STATE BOARD OF TECHNICAL EDUCATION, BIHAR

Scheme of Teaching and Examinations for

IIIRD SEMESTER DIPLOMA IN COMPUTER SCIENCE & ENGINEERING

(Effective from Session 2016-17 Batch)

THEORY

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME							Credits
			Periods per Week	Hours of Exam.	Teacher's Assessment (TA) Marks (A)	Class Test(CT) Marks (B)	End Semester Exam. (ESE) Marks (C)	Total Marks (A+B+C)	Pass Marks ESE	Pass Marks in the Subject	
1.	Applied Mathematics (Common)	1600301	04	03	10	20	70	100	28	40	03
2.	Computer Programming Through 'C'	1600302	03	03	10	20	70	100	28	40	03
3.	Introduction to Software Package	1618303	03	03	10	20	70	100	28	40	03
4.	Computer Organization & Architecture	1618304	03	03	10	20	70	100	28	40	03
5.	Operating System	1618305	03	03	10	20	70	100	28	40	03
		Total:- 16					**350**	**500**			

PRACTICAL

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME					Credits
			Periods per Week	Hours of Exam.	Practical (ESE)		Total Marks (A+B)	Pass Marks in the Subject	
					Internal (A)	External (B)			
6.	Computer Programming Through 'C' Lab	1600306	06	03	15	35	50	20	03
7.	Introduction to Software Package Lab	1618307	04	03	15	35	50	20	02
8.	Computer Organization & Architecture Lab	1618308	02	03	15	35	50	20	01
		Total:-	**12**				**150**		

TERM WORK

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME				Credits
			Periods per week	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject	
9.	Operating System (T W)	1618309	05	30	70	100	40	03
		Total:-	**05**			**100**		
Total Periods per week Each of duration One Hours **=** 33						**Total Marks = 750**		**24**

APPLIED MATHEMATICS (COMMON)

Subject Code 1600301	Theory						Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
	—	—	—	CT	:	20	

Contents :Theory		Hrs/week	Marks
Unit -1	**Integration:** 1.1 Definition of integration as anti-derivative. Integration of standard function. 1.2 Rules of integration (Integrals of sum, difference, scalar multiplication). 1.3 Methods of Integration. 1.3.1 Integration by substitution 1.3.2 Integration of rational functions. 1.3.3 Integration by partial fractions. 1.3.4 Integration by trigonometric transformation. 1.3.5 Integration by parts. 1.4 Definite Integration. 1.4.1 Definition of definite integral. 1.4.2 Properties of definite integral with simple problems. 1.5 Applications of definite integrals. 1.5.1 Area under the curve. 1.5.2 Area between two curves. 1.5.3 Mean and RMS values	**12**	**20**
Unit -2	**Differential Equation** 2.1 Definition of differential equation, order and degree of differential equation. Formation of differential equation for function containing single constant. 2.2 Solution of differential equations of first order and first degree such as variable separable type, reducible to Variable separable, Homogeneous, Nonhomogeneous, Exact, Linear and Bernoulli equations. 2.3 Applications of Differential equations. 2.3.1 Laws of voltage and current related to LC, RC, and LRC Circuits.	**10**	**15**
Unit - 3	**Laplace Transform** 3.1 Definition of Laplace transform, Laplace transform of standard functions. 3.2 Properties of Laplace transform such as Linearity, first shifting, second shifting, multiplication by t^n, division by t. 3.3 Inverse Laplace transforms. Properties- linearly first shifting, second shifting. Method of partial fractions, 3.4 Convolution theorem. 3.5 Laplace transform of derivatives, 3.6 Solution of differential equation using Laplace transform (up to second order equation).	**08**	**14**
Unit - 4	**Fourier Series** 4.1 Definition of Fourier series (Euler's formula). 4.2 Series expansion of continuous functions in the intervals $(0, 2l), (-l, l), (0, 2\pi), (-\pi, \pi)$ 4.3 Series expansions of even and odd functions. 4.4 Half range series.	**08**	**07**

