DIPLOMA(CSE) LNCT University

IV Semester Syllabus

Microprocessor(401)/(DCS-401)

COURSE OUTCOMES:
After Completing the course student should be able to:

CO1	Student is able to describe the Microprocessor as programmable device of a typical microprocessor.
CO2	Student is able to describe the Pin diagram of 8085,8086 Microprocessor and architecture and addressing modes
CO3	Student is able to understand design and develop assembly language programs. And instruction format .
CO4	Student is able to understand software interrupts, Interrupts: EI, DI instructions, RST instructions, Vectored interrupts & priorities .
CO5	Student is able to do memory interfacing using 8085/8086 /8253/DMA 8257/8279/8080 I/O Processor .

COURSE CONTENTS:

UNIT I MICROPROCESSOR, MICROCOMPUTER & ASSEMBLY LANGUAGE
Microprocessor as programmable device, memory, input, output, microprocessor as CPU, Organization of microprocessor based system, working of microprocessor..
UNIT II MICROPROCESSOR ARCHITECTURE & MICROCOMPUTER SYSTEMS
Pin diagram of 8085 Microprocessor and architecture, Pin diagram of 8086 Microprocessor and architecture. Addressing mode of Microprocessor. Type of Instruction set. Pin diagram of 8051 Microcontroller and architecture. Processor initiated operations and 8085 BUS Organization, Internal Data operations and 8085 registers
UNIT III ASSEMBLY LANGUAGE PROGRAM
Assembly language, high-level language. Instruction classification, instruction format, 1,2,3 byte instructions, data transfer, arithmetic, logical, branch, input/output, m/c controls operation. Writing & executing assembly language programs.
UNIT IV PROGRAMMING TECHNIQUES
Looping, counting, indexing, rotate, compare, 16-bit instruction, counters, time delays, stacks & subroutines. Interrupts: EI, DI instructions, RST instructions, Vectored interrupts &priorities.
UNIT V PERIPHERAL CHIPS & INTERFACING
Functional block diagram, pin configuration & modes of operation IC chips 8255, 8275, 8279,8237.Microprocessor application: Interfacing multiplexed displays, interfacing to a matrix keyboard, A/D converter, D/A converter, Comparison of 8085 to 8086,80186,80286,80386 and 80486, multicore technology

Reference Books: -

1. Gaonkar, Microprocessor Architecture, programming andapp.
2. B.Ram, Microprocessor & microcomputers
3. Ajit Pal, Microprocessor principle &application
4. Douglas Hall, Microprocessor interfacing andprogramming
5. Computer System Architecture (Third Edition),. Morris Mono - Prentice Hall of India Pvt. Ltd., Eastern Economy Edition, Sept.2002
6. Peter Norton: Assembly Language for the PC,PHI.

DIPLOMA(CSE) LNCT University

IV Semester Syllabus

Computer Networks (402)/(DCS-402)

COURSE OUTCOMES:
After Completing the course student should be able to:

CO1	Describe different aspects of network, protocols, and network design models.
CO2	Examine OSI and TCP/IP Model.
CO3	Analyze Network Media and Networking Devices.
CO4	Determine various Network Layer Design Issues.
CO5	Examine the important aspects and functions of Transport Layer, Presentation layer and Application Layer in internetworking.

COURSE CONTENTS:

UNIT I INTRODUCTION:
Basics of Networks - Definition, Need, Uses and Advantages. Types of Computer Networks-Local area Networks (LAN), Wide Area Networks(WAN) ,Metropolitan Area Network(MAN).Network Architectures- Peer to Peer , client-Server, Hybrid, Intranet, Internet and Extranet. Different Topologies – Bus, Ring, Star, Hybrid, etc.

