SEMESTER - III

C PROGRAMMING

Course Name : Diploma in COMPUTER ENGINEERING AND ENGINEERING.

Subject Code :

Semester III

Subject title : C PROGRAMMING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	**Instructions**		**Examination**			
C Programming	Hours / Week	Hours / Semester	Marks			Duration
	4 Hrs	64 lect	Internal Assessment	Board Examination	Total	
			30	70	100	2.5 Hrs

Rationale

C' is the most widely used computer language, which is being taught as a core course. C is general purpose structural language that is powerful, efficient and compact, which combines features of high level language and low-level language. It is closer to both Man and Machine. Due to this inherent flexibility and tolerance it is suitable for different development environments. Due to these powerful features, C has not lost its importance and popularity in recently developed and advanced software industry. C can also be used for system level programming and it is still considered as first priority programming language. This course covers the basic concepts of C. This course will act as "Programming concept developer" for students. It will also act as "Backbone" for subjects like OOPS, Visual Basic, Windows Programming, JAVA etc.

OBJECTIVES

At the end of the Course, the students will be able to

- Define Program, Algorithm and flowchart
- List down and Explain various program development steps
- Write down algorithm and flow chart for simple problems.
- Describe the concepts of Constants, Variables, Data types and operators.
- Develop programs using input and output operations.
- Use of command line arguments.
- Explain compiler controlled directives.
- Understand the structure and usage of different looping and branching statements.
- Define arrays and string handling functions.
- Explain user-defined functions, structures and union.
- Define pointers and using the concept of Pointers.
- To understand the dynamic data structure and memory management

DETAILED SYLLABUS

			L T P 4 - 4
1	Program Algorithm & flow chart:- Program development cycle- Programming language levels & features. Algorithm – Properties & classification of Algorithm, flow chart – symbols, importance & advantage of flow chart.	2Hrs	4
2	Introduction C: - History of C – features of C structure of C program–Compiling, link & run a program. Diagrammatic representation of program execution process.	2Hrs	4
3	Variables, Constants & Data types:. C character set-Tokens- Constants- Key words – identifiers and Variables – Data types and storage – Data type Qualifiers – Declaration of Variables – Assigning values to variables- Declaring variables as constants-Declaration – Variables as volatile- Overflow & under flow of data	4Hrs	4
4	C operators:-Arithmetic, Logical, Assignment .Relational, Increment and Decrement, Conditional, Bitwise, Special Operator precedence and Associativity. C expressions – Arithmetic expressions – Evaluation of expressions- Type cast operator	4Hrs	4
5	.I/O statements: Formatted input, formatted output, Unformatted I/O statements	4Hrs	2
6	Branching:- Introduction – Simple if statement – if –else – else-if ladder , nested if-else-Switch statement – go statement – Simple programs.	4Hrs	4
7	Looping statements:- While, do-while statements, for loop, break & continue statement – Simple programs	4Hrs	6
8	Arrays:- Declaration and initialization of One dimensional, Two dimensional and Character arrays – Accessing array elements –Programs using arrays	4Hrs	6
9	Strings :- Declaration and initialization of string variables, Reading String,WritingStrings– Stringhandlingfunctions(strlen(),strcat(),strcmp()) – String manipulation programs	4Hrs	6
10	Built –in functions: -Math functions – Console I/O functions – Standard I/O functions – Character Oriented functions – Simple programs.	4Hrs	2
11	User defined functions:- Defining functions & Needs-, Scope and Lifetime of Variables, , Function call, return values, Storage classes, Category of function – Recursion – Simple programs	4Hrs	6
12	Structures and Unions:- Structure – Definition, initialization, arrays of structures, Arrays with in structures, structures within structures, Structures and functions – Unions – Structure of Union – Difference between Union and structure – Simple programs.	4Hrs	6

13	Pointers:- Definition – advantages of pointers – accessing the address of a variable through pointers - declaring and initializing pointers- pointers expressions, increment and scale factor- array of pointers- pointers and array - pointer and character strings –function arguments–pointerstofunctions–pointersandstructures–programs using pointer.	6Hrs	6
14	Dynamic Memory Management:- introduction – dynamic memory allocation – allocating a block memory (MALLOC) – allocating multiple blocks of memory (CALLOC) –releasing the used space:free– altering the size of a block (REALLOC) – simple programs	4Hrs	2
15	File Management: Introduction-Defining and opening a file-closinga file-Input/ Output operations on files—Error handling during I/O operations –Random Access to files—Programs using files	6Hrs	4
16	Command line arguments: Introduction – argv and argc arguments – Programs using command Line Arguments –Programs	4Hrs	2