Unit - 5	**Numerical Methods** 5.1 Solution of algebraic equations Bisection method. Regularfalsi method. Newton – Raphson method. 5.2 **Solution of simultaneous equations containing 2 and 3 unknowns** Gauss elimination method. Iterative methods- Gauss seidal and Jacobi's methods.	**05** **05**	**07** **07**
	Total	**48**	**70**

Text /Reference Books:		
Name of Authors	**Titles of the Book**	**Name of the Publisher**
Mathematics for polytechnic	S. P. Deshpande	Pune Vidyarthi Griha Prakashan, Pune
Calculus: single variable	Robert T. Smith	Tata McGraw Hill
Laplace Transform	Lipschutz	Schaum outline series.
Fourier series and boundary value problems	Brown	Tata McGraw Hill
Higher Engineering Mathematics	B. S. Grewal	Khanna Publication, New Dehli
Introductory Methods of Numerical analysis	S. S. Sastry	Prentice Hall Of India, New Dehli
Numerical methods for scientific & engineering computations	M. K. Jain & others	Wiley Eastern Publication.

COMPUTER PROGRAMMING THROUGH 'C'

Subject Code 1600302	Theory			No of Period in one session :50			Credits
	No. of Periods Per Week			Full Marks	:	100	3
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	20	

Rationale:

Computers play a vital role in present day life, more so, in the professional life of technician engineers. In order to enable the students use the computers effectively in problem solving, this course offers the modern programming language C along with exposition to various engineering applications of computers.

Objective:

The objectives of this course are to make the students able to:

- Develop efficient algorithms for solving a problem.
- Use the various constructs of a programming language viz. conditional, iteration and recursion.
- Implement the algorithms in "C" language.
- Use simple data structures like arrays, stacks and linked list solving problems.
- Handling File in "C".

Contents (Theory)			Hrs/week	Marks
Unit -1	**INTRODUCTION TO PROGRAMMING** The Basic Model of Computation, Algorithms, Flow-charts, Programming Languages, Compilation, Linking and Loading, Testing and Debugging, Documentation. Programming Style-Names, Documentation & Format, Refinement & Modularity.		**[03]**	
Unit -2	**ALGORITHM FOR PROBLEM SOLVING** Exchanging values of two variables, summation of a set of numbers. Reversing digits of an integer, GCD (Greatest Common Division) of two numbers. Test whether a number is prime. Organize numbers in ascending order. Find square root of a number, factorial computation, Fibonacci sequence. Compute sine Series. Check whether a given number is Palindrome or not. Find Square root of a quadratic equation. multiplication of two matrices,		**[08]**	
Unit -3	**INTRODUCTION TO 'C' LANGUAGE**		**[08]**	
	03.01	Character set, Variable and Identifiers, Built-in Data Types, Variable Definition, Declaration, C Key Words-Rules & Guidelines for Naming Variables.		
	03.02	Arithmetic operators and Expressions, Constants and Literals, Precedence & Order of Evaluation.		
	03.03	Simple assignment statement. Basic input/output statement.		
	03.04	Simple 'C' programs of the given algorithms		
Unit -4	**CONDITIONAL STATEMENTS AND LOOPS**		**[07]**	
	04.01	Decision making within a program		
	04.02	Conditions, Relational Operators, Logical Operator.		
	04.03	If statement, if-else statement.		
	04.04	Loop statements		
	04.05	Break, Continue, Switch		
Unit -5	**ARRAYS** What is an Array?, Declaring an Array, Initializing an Array. One dimensional arrays: Array manipulation: Searching, Insertion, Deletion of an element from an array; Finding the largest/smallest element in array; Two dimensional arrays, Addition/Multiplication of two matrices.		**[07]**	

Unit -6	**FUNCTIONS** Top-down approach of problem solving. Modular programming and functions, Definition of Functions Recursion, Standard Library of C functions, Prototype of a function: Formal parameter list, Return Type, Function call, Passing arguments to a Function: call by reference; call by value.	**[07]**	
Unit -7	**STRUCTURES AND UNIONS** Basic of Structures, Structures variables, initialization, structure assignment, Structures and arrays: arrays of structures,	**[04]**	
Unit -8	**POINTERS** Concept of Pointers, Address operators, pointer type declaration, pointer assignment, pointer initialization pointer arithmetic.	**[06]**	
	Total		

