

**SRI SANKARA ARTS & SCIENCE COLLEGE
AUTONOMOUS**

DEPARTMENT OF COMPUTER SCIENCE

BACHELOR OF COMPUTER APPLICATION

CHOICE BASED CREDIT SYSTEM.
(Effective from the academic year 2018-2019)

REGULATIONS

1. ELIGIBILITY FOR ADMISSION:

Candidates for admission to the first year of the Degree of Bachelor of Computer Application courses shall be required to have passed the Higher Secondary Examinations (Academic or Vocational Stream) conducted by the Government of Tamil Nadu or an Examination accepted as equivalent thereof by the Syndicate of the University of Madras is eligible for admission to the first semester. A candidate shall be selected based on a selection test as prescribed by this Institution from time to time. The selection test shall test the general aptitude, logical reasoning and analytical abilities and basic arithmetical skills of the candidate.

2. STRUCTURE OF THE COURSE

The course is organized on semester basis with a total of six semesters. Each student will opt for a comprehensive, interactive course with one of the faculty member. The topic of specialization and course content will be determined by the dept/course advisor.

Core practical **Laboratory:** Independent system shall be provided for the each student. It is recommended that the practical training be organized as an exercise rather than simple demonstration. The student must actually perform the experiments.

3. ELIGIBILITY FOR THE AWARD OF DEGREE

A Candidate shall be eligible for the award of the Degree only if he/she has undergone the prescribed course of study in a Autonomous College for a period of not less than three academic years, passed the examinations of all the Six Semesters prescribed earning **140** credits in Parts-I, II, III, IV, V & VI and fulfilled such conditions as have been prescribed therefore.

The parent university will award degrees to the students evaluated and recommended by autonomous colleges. The degree certificates will be in a common format devised by the

university. The name of the college will be mentioned in the degree certificate, if so desired. The declaration of results was decided by the examination committee.

4. DURATION:

Each academic year shall be divided into two semesters. The first academic year shall comprise the first and second semesters, the second academic year the third and fourth semesters and the third academic year the fifth and sixth semesters respectively.

The odd semesters shall consist of the period from June to November of each year and the even semesters from December to April of each year. There shall be not less than 90 working days for each semester exclusive of the days for the conduct of semester examinations.

In each semester, Papers are administered in 15 teaching weeks and another 5 weeks are utilized for evaluation and grading purposes. Each week has 30 working hours spread over in a 5 day week. Depending upon the content and specialization, a paper may have 1 to 6 credits. Total number of teaching hours in a semester will be 450 hrs. One credit of each theory paper is equal to 15 hrs of lectures or 30 hrs of practical works.

5. MAXIMUM PERIOD FOR COMPLETION OF THE PROGRAMMES

The candidates shall complete the B.C.A Degree Programmes within 6 years from the date of admission. The term completing the programmes means passing all the prescribed examinations of the programme to become eligible for the degree. No candidate shall be permitted to appear for the examinations after the prescribed period for completing the programme.

6. COURSE OF STUDY

A Bachelor's programme consists of a number of papers. The term Course is used to indicate logical part of a subject matter of the programme. In each of Bachelor's programmes, there will be a prescription of (i) language –I (Tamil, Sanskrit or other languages), (ii) language – II (English), (iii) a set of compulsory courses (called core subjects), some optional courses (called elective / allied subjects) and projects, (iv) a set of papers recommended by UGC and TANSCH (Advanced Tamil / Soft skill / Environmental Studies / Value education) and (v) Extension activities.

The detail of the Study for Bachelor Degree Courses shall consist of the following:

PART – I Language Courses (LC) [Tamil / Other Languages]

PART – II English Language Courses (ELC)

PART – III Core Subjects
Allied Subjects
Projects / Field work

PART – IV

1. (a) Those who have not studied Tamil up to XII Std. and taken a Non-Tamil Language under Part-I shall take Tamil comprising of two papers (level will be at 6th Standard).
- (b) Those who have studied Tamil up to XII Std. and taken a Non-Tamil Language under Part- I shall take Advanced Tamil comprising of two papers.
- (c) Others who do not come under a + b can choose non-major elective comprising of two papers.

2. Skill Based Subjects - Soft Skills

A candidate shall be eligible for the award of the degree only if he/she has undergone the prescribed papers on Soft Skills. For three years UG degree Programme, a candidate must undergo a minimum of 4 papers ($4 \times 2 = 8$ credits). Papers will be finalized in due course.

3. Environmental Studies

A candidate shall be eligible for the award of the degree only if he/she has undergone the prescribed paper on Environmental studies. For three years UG degree Programme, a candidate must undergo environmental studies during third semester of second year (2 credits). Syllabus is common to all UG courses.

4. Value Education

A candidate shall be eligible for the award of the degree only if he/she has undergone the prescribed paper on value education. For three years UG degree Programme, a candidate must undergo value education during fourth semester of second year (1 credit). Paper will be finalized in due course.

PART – V Extension Activities

A candidate shall be awarded a maximum of 1 Credits for Compulsory Extension Service. All the Students shall have to enroll for NSS /NCC/ NSO (Sports & Games) Rotract / Youth Red cross or any other service organizations in the college and shall have to put in Compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the college before 31st March in a year. If a student LACKS 40 HOURS ATTENDANCE in the First year, he/she shall have to compensate the same during the subsequent years. Students those who complete minimum attendance of 40 hours in One year will get HALF A CREDIT and those who complete the attendance of 80 or more hours in Two Years will ONE CREDIT. Literacy and population Education Field Work shall be compulsory components in the above extension service activities. The working hours should not overlaps the normal teaching hours.

Student advisor

All teachers of the department shall function as student advisors. There will be more or less an equal number of students assigned to each student advisor of a department. The student advisor will help the students in choosing core and elective papers of study. The student advisor shall be responsible for registration of papers (subjects) by his students. The student advisor will offer all possible student support services

7. CREDITS

The term credit is used to describe the quantum of syllabus for various programmes in terms of periods of study. It indicates differential weightage given according to the contents duration of the courses in the curriculum design. The minimum credit requirement for a three year Bachelor's programme shall be **140** credits. Each subject (course) is designed variously under lectures / tutorials / laboratory work / seminar / project work etc., to meet effective teaching and learning needs and credits are assigned suitably.

One credit for each lecture / tutorial / project work period per week shall be allotted. One credit for two laboratory hours per week shall be allotted. In practical, each credit should cover minimum of six experiments. Thus normally, in each of the subject, credits will be assigned on the basis of the lectures / tutorials / laboratory work / project work and other forms of learning in a 15 week schedule.

8. SCHEME OF EXAMINATION

There shall be continuous, comprehensive evaluation of students through internal and external examination. At least 2 internal examinations (Sessional Tests) per semester and 1 semester ending examination should be conducted.

Sessional Test I will be held during sixth week for syllabi covered till then. Sessional Test I will be a combination of a variety of tools such as class test, assignment, paper presentation etc., that would be suitable for the paper. This required an element of openness. The students are to be informed in advance about the nature of assessment and the procedures.

However the tests are compulsory. Test I may be for one hour duration. The pattern of question paper will be decided by the respective board of studies.

Sessional Test I will carry 20% of marks of the entire paper.

Sessional Test II will be held during eleventh week for syllabi covered between seventh and eleventh weeks. Sessional Test I will be a combination of a variety of tools such as class test, assignment, paper presentation etc. that would be suitable for the paper. It will also have an element of openness. The students are to be informed in advance about the nature of assessment and the procedures. However the tests are compulsory. Test II may be for one hour duration. The pattern of question paper will be decided by the respective board of studies.

