson
3. Understanding Local Area Network by Neil Jenkins
4. Area Networks by Stan Schatt, Prentice Hall of India, New Delhi
5. Network+ Lab manual,- BPB Publications -by Tami Evanson
6. Networking Essentials – BPB Publications New Delhi
7. Computer Network and Communications By V.K. Jain and Narija Bajaj, Cyber Tech Publications, New Delhi.
8. Data Communications and Networking by Foronzan, Tata McGraw Hill, New Delhi.

### SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	12	30
2.	10	15
3.	12	25
4.	12	15
5.	6	5
6.	6	5
7.	6	5
<b>Total</b>	<b>64</b>	<b>100</b>

# SYSTEM ANALYSIS AND DESIGN

## (Common to Computer Science and Engineering, Diploma in Computer Application)

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### RATIONALE

The system analysis and design is backbone of application software, After studying the subject students will be able to develop the design of system according to given requirements. It involve various type of analysis and design of the system

### DETAILED CONTENTS

1. The system concepts, Characteristics of a system organization, Interaction, Interdependence, Integration, Control objective (8 hrs)
2. Elements of a system – Outputs and Inputs, Processors, Controls, Feedback, Environment, Boundaries and Interface, Examples of system (10 hrs)
3. Introduction: System Development Life cycle, Phases in SDLC (Only Definition), Problems Identification, Preliminary Investigation/ Study, Types of Feasibility- Operational, Technical, Economical, System analysis, System Design, Testing, Implementation (12 hrs)
4. Detailed System Analysis- Primary Investigation, Facts Gathering and its techniques (Interviews, Questionnaires, Background reading, On Site Observation, (Record Gathering) (10 hrs)
5. Introduction to Structured system analysis, Tools for SSA (Data flow Diagrams, Data Dictionary) (8 hrs)
6. Decision Tree, Decision Table, Pros and Cons of each (8 hrs)
7. The Process and stages of system Design (Logical and Physical Design, Design methodologies in brief, Input/ Output and forms design, Input design (Input data, media and Devices), Output design (8 hrs)

## INSTRUCTIONAL STRATEGY

After completing the syllabus, the teacher may ask group of student to select a small software system. The student will apply system analysis and design in the preparation of same

## RECOMMENDED BOOKS

1. System analysis and design Awad, Elias; Galgotia Publication
2. System analysis and design in changing world- Satinger- Jackson- Burd Thomson Publication
3. System analysis and design by Jeffrey and Lawerance PHI Publication
4. Introduction to system analysis and design, Galgotia Publication by Lee

## SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	8	12
2.	10	15
3.	12	20
4.	10	15
5.	8	12
6.	8	10
7.	8	16
<b>Total</b>	<b>40</b>	<b>100</b>

# COMPUTER PERIPHERALS

L T P  
3 - 4

## RATIONALE

A computer engineer should be able to interface and maintain key-board, printer, mouse monitor etc along with the computer system. The course provides the necessary knowledge and skills regarding working construction and interfacing aspects of peripherals. The students will get to know how various peripherals communicate with central processing unit of the computer system. The student will be able to maintain keyboard, printer, monitors and Power Supplies (CVTs and UPSs) along with computer system. This subject provides the required background of computer installation, maintenance and testing of peripherals with micro computers.

## DETAILED CONETENTS

1. Video Display (6 Hrs)
  - The basic principle of working of video monitors, video display adapters, video modes
  - Video display EGA/VGA/SVGA/PCI adapters and their architecture
  - Overview of Raster scan, vector graphic, their main difference and relative advantages
  - Concept of reduction and bandwidth of monitors refreshing of screen
2. Key Board and Mouse (4 Hrs)
 

Types and basic principle of working of key board and mouse, scan codes.
3. Disk Drivers (8 Hrs)
 

Features and working of hard disk drive, floppy disk drive, optical and DVD disk drives and CD writer. Logical structure of disk and its organization and boot record
4. Peripheral Devices, Ports and Connectors (8 hrs)
 

Working principle of various input devices such as Scanner, Tablets, touch screen, light pen, digitizers and joystick, Serial, Parallel, PS/2, USB, RJ- 45, BNC
5. Printers (6 hrs)
 

Principle and working of deskjet, Inkjet, dot matrix and laser printers and plotters
6. Input/Output Device Drivers (6 Hrs)
  - (a) Software aspects of peripheral devices
  - (b) Role of device drivers