Text / Reference Books -

1. Programming with C. Second Edition. Tata McGraw-Hill, 2000 - Byron Gottfried
2. How to solve by Computer, Seventh Edition, 2001, Prentice hall of India. - R.G. Dromey
3. Programming with ANSI-C, First Edition, 1996, Tata McGraw hill. - E. Balaguruswami
4. Programming with ANSI & Turbo C. First Edition, Pearson Education. - A. Kamthane
5. Programming with C. First Edition, 1997, Tara McGraw hill. - Venugopla and Prasad
6. The C Programming Language, Second Edition, 2001, Prentice Hall of India. - B. W. Kernighan & D.M. Ritchie
7. Programming in C, Vikash Publishing House Pvt. Ltd., Jungpura, New Delhi. - R. Subburaj
8. Programming with C Language, Tara McGraw Hill, New Delhi. - C. Balagurswami
9. Elements of C, Khanna Publishers, Delhi. - M. H. Lewin
10. Programming in C. - Stephen G. Kochan
11. Programming in C, khanna Publishers, Delhi. - B. P. Mahapatra
12. Let us C, BPB Publication, New Delhi. - Yashwant kanetkar
13. Programming in C, Galgotia Publications Pvt. Ltd. Dariyaganj, New Delhi. - Kris A. Jamsa
14. The Art of C Programming, Narosa Publishing House, New Delhi. - Jones, Robin & Stewart
15. Problem Solving and Programming. Prentice Hall International. - A.C. Kenneth
16. C made easy, McGraw Hill Book Company, 1987. - H. Schildt
17. Software Engineering, McGraw Hill, 1992. - R.S. Pressman
18. Pointers in C, BPB publication, New Delhi. - Yashwant Kanetkar

INTRODUCTION TO SOFTWARE PACKAGES

Subject Code 1618303	Theory			No of Period in one session : 50			Credits
	No. of Periods Per Week			Full Marks	:	100	3
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	20	

Rationale & Objective:-

This course will enable the students to familiarize with the features and use of application packages such as Word Processing Package (MS-Word), Spreadsheet Package (MS-Excel), Presentation Packages (MS-Power Point), Data Base Management Package (Visual Fox Pro) and Anti-virus Packages.

Contents (Theory)		Hrs/week	Marks
Unit -1	**WORD PROCESSING PACKAGE (MS-WORD):** 01.01 Features of Word Processing Package MS-Word, Menu Options-File, Edit, View, Insert, Format, Tools-spelling and grammar, language, mail-merge, options; table. 01.02 Creating, editing and saving a document, Opening a document, password protection for file. 01.03 Setting page margins, tab setting, ruler and indenting. 01.04 Formatting a document- using different fonts; changing font size and colour; changing the appearance through bold/italic/underline; highlighting text; change case; use of sub script and superscript. 01.05 Alignment of text in a document and justification, use of bullets and numbering. 01.06 Paragraph formatting, inserting page breaks and column breaks. 01.07 Use of headers, footers, footnote and end note. Use of Comments, inserting date, time, and special symbols, importing graphical images and use of drawing tools 01.08 Creating table, formatting cells, using different border styles, shading in tables, merging of cells, and partition of cells, inserting and deleting a row/column in a table. 01.09 Print preview, zoom, page setup, print options. 01.10 Use of tools such as spell checker, help, mail-merge, and use of macros.	[16]	
Unit -2	**SPREADSHEET PACKAGE (MS-EXCEL):** 02.01 Features of Spreadsheet package such as MS Excel, Menu Options- File; edit; view; insert; format; tools- spelling, auto correct, protection, options; data. 02.02 Concepts of cell and cell-addressing. 02.03 Creating, operating and saving worksheet. 02.04 Entering text, numeric information and formula 02.05 Formatting numbers and text, protection cells, printing worksheet. 02.06 Using data management functions-mathematical, statistical and financial functions. 02.07 Creating different types of charts, graphs and balance worksheet and displaying 3-D Charts, printing and resizing charts. Importing files and graphics.	[16]	