Sessional Test II will carry 20% of marks of the entire paper.

There will be one End Semester examination of 2 - 3 hours duration in each paper. The End semester examination will cover all the syllabi of the paper for 60% of Marks.

A dissertation may be offered in lieu of one / two papers / practicals. It shall be evaluated by two examiners one external and one internal appointed by the Controller of Examination. Wherever there is viva-voce, it shall be conducted by the common Viva Board consisting of the Chairman and internal members of the Board of Examination in the concerned subject, internal guide and one external expert as approved by the Controller of Examinations.

End semester practical examinations shall be held before the theory examinations to benefit the students to undertake examinations of other departments.

Every course offered will have three components associated with the teaching-learning process of the course, namely (i) Lecture - L (ii) Tutorial - T (iii) Practicals - P, (iv) Self study - S where

L stands Lecture session. **T** stands Tutorial session consisting participatory discussion / self study / desk work / brief seminar presentations by students and such other novel methods that make a student to absorb and assimilate more effectively the contents delivered in the Lecture classes.

P stands Practice session and it consists of Hands on experience / Laboratory Experiments / Field Studies / Case studies that equip students to acquire the much required skill component.

S stands Self study session consisting participatory discussion by student with the guidance of faculty. This session is not included in the weekly hour plan.

In terms of credits, every one hour session of L amounts to 1 credit per semester, a minimum of two hour session of T or P amounts to 1 credit per semester and no credits allotted to self study hour, over a period of one semester of 15 weeks for teaching-learning process. The total duration of a semester is 20 weeks inclusive of semester-end examination.

A course shall have either or all the three components. That means a course may have only lecture component, or only practical component or combination of any two or all the three components. The total credits earned by a student at the end of the semester upon successfully completing the course are $L + T + P + S$. The credit pattern of the course is indicated as L: T: P: S. For example: a theory course with a L-T-P-S schedule of 4-0-0-2 will be assigned 4 credits, and a lab practical course with a L-T-P-S schedule of 0-0-3-0 will be assigned 3 credits.

For B.C.A courses Part I, Part II and Part IV subjects will be provided to first and second semesters. In third to sixth semesters only part III papers provided. Total of 30 hrs was to be maintained constantly for all semesters.

Projects and Field works might be introduced in the sixth semester of any UG course by utilizing two core papers. Each project work / field work might be awarded with twelve credits and twelve hours per week.

Total credits of 142 attained through three years of their study period.

9. Question Paper Pattern

SECTION – A (30 words)

10 OUT OF 12 - 10 X 2 marks = 20 marks

SECTION – B (200 words)

5 out of 7 - 5 x 5 marks = 25 marks

SECTION – C (500 words)

3 out of 5 - 3x 10 marks = 30 marks

TOTAL = **75 marks**

10. SCHEME OF EXAMINATIONS:

SUBJECTS	CREDITS	EXAM HRS	MAX. MARKS		
			Internal	External	TOTAL
PART I Language	3	3	25	75	100
PART II English	3	3	25	75	100
PART III Core Subject	4	3	25	75	100
Core Practical	3	3	40	60	100
Allied Paper	5	3	25	75	100
PART IV 1. (a) Those who have not studied Tamil up to XII Std. and taken a Non-Tamil Language under Part-I shall take Tamil comprising of two paper (level will be at 6th Standard). (b) Those who have studies Tamil up to XII Std. and taken a Non- Tamil Language under Part-I shall take Advanced Tamil comprising of two papers. (c) Others who do not come under a + b can choose non-major elective comprising of two papers.	2	2	25	75	100
2. Skill based subjects – Soft Skill	3	2	50	50	100
PART V – Extension activities	1				
Total credits : 24					

The following procedure be followed for internal Marks

The offer of an Add-on Courses to the students in various disciplines is to enhance their employability. The number of working hours per week for the students for getting the **140** prescribed credits should not exceed 30 hours of class per week and no faculty member should be allocated extra hours beyond the prescribed 16 lecture hours.

The following procedure be followed for Internal Marks

INTERNAL MARKS

Tests (2 out of 3)	= 10
Attendance	= 5
Seminars	= 5
Assignments	= 5

	25 marks

***Break-up Details for Attendance**

Below 60%	- No marks
60% to 75%	- 2 marks
76% to 90 %	- 3 marks
91% to 100%	- 4 marks

Practice based Continuous Internal Assessment (CIA) – 20 provided based upon the type of the practice recommended by board of studies to the respective paper for example: quiz, report generation, problem solving, etc.,

Practical:	Internal Marks	40
Attendance	5 marks	
Practical Test best 2 out of 3	30 marks	
Record	5 marks	

11. REQUIREMENTS FOR PROCEEDING TO SUBSEQUENT SEMESTER

- i. Candidates shall register their names for the First Semester Examination after the admission in UG Courses.
- ii. Candidates shall be permitted to proceed from the First Semester up to Final Semester irrespective of their failure in any of the Semester Examination subject to the condition that the candidates should register for all the arrear subject of earlier semesters along the current (subsequent) Semester Subjects.
- iii. Candidates shall be eligible to go to subsequent semester, only if they earn sufficient attendance as prescribed therefore by the Academic Council from time to time. Provided in case of a candidate earning less than 50% of attendance in any one of the Semesters due to any extraordinary circumstances such as medical grounds, such candidates who shall produce Medical

Certificate issued by the Authorized Medical Attendant (AMA), duly certified by the Principal of the college, shall be permitted to proceed to the next semester and to complete the Course of study. Such Candidates shall have to repeat the missed Semester by rejoining after completion of Final Semester of the course, after paying the fee for the break of study as prescribed by the Academic Council from time to time.

iv. There shall be examinations at the end of each semester, for odd semesters in the month of October / November, for even semesters in April / May. A candidate who does not pass the examination in any paper(s) shall be permitted to appear in such failed courses in the subsequent examinations to be held in October / November or April / May.

v. The results of all the examinations will be published through the college Website.

12. PASSING MINIMUM

A candidate shall be declared to have passed:

- a) There shall be no Passing Minimum for Internal.
- b) For External Examination, Passing Minimum shall be of 40 % (Forty Percentage) of the maximum marks prescribed for the paper for each Paper/Practical/Project and Viva-voce.
- c) In the aggregate (External + Internal) the passing minimum shall be of 40%. d) He/She shall be declared to have passed the whole examination, if he/she passes in all the papers and practicals wherever prescribed / as per the scheme of examinations by earning **140 CREDITS** in Parts-I, II, III, IV & V. He/she shall also fulfill the extension activities prescribed earning a minimum of 1 Credit to qualify for the Degree. He/She shall also complete two certificate courses to qualify for the Degree.

13. CLASSIFICATION OF SUCCESSFUL CANDIDATES

PART- I TAMIL / OTHER LANGUAGES

TAMIL/OTHER LANGUAGES: Successful candidates passing the Examinations for the Language and securing the marks (i) 60 percent and above and (ii) 50 percent and above but below 60 percent in the aggregate shall be declared to have passed the examination in the **FIRST** and **SECOND** class, respectively. All other successful candidates shall be declared to have passed the examination in the **THIRD** Class.

PART – II ENGLISH

ENGLISH: Successful candidates passing the examinations for English and securing the marks (i) 60 percent and above and (ii) 50 percent and above but below 60 percent in the aggregate shall be

declared to have passed the examination in the FIRST and SECOND Class, respectively. All other successful candidates shall be declared to have passed the examination in the THIRD class.