Text book:

1. Programming in ANSI C 4E by Prof. E. BALAGURUSAMY, the TATA McGRAW – HILL publications.

REFERNCES

S.No	Title	Author	Publisher	Year of Publishing/ Edition
1.	Programming and Problem solving usingC	ISRD Group, Lucknow	Tata Mc-GrawHill, NewDelhi	Sixth Reprint 2010
2.	Let us C	Yeswanth Kanetkar	BPB Publications	Fourth Revised
3.	A TextBookonC	E. Karthikeyan	PHI Private Limited, NewDelhi	2008
4.	Programming in C	D.Ravichandran	New Age International Publishers,Chennai	FirstEdition1996 Reprint2011
5.	Computer Concepts and	Dr.S.S.Khandare	S.Chand& Company Ltd. NewDelhi	FirstEdition2010
6.	Complete Knowledge in C	Sukhendu Dey, Debobrata Dutta	Narosa Publishing House, New Delhi	Reprint2010

7.	Programming in C	Reema Theraja	Oxford University Press	FirstEdition2011
8.	Practical C Programming	Steve Oualline	O'Reilly, Shroff	Eleventh Indian ReprintOct2010

C Programming Practical

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	**Instructions**		**Examination**			
C Programming Practical	Hours / Week	Hours / Semester	Marks			Duration
	4Hrs	64 period	Internal Assessment	Board Examination	Total	
			30	60	90	3 Hrs

LAB EXERCISES

Part – A

1. Write a simple C program.
    a. Print your name and address.
    b. Find simple and compound interest
2. Write a C program to swap two variable's using(i)third variable and(ii) without using a third variable.
3. Write a program to convert a given number of days into months and days using integer arithmetic operators.
4. Write a program the use of variables in expression and their evaluation.
5. Write a program converts the given temperature in Fahrenheit to Celsius using preprocessor.
6. Write a program to find the largest number between given three numbers.
7. Write a program to perform following tasks
    a. Find factorial of a number
    b. Print prime numbers up N times.
8. Write a program to prepare the total marks for N students by reading the Reg.No, Name, Mark1 to Mark6 by using array of structures.
9. Write a program using the function power (a,b) to calculate the value of a raised to b.
10. Write a program to find the length of the given string using pointers.

Part – B

1. Read an integer number, find the number of digit and sum of all individual digits and also print the above number in reverse order.
2. Write a program to perform following tasks
    a. Print Fibonacci series up to N terms and its sum.
    b. Print whether a given year is leap or not.
3. Read a sentence through command line argument. Write a program to write out the string arguments to main in reverse order.
4. Write a program to arrange the given N names in alphabetical order.
5. Write a program to count the numbers and chars in the string.
6. Write a program that uses a function to sort an array of integers.
7. Write a program to calculate the subject wise and student wise totals and store them as a part of the structure.

8. Write a program to read 10 values to an array variable. Use pointers to locate and display each value.
9. Write a program that uses a table of integers whose size will be specified interactively at runtime.
10. Write a program to store a character string in a block of memory space created by MALLOC and then modify the same to store a larger string.

SCHEME OF VALUATION	
Writing any one program from PART – A	10 Marks
Writing any one program from PART – B	15 Marks
Executing program (PART – A)	15 Marks
Executing program (PART – B)	20 Marks
Result with printout (PART – A)	05 Marks
Result with printout (PART – B)	05 Marks
VIVA – VOCE	05 Marks
Total	60 Marks

Note: student: computer ratio in lab should be strictly 1:1

HARDWARE REQUIREMENT

- Desktop Computers with LAN – 40Nos
- Laser Printer – 1No

SOFTWARE REQUIREMNT

- C – Compiler with Editor

Digital Techniques

Course Name : Diploma in COMPUTER ENGINEERING AND ENGINEERING.