Unit -3	**PRESENTATION PACKAGE (MS-POWER POINT):** 03.01 Features of Presentation Package MS-Power Point, Menu options-File; edit, view; insert; format; tools-spelling, language, auto clipart, slide show 03.02 Status bar, tool bar, customized tool bar, slide view, outline view, slide sorter view, notes page view, slide show view 03.03 Creating and saving slides, opening and editing slides, changing layout of a slide, deleting of slide, changing layouts of a slide, deleting of slide, changing the order of slides, animation. 03.04 Working with objects: selecting, grouping, ungrouping and regrouping of objects, moving, aligning, cutting, copying, pasting, and duplicating objects. 03.05 Putting text on slides: selecting and editing text, finding and replacing text. 03.06 Creating graphs and importing files. 03.07 Creating tables. 03.08 Use of data sheet view and design view.	[13]	
Unit -4	**ANTI VIRUS PACKAGES:** 05.01 Introduction to Virus. 05.02 Virus Protection, Deletion & Removal Utilities Anti Virus Packages to prevent, detect & delete Viruses.	[02]	
	Total	**50**	

Books Recommended:-

1.	MS office 2000 for Everyone, Vikash Publications, New Delhi	-	Sanjay Saxena
2.	MS office 2000, Addison Wesley(Singapore) Pvt. Ltd., New Delhi	-	Sagman
3.	MS office 2000 8-in-1, Prentice Hall of India, New Delhi	-	Habraken
4.	MS office, BPB Publications, New Delhi	-	Ron Mansfield
5.	MS Word 2000 in a Nutshell, Vikash Publishing House, New Delhi.	-	Sanjay Saxena
6.	MS Excel 2000 in a Nutshell, Vikash Publishing House, New Delhi.	-	Sanjay Saxena
7.	A Quick Course in Power Point and A Quick Course for Windows, Galgotia Publications Pvt. Ltd., Daryaganj New Delhi.	-	Cox
8.	Building Visual FoxPro 5 Application, First Edition, 1997, IDG Books	-	B. Sosinsky
9.	FoxPro 2.6 code Book, BPB Publication, 1994	-	Griver
10.	Mastering FoxPro 2.5, BPB Publication, 1994	-	Siegel
11.	FoxPro 2.6 for Dummies, Pustak Mahal	-	Dan Gookin
12.	Understanding Norton Utilities	-	Peter Dysen

COMPUTER ORGANISATION & ARCHITECTURE

Subject Code	Theory			No of Period in one session : 50			Credits
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	3
1618304	03	—	—	TA	:	10	
				CT	:	20	

Rationale:
This course will enable the students to grasp the working of basic components of computer system. Further the course will help them to learn as to how the basic components interact with each other to form a working system.

Objective:
Objective of the course is to familiarize students about hardware and software design including logic design, and basic structure and behavior of the various functional modules of the computers and how they interact to provide the processing needs of the user.
This subject mainly focuses on the hardware and system software. It aims to describe the following aspects:

- Building blocks of the computer
- Computer Design
- Assembly Language Programming

S.No.	Units	Periods
01	Introduction and Background	(04)
02	Register Transfer Language and Micro-operations	(05)
03	Architecture of a Simple Processor	(06)
04	CPU Organization	(06)
05	Assembly Language Programming	(07)
06	Micro programmed Control Unit	(07)
07	Arithmetic Algorithms	(04)
08	I/O Organization	(05)
09	Memory Organization	(06)
	Total :	**(50)**