PART – III consisting of CORE SUBJECTS, ALLIED SUBJECTS, PROJECT with three papers: Successful candidates passing the examinations for Core papers together and securing the marks (i) 60 percent and above (ii) 50 percent and above but below 60 percent in the aggregate of the marks prescribed for the Core papers together shall be declared to have passed the examination in the FIRST and SECOND Class respectively. All other successful candidates shall be declared to have passed the examinations in the THIRD Class.

PART – IV consisting of sub items 1 (a), (b) & (c), 2, 3 and 4

Successful Candidate earning of 2 credits for each paper SHALL NOT BE taken into consideration for Classification / Ranking / Distinction.

PART – V EXTENTION ACTIVITIES

Successful Candidate earning of 1 credit for extension activities SHALL NOT BE taken into consideration for Classification / Ranking / Distinction.

14. RANKING

Candidates who pass all the examinations prescribed for the Course in the FIRST APPEARANCE ITSELF ALONE are eligible for Ranking / Distinction.

Provided in the case of Candidates who pass all the examinations prescribed for the Course with a break in the First Appearance due to the reasons as furnished in the Regulations 8(iii) category are only eligible for Classification.

15. APPEARANCE FOR IMPROVEMENT

Candidates who have passed in a theory paper / papers are allowed to appear again for theory paper / papers only once in order to improve his/her marks, by paying the fee prescribed from time to time. Such candidates are allowed to improve within a maximum period of 12 semesters counting from his/her first semester of his / her admission. If candidate improve his marks, then his improved marks will be taken into consideration for the award of Classification only. Such improved marks will not be counted for the award of Prizes / Medals, Rank and Distinction. If the candidate does not show improvement in the marks, his previous marks will be taken into consideration. No candidate will be allowed to improve marks in the Practical, Project, Viva-voce, and Field work.

16. CONDONATION

Students must have 75% of attendance in each paper for appearing the examination. Students who have 74% to 70% of attendance shall apply for condonation in the prescribed form with the prescribed fee Rs. 200/-. Students who have 69% to 60% of attendance shall apply for condonation in prescribed form with the prescribed fee along with the Medical Certificate. Students who have below 60% of attendance are not eligible to appear for the examination. They shall re-do the semester(s) after completion of the programme.

17. RETOTALING

Candidates are permitted to apply for retotaling within 10 days from the date of publication of results. The student should submit request for retotaling in the prescribed format and pay a fee of Rs.100/-.

18. PHOTOCOPY OF ANSWER SCRIPT

Candidates are permitted to apply for obtaining a photocopy of answer paper within 20 days from the date of publication of results. The student should submit request for photocopy of answer script in the prescribed format.

19. REVALUATION

Candidates are permitted to apply for revaluation after obtaining a photocopy of answer paper within 30 days from the date of publication of results. The student should submit request for revaluation in the prescribed format and pay a fee of Rs.500/- per paper.

20. MALPRACTICE

Any malpractice by the students debars them from subsequent appearance based on the decision of the examination committee. In all cases of malpractice their conduct certificates will indicate malpractice.

21. EVALUATION AND GRADING SYSTEM

The performance of a student in each paper is evaluated in terms of percentage of marks with a provision for conversion to grade points (GP). Evaluation for each paper shall be done by a continuous internal assessment by the concerned paper teacher as well as by an end semester examination and will be consolidated at the end of the course.

The term grading system indicates a Ten Point Scale of evaluation of the performances of students in terms of marks obtained in the Internal and External Examination, grade points and letter grade.

Once the marks of the Internal and end-semester examinations for each of the papers are available, they will be added. The marks thus obtained will then be graded as per details provided in Table.

The sum of total performance in each semester will be rated by **Grade Point Average (GPA)** while the continuous performance from the second semester onwards will be marked by **Cumulative Grade Point Average (CGPA)**. These two are calculated by the following formulae.

$$\text{GPA} = \frac{\text{Sum of [Credits acquired x Grade points]}}{\text{Sum of Credits acquired}}$$

For the calculation of Grade Point Average (GPA), G_i is the grade point awarded; C_i is the credit units earned for the i th paper.

$$\text{CGPA} = \frac{\sum_{i=1}^n C_i GP_i}{\sum_{i=1}^n C_i}$$

where 'Ci' is the Credit earned for the paper i in any semester ; 'Gi' is the Grade Point obtained by the student for the paper i and 'n' is the number of papers **passed** in that or **CGPA = GPA** of all the papers starting from the first semester to the current semester.

Note: The GPA and CGPA shall be calculated separately for the following five parts:

Part I: Language Course; Part II: English Language Course and Part III: Core Cs, Allied Cs, Part IV: NME, SBC, ES, VE, Part V: Extension activities.

Marks	Grade Point	CGPA	Letter Point	Classification of Final Result
96 and above	10	9.51 and above	S ⁺	First Class with Exemplary
91 – 95	9.5	9.01 – 9.50	S	
86 – 90	9.0	8.51 – 9.00	D ⁺⁺	First Class with Distinction
81 – 85	8.5	8.01 – 8.50	D ⁺	
76 – 80	8.0	7.51 – 8.00	D	
71 – 75	7.5	7.01 – 7.50	A ⁺⁺	First Class
66 – 70	7.0	6.51 – 7.00	A ⁺	
61 – 65	6.5	6.01 – 6.50	A	
56 – 60	6.0	5.51 – 6.00	B ⁺	Second Class
51 – 55	5.5	5.01 – 5.50	B	
46 – 50	5.0	4.51 – 5.00	C ⁺	Third Class
40 – 45	4.5	4.00 – 4.50	C	
Below 40	0	Below 4.00	F	Fail

The grade card / mark sheet issued at the end of the semester to each student will contain the following:

- the marks obtained for each paper registered in the semester
- the credits earned for each paper registered for that semester
- the performance in each paper by the letter grade point obtained
- the Grade Point Average (GPA) of all the papers registered for that semester and
- from the second semester onwards, the Cumulative Grade Point Average (CGPA) of all the papers and
- the class and grade of the student in the final CGPA

22. TRANSITORY PROVISION

Candidates who have undergone the course of study prior to the academic year 2015-2016 will be permitted to appear for the examinations under those Regulations for a period of TWO years i.e. upto and inclusive of April - May 2017 Examinations. Thereafter, they will be permitted to appear for the examination only under the Regulations then in force.

23. INSTANT EXAMINATION

Candidates who have passed all the theory papers upto 5th semester and failed in only one paper pertaining to the 6th semester can apply for Instant Examination. Application form with a demand draft for Rs.300/-, drawn in favour of “The Principal, Sri Sankara Arts and Science College, Enathur” should be submitted on or before 10 days after the publication of results. The results are published within 15 days after the date of examinations.