Subject Code :

Semester III

Subject title : Digital Techniques

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	**Instructions**		**Examination**			
Digital Techniques	Hours / Week	Hours / Semester	Marks			Duration
	4	64 lect	Internal Assessment	Board Examination	Total	
			30	70	100	2.5Hrs

TOPICS AND ALLOCATION OF HOURS

Rationale:

Diploma Engineers from all branches of engineering are expected to have some basic knowledge of electronics engineering. Also the technicians working in different engineering fields have to deal with Various types of electronic circuit. Hence it is necessary to study electronic devices their principles and working characteristics. The basic concepts studied in this subject will be very useful for understanding of higher level subjects in further study.

DETAILED SYLLABUS

1	**Semi Conductors Basics:** Conductors, Insulators, Semiconductors, Idea of energy, Energy Band Diagrams, Effect of temperature, Distinction between analog and digital signal, Applications and advantages of digital signals	6Hrs	6
2	**Number representation:** Decimal, Binary, Octal and Hexa decimal number systems-Conversion of number from one number system to another (without decimal point) -1's , 2's AND 9's complement method of addition/subtraction, sign magnitude method of representation, floating point representation BCD CODE – ASCII Codes - Parity bit – Use of a parity bit – Odd parity and Even parity	8 Hrs	8
3	**Logic gates:** Positive and Negative logic System - Definition, Truth table, Symbol and Logical equations of AND – OR - NOT – EXOR - EXNOR (Only 2- inputs) gates – Universal gates - NAND - NOR – Symbol and truth table . Logic family classification:- Definition of SSI, MSI, LSI, VLSI, TTL and C MOS families and their sub classification	8 Hrs	10
4	**Boolean Algebra :**Basic laws of Boolean algebra – Demorgan's Theorem and proofs – Duality theorem - Simplification of logical equations using Boolean laws - De-Morgan's theorem – Two and three variable Karnaughmap(upto 4 variables) and simple application in developing combinational logic circuits	10 Hrs	10
5	**Arithmetic Circuits:** Half Adder and full adder- Truth table, Circuit diagram – Half subtractor and Full subtractor - Truth table, Circuit diagram.	8Hrs	8
6	**Combinational logic circuits**: Parity generator and checker - Multiplexer - De multiplexer – Encoder - Decoder (Definition and Basic Circuits only) – Comparator Circuit for two bit words.	8Hrs	8
7	**Flip flops:** Basic principle of operation - S-R, D flip-flop – Operation and truth table - Race Condition – JK flip flop – T flip flop – Toggling - Edge Triggered Flip-flop – Level Triggered flip flop - Need for a Master-slave flip flop - J-K Master Slave flip flop.	8Hrs	10
8	**Counters:** Need- Types of counters- 4 bit Asynchronous counter-Mod N counter-Decade Counter- 4 bit Synchronous counter-Distinguish between Synchronous and Asynchronous counter-Application of counters	4Hrs	5
9	**Registers:** Shift register - Block diagram representation and waveform of serial –in Serial out, Serial – in Parallel – out, Parallel in -parallel out Applications of ShiftRegisters.	4Hrs	5

TEXT BOOKS

S.No	Title	Author	Publisher	Year of Publishing / Edition
1	Electrical Technology Vol I and II	. B.L.Theraja	S.Chand&Co , New Delhi	MutipleColour Revised First Edition,2012
2	Modern Digital Electronics	R.P. Jain	TataMc-GrawHill, New Delhi	Third Reprint 2010
3	Principles of Digital electronics	K.Meena	PHI learning Private Ltd	2009

REFERENCES

S.No	Title	Author	Publisher	Year of Publishing/ Edition
1.	Digital Electronics and Logic Design	JaydeepChakravarthy	University Press, Hyderabad	First Edition2012
3.	Basic Electrical and Electronics Engineering	R,MuthusubramanianR. Salivajanan	Tata Mc-Graw Hill, NewDelhi	Seventh Reprint 2011
4..	Principles of Electronics	V.K.Mehta	S.Chand& Co, NewDelhi	Second Edition
5.	Digital Electronics	G.K.Kharate	Oxford University Press	2010

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), 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

Course Name : Diploma in COMPUTER ENGINEERING AND ENGINEERING.