UNIT II NETWORKING MODELS AND ADDRESSES:
Detailed Layered architecture of OSI and TCP/IP Reference Model .Comparison Between OSI vs. TCP/IP reference Model, Introduction to various LAN and WAN Protocols, Network Address: Overview, Type of Addresses, Need, advantages and disadvantages.IP Addresses: Class Full Addressing Network ID, Host ID Special Addressing Overview, Subnetting and Supernetting,VLAN

UNIT III NETWORKING COMPONENTS AND NETWORK OPERATING SYSTEM
Networking Media – Coaxial, UTP, Shielded, Twisted Pair, Fiber Optical Cable, and wireless media. Networking Devices – NIC, Modem , Hub, Repeater, Switches, Bridge, Router, Gateway, Wi-Fi,VSAT .Structured cabling- Concept, advantages, racks, patch panel, crimping and punch tool, patch cords, RJ Connectors, Information Outlets (I/O Box) , Media Converter Types of Connectivity – Dial up, Digital Subscriber Link(DSL), Asynchronous Digital Subscriber Link (ADSL) , Leased line Non Exchange , Cable Net , WI-FI, WI- MAX,CDMA,GSM.
Introduction to Network Operating System (NOS):

UNIT IV INTERNET PROTOCOL:
ARP/RARP: Resolution, Packet format mapping and encapsulation Internet protocol: Virtual network, Connectionless, unreliable, Packet Delivery System. Datagram format: Datagram size, Network MTU and fragmentation, Time stamp option, IP Routing algorithm, IP Checksum, ICMP and IGMP : Introduction and message format

UNIT V HOST TO HOST PROTOCOLS

UDP: Introduction to User Data gram Protocol, Format of UDP Message, Pseudo Header, Multiplexing & De-multiplexing, TCP: Introduction to Transmission Control Protocol, Ports, Collections And Endpoints, TCP Segment Format, Checksum Computation, Establishing a TCP Connection, application layer protocol, Routing and Multi casting, Wireless Networking.

Reference Books: -

1. Computer Networks, Andrew S Tanenbaum, Publisher- PHI, New Delhi
2. B. A. Fourozan, TCP/IP Protocol Suite, Tata Mc GrawHill
3. Internetworking with TCP/IP, Douglas E. Comer, Publisher- PHI, New Delhi
4. Hardware and networking by Vikas Gupta Publisher: Dreamtech press
5. Network Cabling Handbook by Chris Clerk Publisher Tata Mcgraw Hills Ltd. India.
6. Introduction to Networking by Richard McMohan Publisher Tata Mcgraw Hills Ltd. India.
7. TCP/IP Illustrated by Richard Stevens, Publisher- Addison –Wesley.

List of suggestive core experiments: -

1. Observation and Study of Various Network component and Devices. Study of Various Type of Network Topologies
2. Crimping of UTP Cable (cross , straight) and Testing of cables. Installation of Various types of Network Devices
3. Identifying valid IP Addresses, Defining Subnet IDs and Host IDs. DNS Configuration
4. Designing a network system for an organization using TCP/IP Network using
    a) Class Aaddress
    b) Class Baddress
    c) Class C address
5. Configuration of wireless network on mobile phone and notebook/netbook.

DIPLOMA(CSE) LNCT University

IV Semester Syllabus

Data Base Management System (403)/(DCS-403)

COURSE OUTCOMES:
After Completing the course student should be able to:

CO1	Learn and practice basics and data modeling using the entity-relationship and developing database designs.
CO2	Understand the use of Structured Query Language (SQL) and learn SQL syntax.
CO3	Apply normalization techniques to normalize the database.
CO4	Understand the needs of database processing and learn techniques for controlling the consequences of concurrent data access.
CO5	Understanding of basics and how to design, model and creation of database.

COURSE CONTENTS:

UNIT I DATABASE CONCEPTS

Introduction to database and database management system, history of DBMS. Disadvantages of file system data management. Database system applications, Advantages and disadvantages of DBMS, Three level architecture: Mapping between views , data independence.DBMS users and administrators, DBMS Architecture, DML, DDL &DCL.