B.C.A Syllabus

First Semester :

Course components	Name of Course	semester	credits	Exam Duration	Max. Marks	
					CIA	UE
PART I	Tamil / Sanskrit	I	3	3	25	75
PART II	English	I	3	3	25	75
PART III	Allied Maths -I	I	5	3	25	75
PART III	Fundamentals of Digital Computers	I	4	3	25	75
PART III	PC Software Lab	I	3	3	40	60
PART IV	Soft Skill 1	I	3	2	50	50
PART IV	Non-Major Elective - I	I	2	2	25	75

Second Semester

Course components	Name of Course	semester	credits	Exam Duration	Max. Marks	
					CIA	UE
PART I	Tamil / Sanskrit	II	3	3	25	75
PART II	English	II	3	3	25	75
PART III	Allied Maths -II	II	5	3	25	75
PART III	Programming in C	II	4	3	25	75
PART III	Programming in C Lab	II	3	3	40	60
PART IV	Non-Major Elective -Lab	II	2	2	40	60
PART IV	Softskill – II	II	3	2	50	50

Third Semester

Course components	Name of Course	semester	credits	Exam Duration	Max. Marks	
					CIA	UE
PART III	Programming in C++ with Data Structure	III	4	3	25	75
PART III	Microprocessor And its Applications	III	4	3	25	75
PART III	Allied - Financial accounting	III	5	3	25	75
PART III	Numerical Methods and Statistics	III	4	3	25	75
PART III	Programming in C++ with data structure LAB	III	3	3	40	60
PART IV	ENVIRONMENTAL STUDIES	III	2	3	25	75
PART IV	Soft skill - 3	III	3	2	50	50

Fourth Semester

Course components	Name of Course	semester	credits	Exam Duration	Max. Marks	
					CIA	UE
PART III	Programming in Java	IV	4	3	25	75
PART III	Allied - Cost Account Management	IV	5	3	25	75
PART III	Operating System	IV	4	3	25	75
PART III	Computer Graphics And Multi Media	IV	4	3	25	75
PART III	Java Programming Lab	IV	3	3	40	60
PART IV	Soft skill - 4	IV	3	2	50	50
PART IV	Value Education	IV	2	2	25	75

Fifth Semester

Course components	Name of Course	semester	credits	Exam Duration	Max. Marks	
					CIA	UE
PART III	Elective – I	V	5	3	25	75
PART III	Relational Database Management System	V	4	3	25	75
PART III	Computer Networks	V	4	3	25	75
PART III	Resource Management Technique	V	3	3	25	75
PART III	Visual Programming Lab	V	3	3	40	60

Sixth Semester

Course components	Name of Course	semester	credits	Exam Duration	Max. Marks	
					CIA	UE
PART III	Network Programming	VI	4	3	25	75
PART III	Software Engineering	V	3	3	25	75
PART III	Web Technology	VI	4	3	25	75
PART III	Elective - II	VI	5	3	25	75
PART III	Elective – III	VI	5	3	25	75
PART III	Web Applications Lab	VI	3	3	40	60
PART V	Extension Activities		1			

Elective - I

UNIX Programming

Visual Programming

Software Project Management

ELECTIVE – II

1. System Software
2. E-Commerce
3. Data Mining

ELECTIVE – III

1. Digital Image Processing
2. Object Oriented Analysis and Design.
3. Software Testing

Non –Major Elective: Semester - I

1. HTML
2. FLASH
3. MS ACCESS

Non –Major Elective: Semester - II

1. HTML - LAB
2. FLASH - LAB
3. MS ACCESS -LAB

First Semester

Core Paper Theory - 1			
Title of the paper with subject code	Fundamentals Of Digital Computers		
Category of the course	Year	Semester	Credits
Core	I	I	4

OBJECTIVES:

This course introduces the concepts of fundamentals of Digital Electronics.

UNIT - 1 Fundamentals of computers – Characteristics of computers – Computer Language – Operating Systems – Generation of Computers.

UNIT - 2 Number systems - Conversion from one number system to another - compliments - Binary codes - Binary logic - Logic gates - Truth tables.

UNIT - 3 Boolean Algebra - Axioms - Truth table simplification of Boolean function - map method (upto 5 Variables) - Mc-Clausky tabulation method- Don't care condition

UNIT - 4 Sequential logic – RS, JK, D and T Flip flops - Registers –Shift Registers - Counters – Ripple Counters – Synchronous Counter – Design of Counters

UNIT - 5 Adders – Subtractors – Decoders – Encoders – Multiplexer - Demultiplexer – Design of Circuits using decoders/Multiplexers – ROM – PLA – Designing circuits using ROM/PLA

RECOMMENDED TEXTBOOK

1. M.M. Mano, 2005 Digital Logic and Computer Design, Pearson Education .
2. V.Rajaraman,2002, Fundamentals of Computers, Third Edition,PHI, New Delhi.
3. V. Vijayendran,2004,Digital Fundamentals,S. Viswanathan (Printers & Publishers) Pvt. Ltd.

REFERENCE BOOKS

1. T.C.Bartee,Computer Architecture and logical Design, McGraw Hill.
2. D. P. Leach and A. P. Malvino,2002,Digital Principles and Applications,5th Edition, Tata McGraw, Hill Publishing Co. Ltd.
3. Boyce, Jefferson C. Digital computer fundamentals. Prentice Hall PTR.

Core Practical - 1			
Title of the paper with subject code	Pc – Software Lab		
Category of the course	Year	Semester	Credits
Core	I	I	3

MSWORD

1. Text Manipulations.
2. Usage of Numbering, Bullets, Footer and Headers.
3. Usage of Spell check, and Find & Replace.
4. Text Formatting.
5. Picture insertion and alignment.
6. Creation of documents, using templates.
7. Creation templates
8. Mail Merge Concepts
9. Copying Text & Pictures from Excel

MS-EXCEL

10. Cell Editing
11. Usage of Formulae and Built-in Functions
12. File Manipulations
13. Data Sorting (both number and alphabets)
14. Worksheet Preparation
15. Drawing Graphs
16. Usage of Auto Formatting

POWER POINT

17. Inserting Clip arts and Pictures
18. Frame movements of the above
19. Insertion of new slides
20. Preparation of Organisation Charts
21. Presentation using Wizards
22. Usage of design templates

ACCESS

23. Creation of student database
24. Creation of employee database

Second Semester :

Core Paper Theory - 2			
Title of the paper with subject code	Programming In C		
Category of the course	Year	Semester	Credits
Core	I	II	4

OBJECTIVE:

The objective of this course is to help the students in finding solutions to various real life problems and converting the solutions into computer program using C language (structured programming). Students will learn to write algorithm for solutions to various real-life problems. Converting the algorithms into computer programs using C language.

UNIT 1 Fundamentals of C: I/O statements, Assignment Statements, Constants, Variables, Operators and Expressions, Standards and Formatted statements, Keywords, Data Types and Identifiers.

UNIT 2 Control Structures: Introduction, Decision making with if – statement, if-else and Nested if, while and do-while, for loop. Jump statements: break, continue, goto, switch Statement.

UNIT 3 Functions: Introduction to Functions, Function Declaration, Function Categories, Standard Functions, Parameters and Parameter Passing, Call – by value/reference, Recursion, Global and Local Variables, Storage classes. **Arrays:** Introduction to Arrays, Array Declaration, Single and Multidimensional Array, Memory Representation, Matrices, Strings, String handling functions.

UNIT 4 Structure and Union: Declaration of structure, Accessing structure members, Structure Initialization, Arrays of structure, nested structures, Unions. **Pointers:** Introduction to Pointers, Address operator and pointers, Declaring and Initializing pointers, Assignment through pointers, Pointers and Arrays

UNIT 5 Files: Introduction, Creating a data file, opening and closing a data file, processing a data file. Preprocessor Directives: Introduction and Use, Macros, Conditional Preprocessors, Header Files

RECOMMENDED TEXTS

1. Let us C, Yashvant P Kanetkar, 14th Edition, BPB Publications, New Delhi.
2. Programming in ANSI C, E. Balagurusami, Fifth Edition, 2011 Tata McGraw Hill
3. Programming in C, Byron S. Gottfried, Second Edition, McGraw Hills.