Subject Code :

Semester III

Subject title : OPEARTING SYSTEMS

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 16 Weeks

Subject	**Instructions**		**Examination**			
OPEARTING SYSTEMS	Hours / Week	Hours / Semester	Marks			Duration
	4	64lect	Internal Assessment	Board Examination	Total	
			30	70	100	2.5 Hrs

Rationale :

The course provides the students with an understanding of human computer interface existing in computer system and the basic concepts of operating system and its working. The students will also get hand-on experience and good working knowledge to work in DOS and Windows environments. The aim is to gain proficiency in using various operating systems after undergoing this course.

Objectives:

- Understand the purpose, goals, functions and evolution of Operating Systems.
- Understand the concept of process, various states in the process and their scheduling.
- Classify different types of schedulers and scheduling algorithms.
- Identify the significance of inter-process communication and synchronization.
- Discuss the usage of semaphore in inter-process communication.
- Understand the conditions for a deadlock.
- Describe the ways to recover from the deadlock.
- Know about memory protection against unauthorized access and sharing.
- Compare and contrast paging and segmentation techniques.
- Define virtual memory and its underlying concepts.
- Describe the page replacement policies like Optimal, FIFO and LRU.

DETAILED SYLLABUS

L T P
4 - 4

1	**Basics of Operating Systems:** Definition – Generations of Operating systems – Types of Operating Systems: Mainframe, Desktop, multiprocessor, Distributed, Clustered, Multiprogramming, Real time, Embedded and Time sharing.	6Hrs	8
2	Operating System Components: Process Management component – Memory Management component - I/O Management component – File Management component - Protection System – Networking management component– Command interpreter	4 Hrs	4
3	Operating System Services: Process Execution – I/O operations – File manipulations – Communications – Error detection and recovery – Resource allocation – Accounting – SystemProtection - System Calls– System call Execution	4 Hrs	4
4	Operating System Structures: Simple structure, Layered, Monolithic, Microkernel Operating Systems – Concept of Virtual Machine –Booting	2Hrs	4
5	Processes: Definition – Process Relationship - Process states – Process State transitions - Process Control Block – Context switching – Threads – Concept of multithreads – Benefits of threads – Types of threads	6Hrs	6
6	Process Scheduling: Definition – Scheduling objectives – Types of Schedulers – Scheduling criteria – CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time (Definition only) – Scheduling algorithms – Pre emptive and Non – pre emptive - FCFS – SJF – RR - Multiprocessor scheduling – Types - Performance evaluation of the scheduling.	8 Hrs	8
7	Inter-process Communication and Synchronization: Definition – Shared Memory System – Message passing – Critical section – Mutual Exclusion - Semaphores.	4 Hrs	4
8	Deadlocks: Definition – Deadlock characteristics – Deadlock Prevention – Deadlock Avoidance – Deadlock detection and Recovery.	6Hrs	6
9	Basic Memory Management : Definition – Logical and Physical address map – Memory allocation – Contiguous Memory allocation – Fixed and variable partition – Internal and External fragmentation and Compaction – Paging – Principle of operation – Page allocation –	8Hrs	8
10	Virtual Memory : Basics of Virtual Memory –Page fault , Working Set , Dirty page/Dirty bit – Demand paging (Concepts only) – Page Replacement policies – Optimal (OPT) , First in First Out (FIFO), Second Chance (SC), Not recently used (NRU) and Least Recently used(LRU)	8 Hrs	8
11	File Management: File concept – File attributes –File Operations - Directory Structure –Tree Structure – Disk space allocation methods– Contiguous, Linked, Indexed. Access Methods – Sequential, Random access – File system	12 Hrs	12

TEXT BOOKS

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1	Operating System concepts	Abraham Siberschatz Galvin, Gagne	Wiley	9thEdition
2	Operating System Internal and Design Principles	William Stallings	Pearson Education	7th Edition

REFERENCES

Sl.No	TITLE	AUTHOR	PUBLISHER	Year of Publishing/Edition
1.	Operating system, Principals &Design	Pal Chaudhury	PHI Learning	First Edition
2.	Operating System	William stalling	Pearson Education, New Delhi.	2003
3.	Operating Systems	Deitel and Deitel	Pearson Education, New Delhi.	Third Edition, 2007
4.	Operating System	RohitKhurana ITLESE	Vikas Publishing Ltd	First Edition 2011