	CONTENTS (Theory)	Hrs/week	Marks
Unit-1	**INTRODUCTION AND BACKGROUND** 01.01 Evolution of Computers 01.02 Stored Program concept and Von Neumann Architecture 01.03 Information Representation and Codes 01.04 Building blocks of Computers(Combinational blocks: gates, multiplexers, decoders, encoders etc., Sequential Building Blocks: Flip flops, registers, counters, random access memory etc.	**(04)**	
Unit-2	**REGISTER TRANSFER LANGUAGE AND MICRO-OPERATIONS** 02.01 Concept of bus, Data movement among registers. 02.02 A language to represent conditional data transfer 02.03 Data movement from/to memory	**(05)**	
Unit-3	**ARCHITECTURE OF SIMPLE PROCESSOR** 03.01 A simple computer organization and Instruction set. 03.02 Instruction execution in terms of microinstructions 03.03 Concept of Interrupt and simple I/O organisation 03.04 Implementation of the processor using building blocks	**(06)**	
Unit-4	**CPU ORGANISATION** 04.01 Address modes Instruction formats. 04.02 Instruction formats 04.03 CPU organisation with large registers 04.04 Stacks and handling of interrupts and subroutines 04.05 Instruction pipelining : stages, hazards and methods to remove hazards	**(06)**	

Unit-5	**ASSEMBLY LANGUAGE PROGRAMMING** 05.01 Machine and Assembly language. 05.02 Pseudo-Operations 05.03 Subroutines in assembly language 05.04 Interrupt and I/O Programming 05.05 Examples	**[07]**	
Unit-6	**MICROPROGRAMMED CONTROL UNIT** 06.01 Basic organization of micro programmed controller. 06.02 Horizontal and vertical formats 06.03 Address sequencer	**[07]**	
Unit-7	**ARITHMETIC ALGORITHMS** 07.01 Addition and Subtraction for sign magnitude and 2's complement numbers. 07.02 Integer multiplication using shift and add 07.03 Booth's algorithm 07.04 Integer Division 07.05 Floating point representations and arithmetic algorithms	**[04]**	
Unit-8	**I/O ORGANISATION** 08.01 Strobe based and handshake based communication. 08.02 Vector and priority interrupts 08.03 DMA based data transfer	**[05]**	
Unit-9	**MEMORY ORGANISATION** 09.01 Basic cell of static & dynamic RAM. 09.02 Building large memories using chips 09.03 Associative memory 09.04 Cache memory organisation 09.05 Virtual memory organisation	**[06]**	
	Total	**50**	

Books Recommended:

Text/Reference Books-

1 Computer System Architecture, Third Edition, 2000, Pearson Education - M.M. Mano
2 Computer System and Architecture, Prentice Hall of India Pvt. Ltd., New Delhi - M. Mano
3 Computer Architecture and Organization, McGraw Hill Company, New Delhi - J.P. Hayes
4 Computer Organization and Architecture, Prentice Hall of India Ltd., New Delhi - W. Stallings
5 Computer System Architecture, Third Edition, 1998, Prentice Hall of India - M. Morris Mano
6 Microprocessor Architecture, Programming and Application, Wiley Eastern Limited - Gaonkar

Reference Books:

1 Computer Architecture & Organization, Third Edition, 1988, McGraw-Hill. New York - J.P. Hayes
2 Computer Design and Architecture, Second Edition, 1991, Harper Collins Publishers - S.G. Siva
3 Computer Organization and Design, Prentice Hill of India Ltd., 1994 - P. Pal Choudhary

OPERATING SYSTEM

Subject Code 1618305	Theory			No of Period in one session : 50			Credits
	No. of Periods Per Week			Full Marks	:	100	3
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	20	

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. Further, good working knowledge to work in Windows and Unix environments is provided by this course.

Objective:
The objectives of this course are to make the students able to

- To teach the requirement of Operating System in Computers.
- To teach Windows Operating System and to make familiar with special features of Windows Operating System.
- To teach multi-user Operating System Unix Operating System and Unix File Structure.

S.No.	Units	Periods
01	Introduction	(02)
02	Process	(08)
03	Inter-process Communication and Synchronization	(07)
04	Memory Management	(07)
05	File Management	(07)
06	Security and Protection	(04)
07	Multi Processor System	(06)
08	Case Studies	(09)
	Total:	**(50)**