REFERENCE BOOKS

1. The C Programming Language, Kernighan & Richie, Second Edition, PHI Publication
2. Object Oriented Programming, Lafore R, Third Edition, Galgotia Publications
3. D. Ravichandran, Programming in C, New Age International (P) Ltd., 2009.

Core Practical - 2			
Title of the paper with subject code	C Programming Lab		
Category of the course	Year	Semester	Credits
Core	I	II	3

I BASIC PROGRAM

1. Area of rectangle, square and triangle
2. Odd or even of a given number
3. Simple interest and compound interest
4. Sum of digits of a given number

II SUMMATION OF SERIES

5. Sin(x),
6. Cos(x),
7. Exp(x) (Comparison with built in functions)

III STRING MANIPULATION

8. Counting the no. of vowels, consonants, words, white spaces in a line of text and array of lines
9. Reverse a string & check for palindrome.
10. Substring detection, count and removal
11. Finding and replacing substrings

IV RECURSION

12. n Pr, nCr
13. GCD of two numbers
14. Fibonacci sequence
15. Maximum & Minimum
16. Towers of Hanoi.

V MATRIX MANIPULATION

17. Addition & Subtraction
18. Multiplication
19. Transpose, and trace of a matrix
20. Determinant of a Matrix
21. Inverse of Matrix

VI SORTING AND SEARCHING

22. Insertion Sort
23. Bubble Sort

- 24. Linear Search
- 25. Binary Search
- VII FILES**
- 26. Mark Sheet using files.
- 27. Payroll
- 28. Electricity bill

Third Semester

Core Paper Theory - 3			
Title of the paper with subject code	Programming In C++ and Data Structures		
Category of the course	Year	Semester	Credits
Core	II	III	4

OBJECTIVE :

This course introduces the basic concepts of programming in C++ and Data Structures

UNIT - 1 Introduction to C++; Principles of Object Oriented Programming: Software Crisis - software evolution - procedure oriented programming - object oriented programming paradigm - basic concepts and benefits of OOP - object oriented language - application of OOP - structure of C++ - applications of C++ ; Tokens, Keywords, Identifiers, Variables, Operators, Manipulators, Expressions and Control Structures in C++; Pointers - Functions in C++ - Main Function - Function Prototyping - Parameters Passing in Functions - Values Return by Functions - Inline Functions - Friend and Virtual Functions

UNIT - 2 Classes and Objects; Constructors and Destructors; and Operator Overloading and Type Conversions - Type of Constructors - Function overloading. Inheritance : Single Inheritance - Multilevel Inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance. Pointers, Virtual Functions and Polymorphism; Managing Console I/O operations.

UNIT - 3: Working with Files: Classes for File Stream Operations - Opening and Closing a File - End-of-File Deduction - File Pointers - Updating a File - Error Handling during File Operations - Command-line Arguments. Data Structures: Definition of a Data structure - primitive and composite Data Types, Asymptotic notations, Arrays, Operations on Arrays, Order lists.

UNIT - 4: Stacks - Applications of Stack - Infix to Postfix Conversion, Recursion, Maze Problems - Queues - Operations on Queues, Queue Applications, Circular Queue. Singly Linked List - Operations, Application - Representation of a Polynomial, Polynomial Addition; Doubly Linked List - Operations, Applications.

UNIT - 5: Trees and Graphs: Binary Trees - Conversion of Forest to Binary Tree, Operations - Tree Traversals; Graph - Definition, Types of Graphs, Hashing Tables and Hashing Functions, Traversal - Shortest Path; Dijkstra's Algorithm.AVL tree –B tree

RECOMMENDED TEXTS

- i. E. Balagurusamy, Object Oriented Programming with C++, Tata McGraw-Hill Publishing Company Ltd. -6th Edition
- ii. E.Horowitz and S.Shani,2012,Fundamentals of Data Structures in C++ , Galgotia Pub.2 nd Edition
- iii. H.Schildt, C++,The Complete Reference-TMH Edition, - 4th Edition-2003

REFERENCE BOOKS

- i. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia publication.
- ii. R. Kruse C.L. Tondo and B. Leung ,1997, Data Structures and Program design in C, PHI.2nd Edition
- iii. Cangsam,Auguenstein,Tenenbaum,Data Structures using C & C++,PHI
- iv. D.Samantha,2005, Classic Data Structures, PHI,New Delhi.

Core Paper Theory - 4			
Title of the paper with subject code	Microprocessor & its Applications		
Category of the course	Year	Semester	Credits
Core	II	III	4

OBJECTIVE :

This course introduces the concepts of fundamentals of Microprocessor.

UNIT – 1 Introduction to micro computers, microprocessors and assembly languages – micro processor architecture and its operations – 8085 MPU – 8085 instruction set and classifications

UNIT – 2 Writing assembly levels programs – programming techniques such as looping, counting and indexing addressing nodes – data transfer instructions – arithmetic and logic operations – dynamic debugging.

UNIT - 3 Counters and time delays – hexadecimal counter modulo10 counter – pulse timings for flashing lights – debugging counter and time delay program – stack – subroutine – conditional call and return instructions.

UNIT - 4 BCD to binary and binary to BCD conversions – BCD to HEX and HEX to BCD conversions – ASCII to BCD and BCD to ASCII conversions – BCD to seven segment LED code conversions – binary to ASCII and ASCII to binary conversions – multi byte addition – multi byte subtraction – BCD addition – BCD subtraction – multiplication and division.

UNIT – 5 Interrupt – implementing interrupts – multiple interrupt 8085 – trap – problems on implementing 8085 interrupt – DMA memory interfaces – RAM & ROM – I/O interface – direct I/O memory trapped I/O.

BOOKS FOR STUDY:

1. R S Gaonkar – Microprocessor architecture – Programming and application with 8085/8080A – Wiley Eastern Limited – 4th Edition
2. A Mathur – Introduction to Microprocessor – III Edition – Tata McGraw Hill Publishing Co. Ltd.
3. N. K. Srinath, 2005, 8085 Microprocessor Programming and Interfacing, Prentice-Hall of India Pvt. Ltd.

REFERENCE BOOKS

1. V. Vijayendran, 2004, Fundamentals of Microprocessor – 8085, S. Viswanathan (Printers & Publishers) Pvt. Ltd.
2. Ramesh S. Gaonkar, Microprocessor Architecture, Programming, and Applications with the 8085, 5th Edition, Penram International Publishing (India) Pvt. Ltd.

Core Practical - 3			
Title of the paper with subject code	Programming In C++ With Data Structure Lab		
Category of the course	Year	Semester	Credits
Core	II	III	3

1. Operator overloading (Unary and Binary).
2. Class and All types of Constructors.
3. Static function and Array of objects with static data.
4. Friend function and Friend class.
5. Single and Multilevel inheritance
6. Implementing derived class constructors.
7. Implement PUSH, POP operations of stack using Arrays.
8. Implement PUSH, POP operations of stack using Pointers.
9. Implement add, delete operations of a queue using Arrays.
10. Implement add, delete operations of a queue using Pointers.
11. Conversion of infix to postfix using stack operations
12. Postfix Expression Evaluation.
13. Addition of two polynomials using Arrays and Pointers.
14. Creation, insertion, and deletion in doubly linked list.
15. Binary tree traversals (in-order, pre-order, and post-order) using linked list.
16. Depth First Search and Breadth first Search for Graphs using Recursion.