Operating System Practical

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	Instructions		Examination			
C Programming Practical	Hours / Week	Hours / Semester	Marks			Duration
	4Hrs	64 period	Internal Assessment	Board Examination	Total	
			30	60	90	3 Hrs

LAB EXERCISES

	PART – A DOS COMMANDS
Write down the syntax and usage of the following exercise with all options. **Check the commands with the system**	
1	(a) Booting Procedure
	(b) DOS Commands, BAT file etc
	PART – B LINUX COMMANDS
1	(c) Logon to LINUX and logoff. (d) Usage of directory management commands: ls, cd, pwd, mkdir,rmdir (e) Usage of File Management commands: cat, chmod, cp, mv, rm, more,file commands
2	Use the general purpose commands: wc, od, lp, cal , date, who , tty ,ln
3	Using the simple filters: pr, head, tail, cut, paste, nl, sort
4	Advanced filters : Search for a pattern using grep, egrep&fgrep
5	To know the details of process status- ps command , Process management commands: &,nohup, kill, nice
6	Communication Commands: news, write, mail, wall, calendar

7	Device pattern using meta character to match each of the following situation:- a. All two character filenames. b. All filenames consisting of two lower case letters. c. All filenames ending with c. d. All filenames beginning with a c and ending with a digit. e. All filenames beginning with p and having at somewhere.
	PART – C WINDOWS **Features and Administration**
1	Introduction to GUI OS; Features and various versions of GUI OS & its use; Working with GUI OS; My Computer & Recycle bin ; Desktop, Icons and Explorer; Screen description & working styles of GUI OS; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts &Auto start; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hard ware & Software program on your computer - Copying in CD/DVD settings – Recording Audio files.
2	a.Installing screen saver and change the monitor resolution by1280X960 b. Setting wallpapers c. Creating, moving, deleting and renaming a folder d. Copy, paste and cut a folder/file e. Displaying the properties for a file or folder
4	a. Restoring files and folders from Recycle bin b. Creating short cuts for folder/file c. Finding a file or folder byname d. Selecting and moving two or more files/folders using mouse lers/files
3	Anti viruses , Zip files, Compressions, Windows supported file formats etc

SCHEME OF EVALUATION	
Commands in Part-A	10 Marks
Execution of Commands in Part-A	10 Marks
Commands in Part-B	10 Marks
Execution of program in Part-B	10 Marks
Commands in Part-c	10 Marks
Execution of program in Part-c	10 Marks
TOTAL	**60 Marks**

INSTRUCTIONAL STRATEGY

As per the above information, it is clear that the subject is both theory and practical oriented. Therefore, the stress must be given on both the theory and practical teaching. In the practical classes, the laboratory must be equipped with all the basic operating system software i.e DOS, UNIX, LINUX, WINDOWS etc.While imparting instructions, the teachers are expected to lay more emphasis on concepts and principles of operating systems, its features and practical utility.

Computer System Peripheral

Course Name : Diploma in COMPUTER ENGINEERING AND ENGINEERING.

Subject Code :

Semester III

Subject title : Computer System Peripherals

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			
Computer System Peripherals	Hours / Week	Hours / Semester	Marks			Duration
	4	64lect	Internal Assessment	Board Examination	Total	
			30	70	100	2.5 Hrs

RATIONALE

A computer engineer should be able to interface and maintain key-board, printer, mouse ,monitoretc 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 microcomputers.

Objectives:

- Understand the purpose, goals, functions and working of different peripherals
- Understand the maintenance and troubleshooting of devices.

.

DETAILED SYLLABUS

L T P
4 - 4

1	**Video Display** - The basic principle of working of video monitors (CRT/TFT/LCD/LED), video display adapters, video modes - Video display EGA/VGA/SVGA/PCI adapters and their architecture	**08 Hrs)**	**15marks**
2	**Key Board and Mouse** Types and basic principle of working of wired /wireless key board and wired /optical/wireless mouse, scan codes.	**08Hrs**	**10marks**
3	**Disk Drivers** Features and working of hard disk drive, floppy disk drive, optical and DVD disk drives and CD writer, Pen Drive, Logical structure of disk and its organization and boot record	**15 Hrs)**	**10marks**
4	**Peripheral Devices, Ports and Connectors** 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	**10hrs**	**10marks**
5	**Printers** Principle and working of DeskJet, Inkjet, dot matrix and laser printers and plotters	**10 hrs**	**15marks**
6	**Power Supplies (Working Principle)** SMPS, Constant voltage transformers, On Line/Off Line uninterrupted power supplies (UPS)	**6 Hrs**	**10marks**