- |    |  |         |
|----|--|---------|
| 7. | Networks Peripherals (Features and Working)  | (4 hrs) |
|    | Hub, Gateway, Router Bridge, Modem, Switches   |         |
| 8. | Power Supplies   | (6 Hrs) |
|    | (a) SMPS used in computers and constant voltage transformers   |         |
|    | (b) On Line/Off Line uninterruptured power supplies (UPS), basic principle of working their importance and maintenance |         |

### **LIST OF PRACTICALS**

- 1) To identify various components and peripheral devices of computer.
- 2) Demonstration of different Peripherals of a computer system.
- 3) To study the operation of SMPS
- 4) To study the operation of CVT.
- 5) To study the operation of UPS.
- 6) To study the Video display Unit
- 7) To study the Network Connections

### **INSTRUCTIONAL STRATEGY**

While teaching the subject the teacher may take the interfacing devices like disk drives, printers, key-boards, scanners, plotters etc. physically and explain its working. Additional practical exercise on maintenance and repair of peripheral devices will help the students to develop adequate skills.

### **RECOMMENDED BOOKS**

1. B. Govinda Rajalu, IBM PC and Clones. Hardware Trouble Shooting and Maintenance, Tata McGraw Hill 1991
2. Robert, S Lai: The waite group writing MS DOS Device, Drives, Addison, Wesley Publishing Co. 2<sup>nd</sup> Ed. 1992.
3. SK Bose “Hardware and Software of Personal Computers” Wiley Eastern Limited, New Delhi.
4. Hall, Douglas “Microprocessors and Interfacing” McGraw Hill

5. Uffenbeck, Microprocessors and Interfacing
6. Sukhvir Singh, Fundamental of Computers, Khanna Publishers, New Delhi
7. Levis Hahensteu, Computer Peripherals for Micro Computers, Microprocessor and PC
8. Peter Norton, Inside the PC (Eight Edition), Tech media Publication

### SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	6	15
2.	4	10
3.	8	15
4.	8	15
5.	6	15
6.	6	10
7.	4	10
8.	6	10
<b>Total</b>	<b>48</b>	<b>100</b>

# ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT

**L T P**  
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## RATIONALE

Entrepreneurship Development and Management is one of the core competencies of technical human resource. Creating awareness regarding entrepreneurial traits, entrepreneurial support system, opportunity identification, project report preparation and understanding of legal and managerial aspects can be helpful in motivating technical/ vocational stream students to start their own small scale business/enterprise. Since diploma technicians are expected to take-up middle level managerial positions, their exposure to basic management principles is very essential. Based on the broad competencies listed above, following detailed contents have been finalized to develop the appropriate competencies.

## DETAILED CONTENTS

- |     |  |          |
|-----|--|----------|
| (1) | Entrepreneurship   | (10 hrs) |
|     | 1.1 Concept/Meaning and its need   |          |
|     | 1.2 Competencies/qualities of an entrepreneur  |          |
|     | 1.3 Entrepreneurial Support System e.g., District Industry Centres (DICs), Commercial Banks, State Financial Corporations, Small Industries Service Institutes (SISIs), Small Industries Development Bank of India (SIDBI), National Bank for Agriculture and Rural Development (NABARD), National Small Industries Corporation (NSIC) and other relevant institutions/organizations at State and national level |          |
| (2) | Market Survey and Opportunity Identification (Business Planning)   | (10 hrs) |
|     | 2.1 How to start a small scale industry  |          |
|     | 2.2 Procedures for registration of small scale industry  |          |
|     | 2.3 List of items reserved for exclusive manufacture in small scale industry   |          |
|     | 2.4 Assessment of demand and supply in potential areas of growth   |          |
|     | 2.5 Understanding business opportunity   |          |
|     | 2.6 Considerations in product selection  |          |
|     | 2.7 Data collection for setting up small ventures  |          |
| (3) | Project Report Preparation   | (08 hrs) |
|     | 3.1 Preliminary Project Report   |          |
|     | 3.2 Techno-Economic feasibility report   |          |
|     | 3.3 Project Viability Report   |          |