Fourth Semester

Core Paper Theory - 5			
Title of the paper with subject code	Programming in Java		
Category of the course	Year	Semester	Credits
Core	II	IV	4

UNIT - 1 Introduction to Java-Features of Java-Basic Concepts of Object Oriented Programming-Java Tokens-Java Statements-Constants-Variables-Data Types- Type Casting-Operators-Expressions-Control Statements: Branching and Looping Statements.

UNIT-2 Classes, Objects and Methods-Constructors-Methods Overloading-Inheritance-Overriding Methods-Finalizer and Abstract Methods-Visibility Control –Arrays, Strings and Vectors-String Buffer Class-Wrapper Classes.

UNIT –3 Interfaces-Packages-Creating Packages-Accessing a Package-Multithreaded Programming-Creating Threads-Stopping and Blocking a Thread-Life Cycle of a Thread-Using Thread Methods-Thread Priority-Synchronization-Implementing the Runnable Interface .

UNIT- 4 Managing Errors and Exceptions-Syntax of Exception Handling Code-Using Finally Statement-Throwing Our Own Exceptions- Managing Input/Output Files: Concept of Streams-Stream Classes-Byte Stream Classes-Character Stream Classes – Using Streams-Using the File Class-Creation of Files-Random Access Files-Other Stream Classes.

UNIT 5: Network basics –socket programming – proxy servers – TCP/IP – Net Address – URL – Introducing the AWT: Working with Windows, Graphics and Text- AWT Classes- Working with Frames-Working with Graphics-Working with Color-Working with Fonts-Using AWT Controls, Layout Managers and Datagrams -Java Utility Classes - Menus.

TEXT BOOKS:

- i. E. Balagurusamy,2014,Programming with JAVA, 5th Edition,Tata McGraw-Hill Publishing Co.Ltd.
- ii. Herbert Schildt,2014,The Complete Reference Java™ 2, 9th Edition,Tata McGraw-Hill Publishing Co. Ltd.
- iii. Y. Daniel Liang ,2003, An Introduction to JAVA Programming, Prentice-Hall of India Pvt. Ltd.

REFERENCE BOOKS

- i. Cay S. Horstmann and Gary Cornell,2005, Core Java™2 Volume I-Fundamentals, 7th Edition- Pearson Education.
- ii. Ken Arnold, James Gosling and David Holmes,2003, The Java™ Programming Language, 3rd Edition, Pearson Education.
- iii. Deitel, Paul, and Harvey Deitel. Java how to program. Prentice Hall Press, 2011.

Core Paper Theory - 6			
Title of the paper with subject code	Operating Systems		
Category of the course	Year	Semester	Credits
Core	II	IV	4

OBJECTIVE

To provide fundamental concepts of all managements in an Operating System.

UNIT – 1 : Evolution of Operating System – Basic Concepts & Terminology – Operating System as Resource Manager – Views of Operating System – Types of Operating System – I/O Programming – Interrupt Structure & Processing: – Interrupt Types – Interrupt Mechanism – Interrupt Handler Processing.

UNIT – 2 : Single Contiguous Allocation – Example of Multiprogramming – Partitioned Memory Management – Paged Memory Management – Demand-Paged Memory Management –Segmented Memory Management – Segmented and Demand Paged Memory Management – Swapping and Overlays.

UNIT – 3: Job Scheduling – Process Scheduling: Functions – Policies – Multiprocessor Systems – Process Synchronization – Deadlock – Avoidance – Prevention – Detection and Recovery – Banker’s Algorithm – Mutual Exclusion – Semaphore Mechanism.

UNIT–4: Techniques for Device Management – Device Characteristics – Hardware Considerations – Channels – Control Units – I/O Traffic Controller – I/O Scheduler, I/O Device Handler.

UNIT – 5: Simple File System – General Model of a File System – Logical File System – Physical File System – Security Threats and Goals – Security Policies and Mechanisms – Case Studies: MS-DOS & UNIX (Commands , System Calls & Implementation).

TEXT BOOKS:

- i. Stuart E. Madnick & John J. Donovan, Operating Systems, TMH, Seventh Reprint, 2008.
- ii. H.M. Deitel, An Introduction to Operating Systems, Addison Wesley Publishing Company, Second Edition, 1990.
- iii. William Stallings, Operating Systems, PHI, Second Edition, 2001

REFERENCE BOOK:

- i. Stallings, William. Operating Systems: Internals and Design Principles| Edition: 8. Pearson, 2014.
- ii. Dhamdhare, Dhananjay M. Operating Systems: A Concept-based Approach, 2E. Tata McGraw-Hill Education, 2006.

- iii. Tanenbaum, Andrew S., and Herbert Bos. Modern operating systems. Prentice Hall Press, 2014.
- iv. A.S. Godbole – Operating Systems – Tata McGraw Hill – 3rd Edition

Core Paper Theory - 7			
Title of the paper with subject code	Computer Graphics and Multimedia		
Category of the course	Year	Semester	Credits
Core	II	IV	4

UNIT - 1 Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

UNIT - 2 2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. 2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations.

UNIT – 3 Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats. Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

UNIT - 4 Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission– Audio File formats and CODECs – Audio Recording Systems – Audio and Multimedia –Voice Recognition and Response - Audio Processing Software.

UNIT - 5 Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing – Video Editing Software. Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. Compression: MPEG-1 Audio – MPEG-1 Video - MPEG-2Audio – MPEG-2 Video.

BOOK FOR STUDY:

1. Donald Hearn, M.Pauline Baker, “Computer Graphics” , 2nd edition, PHI.
2. Ranjan Parekh, “Principles of Multimedia” , 2007, TMH
3. D.P. Mukherjee ,1999,Fundamentals of Computer Graphics and Multimedia , 1st Edition,Prentice-Hall of India Pvt. Ltd

REFERENCES:

1. D.P.Mukherjee, Fundamentals of Computer Graphics and Multimedia, 1st Edition, Prentice-Hall of India Pvt. Ltd.
2. Amarendra N Sinha, Arun D Udai, "Computer Graphics", TMH.
3. Tay Vaughan, "Multimedia: Making it Work", 7th edition, TMH.

Core Practical Paper – 4			
Title of the paper with subject code	Programming in Java Lab		
Category of the course	Year	Semester	Credits
Core	III	IV	3

APPLICATIONS:

1. Sort the given numbers using arrays.
2. Implement the FIND and REPLACE operations in the given multiple text
3. Find the student's percentage and grade using command line arguments.
4. Substring Removal from a String. Use String Buffer Class.
5. Determining the Perimeter and Area of a Triangle. Use Stream Class.
6. Determining the Order of Numbers Generated randomly using Random Class.
7. Usage of Calendar Class and Manipulation.
8. Implementation of Point Class for Image Manipulation.
9. String Manipulation Using Char Array.
10. Database Creation for Storing E-mail Addresses and Manipulation.
11. Usage of Vector Classes.
12. Interfaces and Packages
13. Implementing Thread based Applications and Exception Handling.
14. Application using Synchronization such as Thread based, Class based and Synchronized Statements.
15. Textiles (copy, display, counting characters, words and lines)
16. Data file creating and processing for electricity billing.
17. Data file creating and processing for telephone billing

APPLETS:

18. Working with Frames and Various Controls.
19. Working with Dialog Box and Menus.
20. Working with Colors and Fonts.
21. Drawing various shapes using Graphical statements.
22. Working with panel and all types of Layout.
23. Design a simple calculator with minimal of 10 operations
24. Usage of buttons, labels, text components in suitable application
25. Usage of Radio buttons, check box, choice list in suitable application.
26. Develop an applet to play multiple audio clips using multithreading.