RECOMMENDED BOOKS

1. B. GovindaRajalu, 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. 2nd 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

Computer System Peripherals Practical

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	**Instructions**		**Examination**			
Computer System Pheripherals	Hours / Week	Hours / Semester	Marks			Duration
	4Hrs	64 period	Internal Assessment	Board Examination	Total	
			30	60	90	3 Hrs

LAB EXERCISES
LIST OF PRACTICALS

1) To identify various components and installation of peripheral devices in computer.
2) Detection and Troubleshooting of Peripherals devices.
3) To study the operation of SMPS
4) To study the operation of Mouse .
5) To study the operation of UPS.
6) To study the Video display Unit

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.

Digital Data Communication

Course Name : Diploma in COMPUTER ENGINEERING AND ENGINEERING.

Subject Code :

Semester III

Subject title :Digital Data Communication

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	**Instructions**		**Examination**			
Digital Techniquess	Hours / Week	Hours / Semester	Marks			Duration
	4	64 lect	Internal Assessment	Board Examination	Total	
			30	70	100	2.5Hrs

RATIONALE

The course provides the student with:
i) Principles of modulation, types of modulation and principle of digital data transmission ii) Communication methods and equipment used in data transmission
iii) Errors in data communication and how to deal with them

DETAILED SYLLABUS

L T P
4 - 4

1.	**Modulation** Need for modulation in communication systems. Concepts of AM, FM,PM, PAM,FSK (Frequency Shift Keying), PSK (Phase Shift Key)and PCM(Pulse Code Modulation) Concepts of bandwidth, noise and channel capacity ofdifferent communication system such as radio ,microwave, different types of electrical communication lines, optical fiber systems and issues like line characteristics and impedance matching	**10hrs**	**15 marks**
2	**Data Communication:** Components of a data communication – Data flow: concept s of simplex ,half duplex and full duplex modes,twoandfourlinesystems.Bitleveldatatransfer,rateofdatatransfer. Byte level data communication, synchronous communication, data transfer Efficiency. Asynchronous communication, start-stop bits, data transfer efficiency, relative advantages and disadvantages with synchronous communication. Framelevelcommunication,datapackets,addressencodinganddecodingofdata packets, data encryption and decryption Serial and parallel data communications ,comparison in terms of speed of data transfer. Modems: Transmission r a t e , m o d e m s t a n d a r d s , t r a d i t i o n a l m o d e m s , A D S L / a d s l 2	10Hrs	15
3	**Types of Networks:** Need for computer Networks **-** LAN – MAN – WAN – CAN – HAN –Internet – Intranet – Extranet , Client-Server, Peer to Peer Network **Transmission Media** : Characteristics of Transmission Media - Classification of transmission media - Guided – Twisted pair – Coaxial – Fiber optics – Unguided – Radio waves – Infrared – Low Orbit satellite (LOS) – VSAT Cabling and Standards **Network devices:** Features and Concepts of Switches – Routers (Wired and Wireless) –Gateways.	10Hrs	10
4	**Error Detection** Sources of errors in data communication. Effect of errors, data error rate and its dependency on data transfer rates. Error detection through parity bit, block parity to detect double errors and correct single errors. General principles of error detection and correction using cyclic redundancy checks. Encoding redundant bits and recovery of data	15	15
5	**Communication Methods and Standards** One-to-one connection, multi drop lines. Methods of implementation, channel capacities. Types of multiplexing-TDM (Time Division Modulation), FDM (Frequency Division Modulation), Direct mode of communication, need for hand shake mode of communication, hand shake modes	15	15

INSTRUCTIONAL STRATEGY

As the subject provides only theoretical concepts, the teacher must explain with reference to practical situations