- (4) Managerial Aspects of Small Business (10 hrs)
- 4.1 Principles of Management, Definitions, functions of management viz planning, organization, coordination and control
  - 4.2 Structure of an industrial organization.
  - 4.3 Basic principles of financial management
  - 4.4 Marketing Techniques
  - 4.5 Personnel Management, staff development and training strategies
  - 4.6 Importance and techniques of communication in business
- (5) Legal Aspects of Small Business (10 hrs)
- 5.1 Elementary knowledge of Income Tax, Sales Tax, Patent Rules, Excise Rules, provident fund
  - 5.2 Elementary knowledge of Factory Act, 1948 and Payment of Wages Act 1936, Workmen Compensation Act, Industrial Dispute act 1947, Employees State Insurance Act 1978
- (6) Environmental Considerations (04 hrs)
- 6.1 Concept of ecology and environment
  - 6.2 Factors contributing to Air, Water, Noise pollution
  - 6.3 Air, water and noise pollution standards and control
  - 6.4 Norms and standards of State pollution Board
  - 6.5 Disaster Management – basic idea
- (7) Miscellaneous (12 hrs)
- 7.1 Human resource development in an organization
  - 7.2 Motivation – Incentives, Rewards, Job Satisfaction
  - 7.3 Leadership- types, qualities, functions and factors of effective leadership
  - 7.4 Labor Welfare schemes including wage payment- types, system of wage payment and incentives
  - 7.5 Workers participation in management, case studies in effective Management.
  - 7.6 Accident and Safety: Classification, precaution and treatment after accident, safety practices promotion, personal protection equipment (PPFs) for safety at work places.
  - 7.7 Introduction to Total quality Management (TQM) and steps to achieve this .
  - 7.8 Intellectual Property Rights (IPR): Concept, definition, infringements and remedies related to patents, copy rights, trademarks, designs. Introduction to registering procedure

## INSTRUCTIONAL STRATEGY

The aim of this subject is to develop conceptual understanding by giving inputs and exposure about starting ones own business venture/enterprise. The teacher will discuss success stories and case studies with students, which in turn, will develop managerial qualities in the students. There may be guest lectures by successful diploma holding entrepreneurs and field visits also.

## RECOMMENDED BOOKS

1. A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)
2. Entrepreneurship Development by CB Gupta and P Srinivasan, Sultan Chand and Sons, New Delhi
3. Environmental Engineering and Management by Suresh K Dhamija, SK Kataria and Sons, New Delhi
4. Environmental and Pollution Awareness by Sharma BR, Satya Prakashan, New Delhi
5. Thakur Kailash, Environmental Protection Law and policy in India: Deep and Deep Publications, New Delhi
6. Handbook of Small Scale Industry by PM Bhandari
7. Marketing Management by Philip Kotler, Prentice Hall of India, New Delhi
8. Industrial management by N. Mohan, and AP Verma, SK Kataria and Sons, Nai Sarak, Delhi-110006
9. Total Quality Management by Dr DD Sharma, Sultan Chand and Sons, New Delhi.
10. Principles of Management by Philip Kotler TEE Publication
11. Intellectual Property Rights and the Law by Dr. GB Reddy.

## SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	10	10
2.	10	20
3.	08	10
4.	10	15
5.	10	15
6.	04	10
7.	12	20
<b>Total</b>	<b>64</b>	<b>100</b>

## ENTREPRENEURIAL AWARENESS CAMP

The employment opportunities for diploma holders especially in public sector are dwindling. The diploma holders need to explore the possibilities of becoming entrepreneurs. For this, they must be acquainted with entrepreneurship development, scope of setting up small-scale industry, existing business opportunities, financial support available and various aspects of managing business. In this context, an entrepreneurial awareness camp is suggested. During the camp, experts from various organizations such as banks, financial corporations, service institutes etc. may be invited to deliver expert lectures. Successful entrepreneurs may also be invited to interact with the students. Students may be encouraged to read papers or give seminar during the camp on Entrepreneurship Development related topics.

The camp is to be organized at a stretch for two to three days during fourth semester. Lectures will be delivered on the following broad topics. There will be no examination for this subject

1. Who is an entrepreneur?
2. Need for entrepreneurship, entrepreneurial career and self employment
3. Scenario of development of small scale industries in India
4. Entrepreneurial history in India, Indian values and entrepreneurship
5. Assistance from District Industries Centres, Commercial Banks, State Financial Corporations, Small industries Service Institutes, Research and Development Laboratories and other Financial and Development Corporations
6. Considerations for product selection
7. Opportunities for business, service and industrial ventures
8. Learning from Indian experiences in entrepreneurship (Interaction with successful entrepreneurs)
9. Legal aspects of small business
10. Managerial aspects of small business