UNIT II DATA MODELS

Introduction to data models. Entities, attributes & association, Relationship among entities, representation of association & relationship. Entity-Relationship model: Entity sets, relationship sets, constraints, E-R diagram, Entity- Relationship design issues, Generalization, Specialization & aggregation. Relational Model: Attributes and Domains, tuples, relations and their schemas, relation representation, keys, relationship, integrity rules, Codd's Relational database rules

UNIT III DATABASE DESIGN CONCEPTS & NORMALIZATION

Relational algebra: Basic operation, select, join, projection, additional relational algebra, queries, Functional dependency: Definition, inference, axioms for functional dependency, closure, cover and equivalence of FD, Referential integrity Normalization Introduction to Normalization.

UNIT IV ADVANCED IN SQL

SQL query structure for selection & join operators, defining primary keys, foreign keys in a table, CHECK constraints, removing constraints from table, SQL functions: SUM(), AVG(), MAX(), MIN(),COUNT(),Introduction to Triggers, stored procedures &views.

UNIT V ADVANCE DATABASE CONCEPTS

Introduction to transactions, Introduction to concurrency control, Data mining & Data Warehousing, Distributed & Object based database, Introduction to Cloud based database.

Reference Books: -

1. SilberschatzA. ,Korth, Sudarshan 6th edition, Database System Concepts, TMH New Delhi.

2. Schaum's Outlines, Database Management System, TMH.
3. Biplin C. (2001), An Introduction to Database Management System, Galgotia Publication Pvt. Ltd., New delhi.
4. Ivan Byrose, SQL programming.
5. Peter Rob & Carlos Coronel, Database System Concepts, Indian Edition, Cengage Learning India Pvt. Ltd.
6. Date C.J., an Introduction to Database Systems, Narosa.
7. Leon, SQL complete reference, TMH.

List of suggestive core experiments: -

1. Execute Data Definition SQL commands like create table
2. Execute Data Manipulation SQL commands like insert, update, delete.
3. Creating users, granting & revoking permission, set roles to users.
4. Basic PL/SQL program using flow control statement functions.
5. Creating triggers, stored procedure and cursors.
6. Database access from a programming language such as JAVA or C++.

DIPLOMA(CSE) LNCT University

IV Semester Syllabus

Linux & Shell Programming (404)/(DCS-404)

COURSE OUTCOMES:
After Completing the course student should be able to:

CO1	Understand the basic commands of Linux operating system and can write shell scripts.
CO2	Create file systems and directories and operate those using programs.
CO3	Understand the processes background and fore ground by process and signals system calls.
CO4	Create shared memory segments, pipes, message queues and can exercise inter process communication.
CO5	Create sockets and semaphores to interact between process of different system.

COURSE CONTENTS:

UNIT I INTRODUCTION

Linux Ideas and History: Understanding Open Source, Linux Origins, Distributions, Linux Principles, **Linux Usage and Basics:** Logging in to a Linux System, Switching between virtual consoles and the graphical environment, Elements of the X Window System, Starting the X server, Changing your password, The root user, Changing identities, Editing text files.

UNIT II LINUX BASICS AND FILE SYSTEM

Running Commands, Some Simple commands, Getting Help, The what is command, The – help Option, Reading Usage Summaries, The man command, Navigating man pages, The info command, Navigating info pages, Extended Documentation.

File System: Linux File Hierarchy Concepts, Some Important Directories, Current Working Directory, File and Directory Names, Absolute and Relative Pathnames, Changing Directories, Listing Directory Contents, Copying, Moving, Renaming, Creating and Removing Files & Directories, Using Nautilus, Determining File Content, The Linux File System

UNIT III TEXT PROCESSING AND STANDARD I/O

Vi: Opening, Modifying, saving and exiting vi text editor, mode of vi, Viewing file contents, sorting text, Eliminating Duplicate lines, Comparing files, Compressing the file. **Standard I/O and Pipes:** Standard Input and Output, Redirecting Output to a File, Redirecting STDOUT to a Program(Piping), Combining Output and Errors, Redirecting to Multiple Targets (tee), Redirecting STDIN from a file, Sending Multiple Lines to STDIN.