LIST OFRECOMMENDED BOOKS

1. Data Communication and Networking2nd edition byForouzan; Tata McGraw Hill PublishingCo, New Delhi
2. Data and Computer Communications byWilliam Stallings, PrenticeHallofIndia, New Delhi
3. Data Communication bySchwaber, William;McGraw Hills.
4. Digital, Analog and DataCommunications byWillium, Sinnema and Tom;McGraw Hill
5. Data Communication byTenanbaum, PrenticeHall ofIndia, NewDelhi
6. Data Communication by FredHalsall Addison Wesley(Singapore) Pvt.Ltd., New Delhi
7. Data Communication byKeshav,Addison Wesley(Singapore) Pvt.Ltd.,NewDelhi
8. UnderstandingDataCommunication, 4th Ed, Gilbert Held, PrenticeHallofIndia, New Delhi
9. Data Communication bySchweber
10. Data Communication and NetworkbyBlack

Digital Data Communication Practical

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	**Instructions**		**Examination**			
Computer System Pheripherals	Hours / Week	Hours / Semester	Marks			Duration
	4Hrs	64 period	Internal Assessment	Board Examination	Total	
			30	60	90	3 Hrs

LAB EXERCISES
LIST OF PRACTICALS

LIST OF PRACTICALS

1. Recognize the physical topology and cabling (coaxial, OFC, UTP, STP) of a network.
2. Recognition and use of various types of connectors RJ-45, RJ-11,BNC and SCST
3. Recognition of network devices (Switches, Hub, Routers of access points for Wifi
4. Making of cross cable and straight cable
5. Install and configure a network interface card in a workstation.
6. Identify the IP address of a workstation and the class of the address and configure the IP Address on a workstation
7. Managing user accounts in windows and LINUX
8. Study

OFFICE APPLICATIONS

CourseName : Computer Science and Engineering

SubjectCode :

Semester III

Subjecttitle : OFFICE APPLICATIONS

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 16 Weeks

Course	Instruction		Examination			
			Max.			Duration
	Hours/ week	Hours/ Semester	Continuous Assessment	Semester- End Examinations	Total	
OFFICE APPLICATIONS	6Hrs	96 PERIOD	30	60	90	3 Hrs

RATIONALE:

The application of Computer knowledge is essential the students of all disciplines of Engineering in addition to their respective branch of study. The Computer Application Practical course facilitates the necessary knowledge and skills regarding creating, working and maintaining the documents and presentation of documents with audio visual effects ina computer and produces necessary skills in E-

Learning and Chatting tools..

OBJECTIVES:

On completion of the following exercises, the students will be able to

- Use the GUI operating systems
- Familiarize and customize the desktop
- Use the different facilities available in the word processor
- Prepare Power Point presentation with different formats
- Expose E-learning tools and chatting tools
- Analyze the datasheet
- Create and manipulate the database
- Create different types of charts
- Prepare PowerPoint presentation
- Understand Internet concepts and usage of e-mail

GUIDELINES:

- All the experiments given in the list of experiments should be completed and all the experiments should include for the end semester practical examination.
- The computer systems should be1:1ratio for practical classes

LAB EXERCISES

SECTION - A

WORD PROCESSING

1. Introduction to Word Processing – Examples- Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header footer deleting, moving, replace, editing text in document. Saving a document, spellchecker.

Printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height width of row or column. Editing, deleting Rows, columns in table.Borders, shading, Templates, wizards, drawing objects, mail merge.

Exercises

2. Create the following table and perform the operations givenbelow

<table>
<tr><th>DAYS</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th></tr>
<tr><td rowspan="2">MON</td><td colspan="2" rowspan="2">TEST</td><td colspan="3">A: JPP</td><td rowspan="2">CA</td><td rowspan="2">RDBMS</td><td rowspan="2">TUT</td></tr>
<tr><td colspan="3">B:RDBMS</td></tr>
<tr><td rowspan="2">TUE</td><td>CA</td><td>OOP</td><td>CN</td><td>RDBMS</td><td colspan="3">A: RDBMS</td></tr>
<tr><td colspan="4"></td><td colspan="3">B: JPP</td></tr>
</table>

WED	CN	RDBMS	OOP	RDBMS	COMMUNICATION		CN	CA
THU	OOP	**A**: JPP			C A	RDBMS	CN	OOP
		B: RDBMS						
FRI	COMMUNICATION		**A**: RDBMS		OOP	CN	RDBMS	CA
			B: JPP					
SAT	OOPS	RDBMS	CN	CA	---------			

3. Create a standard covering letter and use mail merge to generate the customized letters for applying to a job in various organizations. Also, create a database and generate labels for the applyingorganizations.
4. Create a news letter of three pages with two columns text. The first page contains some formatting bullets and numbers. Set the document background colour and add 'confidential' as the watermark. Give the document a title which should be displayed in the header. The header/ footer of the first page should be different from other two pages. Also, add author name and date/ time in the header. The footer should have the page number.