Fifth Semester

Elective Paper Theory - 8			
Title of the paper with subject code	UNIX Programming		
Category of the course	Year	Semester	Credits
Elective	III	V	4

Unit 1: INTRODUCTION: File and common commands - Shell - More about files - Directories- Unix system - Basics of file Directories and filenames - Permissions - modes - Directory hierarchy - Devices - the grep family - Other filters - the stream editor sed - the awk pattern scanning and processing language - files and good filters.

Unit-2: CONCEPTS OF SHELL: Command line structure - Metacharacters - Creating new commands - Command arguments and parameters - program output as arguments - Shell variables - More on I/O redirection - loop in shell programs - Bundle - Setting shell attributes, Shift command line parameters - Exiting a command or the shell, evaluating arguments - Executing command without invoking a new process - Trapping exit codes -- Conditional expressions.

Unit 3: SHELL PROGRAMMING: Customizing the cal command, Functions of command, While and Until loops - Traps - Catching interrupts - Replacing a file - Overwrite - Zap - Pick command - News command - Get and Put tracking file changes.

Unit-4: FEATURES IN UNIX: Standard input and output - Program arguments - file access - A screen at a time printer - On bugs and debugging - Examples - Zap - pick - Interactive file comparison program - Accessing the environment - Unix system calls - Low level I/O, File system Directories and modes, Processors, Signal and Interrupts

Unit-5 : PROGRAM DEVELOPMENT AND DOCUMENT PREPARATION: Program development - Four function calculator - Variables and error recovery - Arbitrary variable names, Built in functions, Compilation into a machine, Control flow and relational operators, Functions and procedures - Performance evaluation - Ms macro package - Troff level - Tbl and eqn preprocessors - Manual page - Other document preparation.

1. Recommended Texts

1. Brian W. Kernighan, Rob Pike - The UNIX Programming Environment - Prentice Hall of India(1984).

2. Reference Books

1. Steven Earhart - The UNIX System for MSDOS Users - Galgotia book source P. Ltd. (1990).
2. Stefen Prata - Advanced UNIX - A Programmer Guide.

Elective Paper Theory - 9			
Title of the paper with subject code	Visual Programming		
Category of the course	Year	Semester	Credits
Elective	III	V	4

UNIT – 1 Introduction to Windows , GUI concept, Concept of Event driven programming, The Visual Basic IDE(5.50) ,Types of Visual Basic Projects, Visual Basic Editions, The Visual Basic Project Lifecycle, Project Files. Customizing a Form - Writing Simple Programs - Toolbox - Creating Controls - Name Property - Command Button - Access Keys - Image Controls - Text Boxes - Labels - Message Boxes - Grid - Editing Tools - Variables - Data Types - String - Numbers.

UNIT - 2 Displaying Information - Determinate Loops - Indeterminate Loops - Conditionals - Built-in Functions - Functions and Procedures.

UNIT - 3 Lists - Arrays - Sorting and Searching - Records - Control Arrays - Combo Boxes - Grid Control - Projects with Multiple forms - DoEvents and Sub Main - Error Trapping.

UNIT - 4 VB Objects - Dialog Boxes - Common Controls - Menus - MDI Forms - Testing, Debugging and Optimization - Working with Graphics.

UNIT - 5 Monitoring Mouse activity - File Handling - File System Controls - File System Objects - COM/OLE - automation - DLL Servers - OLE Drag and Drop.

RECOMMENDED TEXT BOOK

1. Gary Cornell - Visual Basic 6 from the Ground up - Tata McGraw Hill - 1999.
2. Noel Jerke - Visual Basic 6 (The Complete Reference) - Tata McGraw Hill – 1999
3. Steven, Holzner. "Visual Basic 6.0 Programming Black Book." (2007).

Elective Paper Theory - 10			
Title of the paper with subject code	Software Project Management		
Category of the course	Year	Semester	Credits
Elective	III	V	5

OBJECTIVE

To provide knowledge of the software project management concepts in detail study.

UNIT 1: Introduction to software project management Project: Definition – Contract Management – Activities Covered By Software Project Management - Overview Of Project Planning – Stepwise Project Planning.

UNIT 2: Project Evaluation : Strategic Assessment – Technical Assessment – Cost Benefit Analysis–Cash Flow Forecasting – Cost Benefit Evaluation Techniques – Risk Evaluation.

UNIT 3 :Software Development Life Cycle PlanIntroduction of SDLC, its importance and selection.. Project Schedule – Sequencing and Scheduling Activities –Network Planning Models – Forward Pass – Backward Pass – Activity Float – Shortening Project Duration – Activity on Arrow Networks Resource planning: Manpower planning and financial planning and other resources planning.

UNIT 4 : Risk Management – Nature Of Risk – Types Of Risk – Managing Risk – Hazard Identification – Hazard Analysis – Risk Planning And Control. Creating Framework – Collecting The Data – Visualizing Progress – Cost Monitoring –Earned Value – Prioritizing Monitoring – Getting Project Back To Target

UNIT 5 : Understanding Behavior Instruction In The Best Methods – Motivation – The Oldman – Hackman Job Characteristics Model – Working In Groups – Becoming A Team –Decision Making – Leadership – Organizational Structures – Stress –Health And Safety .

TEXT BOOK:

1. Bob Hughes, Mikecoterrell, “Software Project Management”, Third Edition, Tata McGraw Hill, 2004.

REFERENCES:

1. Ramesh, Gopaldaswamy, "Managing Global Projects", Tata McGraw Hill, 2001.
2. Royce, “Software Project Management”, Pearson Education.
3. Jalote, “Software Project Manangement in Practive”, Pearson Education, 2002.

Core Paper Theory - 11			
Title of the paper with subject code	Relational Database Management Systems		
Category of the course	Year	Semester	Credits
Core	III	V	4

OBJECTIVE:

To gain knowledge about the DML, DDL operations and to develop a Database with enhanced models and Techniques and to understand about RDBMS, Object oriented Databases and issues.

UNIT – 1 Database management system: data basics and definitions – schemas and sub schemas tree and plex structures – file addressing – searching – type of database languages. Entity relationship model: entities and entity sets relationships – mapping constraints – E-R.Diagram

UNIT – 2 Relational database management system: relational model – normalization and denormalization – relational structures – relational operators – relational database server architectures – online transaction procession (OLTP) – twelve rules (Codd’s rules) – SQL – indexing – optimization – transaction management – locking – access control – data integrity – auditing – backup and recovery – data dictionaries.

UNIT – 3 Oracle SQL: DDL, DML & TCL operations – integrity constraints – string functions – number functions – data arithmetic – conservation and transformation functions – pseudo columns – grouping and ordering data – sub queries – joins – union, intersect & minus – indexes – clusters – views – sequences – synonym – users, roles and privileges – grant and revoke permission – locks.

UNIT – 4 PL/Sql: PL/Sql structure – conditional and unconditional controls – loops – cursors – exceptions – stored procedures and functions – database triggers, Packages, SQL Loader.

UNIT – 5 Front-end tools: SQL *plus – building a report in Sql, why front-end tools? Introduction to front-end – introduction to ODBC.