CONTENTS (Theory)		Hrs/week	Marks
Unit-1	**INTRODUCTION** Evaluation of Operating Systems, Types of Operating Systems, Different views of the Operating Systems,	**(2)**	
Unit-2	**PROCESSES** The Process Concept, Systems Programmer's view of Processes, The Operating System view of Processes, Operating System Services for Process Management, Scheduling algorithms, Performance Evaluation.	**(8)**	
Unit-3	**INTERPROCESS COMMUNICATION AND SYNCHRONIZATION** The need for inter process synchronization, mutual exclusion, semaphores, Hardware support for mutual exclusion, Classical Problems in concurrent programming, Critical region and conditional critical region, monitors, messages, deadlocks.	**(3)**	
Unit-4	**MEMORY MANAGEMENT** **Contiguous Allocation** Single Process Monitor, Partitioned memory allocation static, Partitioned memory allocation-Dynamic, segmentation 04.02 **Noncontiguous Allocation** Paging, Virtual Memory(allocation policies and replacement policies)	**(7)**	
Unit-5	**FILE MANAGEMENT** A generalization of file services. Directory structure, command Language uses view of the file System	**(7)**	
Unit-6	**SECURITY AND PROTECTION** Security threats and goals, penetration, attempts, security policies and mechanisms, authentication, protection and access control, worms and viruses.	**(4)**	

Unit-7	**MULTI PROCESSOR SYSTEMS** Motivation and classification, multi processor interconnection, types of multi processor operating system, multi processor OS functions and requirements, introduction of parallel computing (distributed operating system) Introduction to multiprocessor synchronization.	**(6)**	
Unit-8	**CASE STUDY** 8.01 **LINUX OPERATING SYSTEM** Introduction to Linux Operating System. Linux features & Benefits :- **Introduction to Linux**:- Systems characteristics and requirements with Linux. **Getting Started**:-System manger, Password, Log in, Log out, running the system.	**[03]**	
	8.02 **UNIX OPERATING SYSTEM** Introduction to Unix Operating System. Unix features &Benefits :- **Introduction to Linux**:- Systems characteristics and requirements with Linux. **Getting Started**:-System manger, Password, Log in, Log out, running the system. **File in the Unix System**:- File structure in Unix, Working with file structures, removable file volumes. **Unix Command Shells**:- Issuing commands, Input handling by the shells, The shell programming language, Running the Unix shells, Pipes, Version of Unix Systems. **The System Kernel**:- Nature of the Kernel, Process Co-ordinations and Management, Input and Output Operations. and Output Operations.	**[6]**	
	Total	**50**	

Books /Reference Books-

1 Operating Systems-Concept and Design, McGraw-Hill international Edition-Computer Science Series, 1992 - Milan Milenkovic

2 An introduction to Operating Systems, Addition-Wesley Publishing Company, 1984. - Harvey M. Deitel

3 Operating System Concepts, Addition-Wesley Publishing Company, 1989. - James L. Paterson, Abraham Silberschatz

4 Modern Operating Systems, Prentice-Hall of India Private Ltd., 1995. - Andrew S. Tanenbaum

5 Microsoft Windows Manual -

6 First Course in Computers, Vikash Publishing House Pvt. Ltd., Jungpura, New Delhi. - Sanjay Saxena

7 WWW.msn.com and linked sites -

COMPUTER PROGRAMMING THROUGH 'C' LAB

Subject Code	Practical			No. of Period in one session : 84			Credits
	No. of Periods Per Week			Full Marks	:	50	
1600306	L	T	P/S	ESE	:	50	3
	—	—	06	Internal	:	15	
				External	:	35	

Rationale:

Computer Play a vital role in present day life, more so, in the professional life of technician engineer. In order to enable the students use the computer effectively in problem solving, this course offers the modern programming language C along with exposing to various engineering application of computers.

Objective

The objectives of this course are to make the students able to:

- Use the various constructs of a programming Language viz. Conditional Iteration and recursion
- Implement the algorithm in C language
- Use Simple data structures like arrays, stacks and Linked list solving problems.
- Handling file in C

Eight experiments to be performed in the laboratory:

Contents (Practical)		Hrs/week	Marks
Unit -1	Programming exercise on executing a C program.	12	
Unit-2	Programming exercise on case Control Statement.	12	
Unit-3	Programming exercise on Decision Control Statement.	12	
Unit-4	Programming exercise on looping.	12	
Unit-5	Programming exercise on recursion technique.	12	
Unit-6	Programming exercise on Structure.	12	
Unit-7	Programs on array implementation.	12	