SPREADSHEET

Introduction to Analysis Package – Examples - Concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

5. Create a result sheet containing Candidate's Register No., Name, Marks for six subjects. Calculate the total and result. The result must be calculated as below and failed candidates should be turned tored.

Result is Distinction if Total >= 70 % First Class if

Total > = 60 % and < 70 %

Second Class if Total >= 50 % and < 60 % Pass if Total

>= 35 % and < 50 %

Fail otherwise

Create a separate table based on class by using auto filter feature.

6. Create a table of records with columns as Name and Donation Amount. Donation amount should be formatted with two decimal places. There should be at least twenty records in the table. Create a conditional format to highlight the highest donation with blue color and lowest donation with red colour. The table should have aheading.

7. Create line and bar chart to highlight the sales of the company for three different periods

for the followingdata.

SALES BAR CHART

Period	Product1	Product2	Product3	Total
JAN	35	40	50	125
FEB	46	56	40	142
MAR	70	50	40	160

SECTION – B

DATABASE

Introduction – Menus – Tool bar – Create – Edit – Save – Data types – Insert – Delete – Update – View – Sorting and filtering – Queries – Report – Page setup – Print.

Exercises

8. Create Database to maintain at least 10 addresses of your class mates with the following constraints

- Roll no. should be the primarykey.
- Name should be notnull

9. create a students table with the following fields: Sr.No, Reg. No, Name, Marks in 5 subjects. Calculate total and percentage of 10 students. Perform the following queries.

- To find the details of distinction student
- To find the details of first class students
- To find the details of second class students

Design a report for the above exercise to print the consolidated result sheet and mark card for thestudent.

PRESENTATION

Introduction - Opening new presentation, Parts of PowerPoint window – Opening -Saving and closing presentations - Features of PowerPoint, Background design, Word art, Clip art, Drawings,3D settings - Animations, Sound, Views, types of views - Inserting and deleting slides, arranging slides, slides show, rehearsal, setup show, custom show - Creating custom presentations, action setting, auto content wizard, working with auto content wizard

Exercises

10. Make a marketing presentation of any consumer product with at least 10slides. Use different customized animation effects on pictures and clip art on any four of the ten slides.

11. Create a Presentation about our institution or any subject with different slide transition with sound effect.

INTERNET

Introduction – Getting acquainted with Internet Connection - Browsers – Website URL - Open a website – Net Browsing - Email: Creating E-mail id – Sending , receiving and deleting E-mail - Email with Attachments – CC and BCC - Chatting – Creating Group mail - Google docs – Search Engines – Searching topics .

Most Popular Social Networking Sites : History – Features – Services – Usage of Face book , Twitter and Linkdln.

Transferring data through wifi / Bluetooth among different devices.

Introduction to cybercrime – Software Piracy – Viruses – Antivirus Software

Exercises

12. Create an e-mail id and perform the following
    - Write an e-mail inviting your friends to your Birthday Party.
    - Make your own signature and add it to the e-mail message.
    - Add a word attachment of the venue route
    - Send the e-mail to at least 5 of your friends.

13. Create a presentation on Google docs. Ask your friend to review it and comment onit. Use "Discussion" option for your discussions on the presentation.

Hardware and Software Requirements

Hardware Requirements:

- Computers –36Nos
    - Intel Core i3Processor
    - 500 GB Hard Disk, 2 MBRAM
    - 14"Monitor
- Projector – 1Nos
- Laser Printer – 1No
- Internet Connection – Minimum of 512KB

Software Requirement

- Any GUI Operating System
- Open Source Software / MS-Office

1. Semester End Examination– 60 Marks

Content	Max.Marks
Writing Procedure – One Question from Section A	10
Demonstration	10
Results with Printout	5
Writing Procedure – One Question from Section B	10

Demonstration	15
Results with Printout	5
Viva voce	5
Total	**60MARK**