UNIT IV SHELL PROGRAMMING AND PROCESS

Introduction of Bash shell, Bash Features, Command Line, Command Line Expansion, and Editing, gnome-terminal, **Shell Programming:** Scripting Basics, Creating Shell Scripts, Handling Input/ Output, Control Structures, Conditional Execution, File and string Tests, continue and break, Using positional parameters, Scripting at the command line, Shell Script debugging, Investigating and Managing Process

UNIT V SYSTEM ADMINISTRATION:

Common Administrative tasks, identifying administrative files – configuration and log files, Role of system administrator, Managing user accounts –adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, checking and monitoring system performance, file security, password and Permissions, becoming super user using su.Getting system information – host name, disk partitions & sizes, users, kernel, Backup and restore files, linux conf. Utility in GUI, reconfiguration hardware with kudzu. Networking services on Linux

Reference Books: -

1. Sumitabha Das, UNIX/LINUX: Concepts and Applications, Tata McGraw-Hill,2008.
2. ISRD Group, Basics of OS, UNIX and SHELL Programming, Tata McGraw-Hill,2006.
3. Stephen Prata Advanced UNIX -A programmer's Guide, BPB Publication,2008.

List of suggestive core experiments: -

1. Study of Basic linux commands
2. Study of files and directories
3. Study of File editors
4. Study of Vi editor
5. Write some basic programs of shell scripting
6. How to write c/c++ program on VI editor.

DIPLOMA(CSE) LNCT University

IV Semester Syllabus

OOPM (405)/ (DCS-405)

COURSE OUTCOMES:
After Completing the course student should be able to:

CO1	Students will understand the need of object oriented programming, fundamental concepts .
CO2	Student will understand how to model the real world scenario using class diagram and sequence diagram.
CO3	Students will be able to implement relationships between classes.
CO4	Students will be able to demonstrate polymorphism
CO5	Students will be able to create the concept of exceptional handling

COURSE CONTENTS:

UNIT I INTRODUCTION TO OBJECT ORIENTED PROGRAMMING:
Comparison with Procedural Programming, features of Object oriented paradigm– Merits and demerits of OO methodology; Object model; Elements of OOPS, IO processing.
UNIT II ENCAPSULATION AND DATA ABSTRACTION-
Concept of Objects: State, Behavior & Identity of an object; Classes: identifying classes and candidates for Classes Attributes and Services, Access modifiers, Static members of a Class, Instances, Message passing, and Construction and destruction of Objects.
UNIT III RELATIONSHIPS –
Inheritance: purpose and its types, 'is a' relationship; Association, Aggregation. Concept of interfaces and Abstract classes.
UNIT IV POLYMORPHISM:
Introduction, Method Overriding & Overloading, static and run time Polymorphism
UNIT V STRINGS, EXCEPTIONAL HANDLING:
Introduction of Multi-threading and Data collections. Case study like: ATM, Library management system.

Reference Books: -

1. G. Booch, "Object Oriented Analysis& Design", Addison Wesley.
2. James Martin, "Principles of Object Oriented Analysis and Design", Prentice Hall/PTR.
3. Peter Coad and Edward Yourdon, "Object Oriented Design", Prentice Hall/PTR.
4. Herbert Schildt, "Java 2: The Complete Reference", McGraw-Hill Osborne Media, 7 th Edition.
5. Object Oriented Programming with C++ by Balagurusamy

List of suggestive core experiments: -

1. Write a C++ program to find the sum of individual digits of a positive integer.
2. Program to generate the first n terms of the sequence.
3. Write a C++ program to sort a list of numbers in ascending order
4. Write a Program to illustrate New and Delete Keywords for dynamic memory allocation
5. Program to illustrate default constructor, parameterized constructor and copy constructors
6. Write a program Illustrating Class Declarations, Definition, and Accessing Class Members
7. Write a Program to Demonstrate the following:
   i)Operator Overloading ii) Function Overloading.
8. Write a Program to Demonstrate Friend Function and Friend Class.
9. Write a C++ program that illustrates the order of execution of constructors and destructors when new class is derived from more than one base class.

DIPLOMA (CSE) LNCT University

IV Semester Syllabus

Python Language (406)/ (DCS-406)

COURSE OUTCOMES:

After Completing the course student should be able to know the basic fundamental concept of Python language.