Text / Reference Books -

1. How to solve it by Computer, Prentice Hall of India, 1992. - R.G. Dromey.
2. The C Programming Language, Prentice Hall of India, 1989. - B.W. Kernighan & D.M. Ritchie.
3. The C Programming Language, Prentice Hall of India, 1989. - Cooper, Mullish
4. Application Programming in C. Macmillain International editions, 1990. - Richa'd Johnson- Baugh & Martin Kalin
5. The Art of C Programming, Narosa Publishing House, New Delhi. - Jones, Robin & Stewart
6. Problem Solving and Programming. Prentice Hall International. - A.C. Kenneth.
7. C made easy, McGraw Hill Book Company, 1987. - H. Schildt
8. Software Engineering, McGraw Hill, 1992. - R.S. Pressman
9. Programming in C, Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi - R. Subburaj
10. Programming with C language, Tata McGraw Hill, New Delhi. - C. Balaguruswami
11. Elements of C, Khanna Publishers. Delhi - M. H. Lewin
12. Programming in C - Stephan G. Kochan.
13. Programming in C, Khanna Publishers. New Delhi - B.P. Mahapatra
14. Let us C, BPB Publication. New Delhi - Yashwant Kanetkar
15. Programming in C, Galgotia Publications Pvt. Ltd. Dariyaganj, New Delhi. - Kris A. Jamsa

INTRODUCTION TO SOFTWARE PACKAGE LAB

Subject Code 1618307	Practical			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	50	2
	L	T	P/S	ESE	:	50	
	—	—	04	Internal	:	15	
				External	:	35	

Contents (Practical)		Hrs/week	Marks
Unit -1	Using mail merge of MS-Word prepare send New Year greetings to the all Principal, staffs and students of your institution.	[ ]	
Unit -2	Demonstrate the different tools of the MS-Word.	[ ]	
Unit -3	Using MS-Excel prepare monthly salary payment of your institution. For calculating use mathematical, statistical and financial functions of MS-Excel.	[ ]	
Unit -4	Using MS-Excel Prepare Pie and bar chart to show current branch wise and batch wise status of students, pass outs, fails for last five years.	[ ]	
Unit -5	Using MS-PowerPoint Prepare a power point presentation of last year annual activities of your polytechnic.	[ ]	
Unit -6	Using MS-PowerPoint Prepare a power point presentation on current scientific research based on direction of your teacher.	[ ]	
Unit -7	Prepare a Project Report on definition, types, and history of viruses and antivirus virus packages to fight with viruses.	[ ]	
	Total		

Books Recommended:-

1	MS office 2000 for Everyone, Vikash Publications, New Delhi	-	Sanjay Saxena
2	MS office 2000, Addison Wesley(Singapore) Pvt. Ltd., New Delhi	-	Sagman
3	MS office 2000 8-in-1, Prentice Hall of India, New Delhi	-	Habraken
4	MS office, BPB Publications, New Delhi	-	Ron Mansfield
5	MS Word 2000 in a Nutshell, Vikash Publishing House, New Delhi.	-	Sanjay Saxena
6	MS Excel 2000 in a Nutshell, Vikash Publishing House, New Delhi.	-	Sanjay Saxena
7	A Quick Course in Power Point and A Quick Course for Windows, Galgotia Publications Pvt. Ltd., Daryaganj New Delhi.	-	Cox
8	Building Visual FoxPro 5 Application, First Edition, 1997, IDG Books	-	B. Sosinsky
9	FoxPro 2.6 code Book, BPB Publication, 1994	-	Griver
10	Mastering FoxPro 2.5, BPB Publication, 1994	-	Siegel
11	FoxPro 2.6 for Dummies, Pustak Mahal	-	Dan Gookin
12	Understanding Norton Utilities	-	Peter Dysen

COMPUTER ORGANISATION & ARCHITECTURE (Lab)

Subject Code	Practical			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	50	
	L	T	P/S	ESE	:	50	1
1618308	—	—	02	Internal	:	15	
				External	:	35	

Contents (Practical)		Hrs/week	Marks
Unit -1	Write a program in C-language to implement the digital gates. The program should give the truth table of the gate, which is selected by the user from the menu displayed by the program.		
Unit -2	Write a program in C-language to implement division algorithm.		
Unit -3	Write a program in C-language to generate the r's and (r-1)'s complement for a number given in any number system .		
Unit -4	Give the presentation on 74xx series IC for gates.		
Unit -5	Give the presentation on combinational circuits such as multiplexer, decoder, encoder etc.		
Unit -6	Give the presentation on sequential circuits such as registers, counters etc.		
Unit -7	Give the presentation on the flip-flops i.e. RS-flip-flop, D-flip-flop, JK-flip-flop, T-flip-flop, Master-Slave JK-flip-flop etc.		
Unit -8	Give the presentation on Von Neumann Architecture of a computer system.		
Unit -9	Give the presentation on money management i.e. virtual memory, cache memory, paging etc.		
Unit -10	Write an assembly language program to find the largest integer from maximum of 15 numbers stored at NUM, defined as consecutive words. The end of the sequence of number is denoted by-9999.		
Unit -11	Write an assembly language program to covert the binary number into hexadecimal number.		
Unit -12	Write an assembly language program to convert binary number to decimal number.		
Unit -13	Write an assembly language program to add two 8-bits numbers in the memory location called NUM1 and NUM2. The result is stored in the memory location called RESULT. If there was a carry from the addition it will be stored as 0000001 in location called CARRY.		
Unit -14	Write an assembly language program to exchange the data between two variables.		
Unit -15	Write an assembly language program, which count the frequency of each decimal digit 0 to 9 of the segment of digits available at DIGIT. The sequence is terminated by character #. Put the frequency of 0 to 9 at FREE in ten consecutive words.		
Unit -16	Write an assembly language program to convert the lower alphabet character after full stop to capital letter if it is a small letter in the string available at MSG.		
Unit -17	Write an assembly language program to multiply the two unsigned binary numbers.		
Unit -18	Write an assembly language program to find the smallest integer from maximum of 15 numbers stored at NUM, defined as consecutive words. The end of the sequence of number is denoted by -9999.		
Unit -19	Write an assembly language program to count the number of spaces character and words in the string available at MSG.		
	Total		

OPERATING SYSTEM (T W)

Subject Code 1618309	Term Work			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S				
	—	—	05	Internal Examiner	:	30	
				External Examiner	:	70	

LIST OF SESSIONALS:

Contents (Term Work)		Hrs/week	Marks
Unit -1	Demonstrate giving brief history of Operating System, types of Operating Systems inuse these days, how it is necessary for a computer functioning.		
Unit -2	Prepare a report on different views of the Operating System, the journey of a command execution, Design and implementation of Operating System.		
Unit -3	Prepare a report on memory management of Operating System.		
Unit -4	Prepare a report on file management of Operating System.		
Unit -5	Demonstrate the Security and Protection features of an Operating System.		
Unit -6	Demonstrate the functions of Multi Processor Systems.		
Unit -7	Demonstrate and produce report on computer network algorithms for distributed processing.		
Unit -8	Prepare a brief history of Windows Operating System.		
Unit -9	Demonstrate features, tools and accessories of Windows 98.		
Unit -10	Prepare a brief report on features and benefits of Unix Operating System.		
	Total		

Books Recommended:

1 Operating Systems-Concept and Design, McGraw-Hill international Edition-Computer Science Series, 1992 - Milan Milenkovic
2 An introduction to Operating Systems, Addition-Wesley Publishing Company, 1984. - Harvey M. Deitel
3 Operating System Concepts, Addition-Wesley Publishing Company, 1989. - James L. Paterson, Abraham Silberschatz
4 Modern Operating Systems, Prentice-Hall of India Private Ltd., 1995. - Andrew S. Tanenbaum
5 Microsoft Windows Manual -
6 First Course in Computers, Vikash Publishing House Pvt. Ltd., Jungpura, New Delhi. - Sanjay Saxena
7 WWW.msn.com and linked sites -
8 Unix Programming - Bach