TEXT BOOKS:

1. James Martin , “Principles of database management”
2. Henry F. Korth & Abraham Silberschatz “Database system concepts”
3. A.J. Page “Relational database concepts selection and implementation”
4. George Koch & Kevin loney, “Oracle the complete reference”
5. Oracle Developer 2000” by Ivan Bayross

REFERENCE BOOKS

1. C.J.Date, “An introduction to database system”
2. Jeffrey D. Ullman, “Principles of database system”
3. Introduction to Oracle”, Oracle Corporation Press.
4. Introduction to PL/SQL”, Oracle Corporation Press.

Core Paper Theory - 12			
Title of the paper with subject code	Computer Networks		
Category of the course	Year	Semester	Credits
Core	III	V	4

UNIT - 1 Introduction – Network Hardware – Software – Reference Models – OSI and TCP/IP models – Example networks: Internet, ATM, Ethernet and Wireless LANs - Physical layer - guided transmission media

UNIT - 2 Wireless transmission - Communication Satellites – Telephones structure –local loop, trunks and multiplexing, switching. Data link layer: Design issues – error detection and correction.

UNIT - 3 Elementary data link protocols - sliding window protocols – Data Link Layer in the Internet - Medium Access Layer – Channel Allocation Problem – Multiple Access Protocols.

UNIT - 4 Network layer - design issues - Routing algorithms - Congestion control algorithms – IP protocol – IP Address – Internet Control Protocol.

UNIT - 5 Transport layer - design issues - Connection management - Addressing, Establishing & Releasing a connection – Simple Transport Protocol – Internet Transport Protocol (TCP).

RECOMMENDED TEXTS

- (i) A. S.Tanenbaum, 2003, Computer Networks, Fourth Edition, - Pearson Education, Inc, (Prentice hall of India Ltd), Delhi.
- (ii) B. Forouzan, 1998, Introduction to Data Communications in Networking, Tata McGraw Hill, New Delhi.
- (iii) F. Halsall, 1995, Data Communications, Computer Networks and Open Systems, Addison Wesley.

REFERENCE BOOKS

- (i) D. Bertsekas and R. Gallager, 1992, Data Networks, Prentice hall of India, New Delhi. Lamarca, 2002, Communication Networks, Tata McGraw Hill, New Delhi.
- (ii) Lamarca, 2002, Communication Networks, Tata McGraw Hill, New Delhi.
- (iii) Larry L. Peterson & Bruce S. Davie, "Computer Networks - A systems Approach", 2nd Edition, Harcourt Asia/Morgan Kaufmann, 2000.
- (iv) Behrouz A. Forouzan, *Data Communications and Networking*, Tata McGraw-Hill, Second Edition, 2003

Core Practical Paper – 5			
Title of the paper with subject code	RDBMS Lab		
Category of the course	Year	Semester	Credits
Core	III	V	3

- 1. Payroll
- 2. Mark sheet Processing
- 3. Savings bank account for banking
- 4. Inventory System
- 5. Invoice system
- 6. Library information system
- 7. Student information system

8. Income tax processing system
9. Electricity bill preparation system
10. Telephone directory maintenance.

Sixth semester

Core Paper Theory - 13			
Title of the paper with subject code	Network Programming		
Category of the course	Year	Semester	Credits
Core	III	VI	4

UNIT - 1 Overview of ActiveX Scripting – Java Scripting- Stand-Alone Scripts- ActiveX Controls- Creating ActiveX Controls.

UNIT - 2 ActiveX Documents- ActiveX Document Architecture- Creating ActiveX Documents.

UNIT - 3 URL Monikers- Hyper linking- Hyperlink Interface- Working with URL Monikers- Overview of ISAPI- ISAPI Extension- ISAPI Filter.

UNIT - 4 Designing IIS Applications - Building IIS Applications- Building Data Driven DHTML Applications.

UNIT - 5 ActiveX Documents - Technology – Migration Wizard- Modifying Code- Launching and Testing Document- Testing the DLL.

BOOKS FOR STUDY

1. John Paul Muller – Visual C++ 5 from the GroundUp- Tata McGraw Hill Edition – 1998 (For first three units)
2. Noel Jerke – Visual Basic 6 (The Complete Reference) – Tata McGraw Hill Edition –1999(For fourth and fifth units)

Core Paper Theory - 14			
Title of the paper with subject code	Software Engineering		
Category of the course	Year	Semester	Credits
Core	III	V	3

UNIT - 1 Introduction to Software Engineering Some definition – Some size factors – Quality and productivity factors – Managerial issue. Planning a Software Project: Defining the problem – Developing a solution strategy – planning the development process – planning an organization structure – other planning activities.

UNIT- 2 Software Cost Estimation: Software – Cost factors – Software cost estimation techniques – specification techniques – level estimation – estimating software maintenance costs. The software requirements specification – formal specification techniques - languages and processors for requirements specification.

UNIT - 3 Software Design: Fundamental Design concepts – Modules and modularizing Criteria – Design Notations – Design Techniques – Detailed Design Consideration – Real time and distributed system design – Test plan – Mile stones walk through and inspection.

UNIT - 4 Implementation issues: Structured Coding techniques – coding style – standards and guidelines – documentation guidelines – type checking – scoping rules – concurrency mechanisms.

UNIT - 5 Quality assurances – walk through and inspection - Static analysis – symbolic exception – Unit testing and debugging – System testing – Formal verification: Enhancing maintainability during development – Managerial aspects of software maintenance – Configuration management – source code metrics – other maintenance tools and techniques.

Recommended Texts

- i. Richard E.Fairly - Software Engineering Concepts - Tata McGraw-Hill book Company.
- ii. Rajib Mall ,2004,Fundamentals of Software Engineering,2nd Edition, PHI.
- iii. R.S.Pressman, Software Engineering – 2014 - 7th Ed., McGraw Hill.

Reference Books

- i. Kotonya, Gerald, and Ian Sommerville. Requirements engineering: processes and techniques. Wiley Publishing, 1998.
- ii. Leach, Ronald J. Introduction to software engineering. CRC Press, 2016.

Core Paper Theory - 15			
Title of the paper with subject code	Web Technology		
Category of the course	Year	Semester	Credits
Core	III	VI	4

UNIT - 1 Introduction to` VBScript - Adding VBScript Code to an HTML Page - VB Script Basics - VBScript Data Types - VBScript Variables - VBScript Constants - VBScript Operators – mathematical- comparison-logical - Using Conditional Statements - Looping Through Code - VBScript Procedures – type casting variables - math functions –date functions – string functions – other functions - VBScript Coding Conventions - Dictionary Object in VBScript - Err Object

UNIT - 2 Introduction to Javascript – Advantages of Javascript – Javascript syntax - Data type – Variable - Array – Operator & Expression – Looping – control structures - Constructor Function – user defined function Dialog Box .

UNIT - 3 Javascript document object model – Introduction – Object in HTML – Event Handling – Window object – Document object – Browser object – Form object – Navigator object – Screen object – Build in object – User defined object – Cookies.

UNIT - 4 ASP.NET Language Structure – Page Structure – Page event , Properties & Compiler Directives . HTML server controls – Anchor, Tables, Forms, Files . Basic Web server Controls – Lable, Text box, Button, Image Links, Check & radio Button, Hyperlink, Data List Web Server Controls – Check box list. Radio button list, Drop down list, List box, Data grid, Repeater.

UNIT - 5 Request and Response Objects, Cookies, Working with Data – OLEDB connection class, command class, transaction class, data adaptor class, data set class. Advanced issues – email, Application issues, working with IIS and page Directives, error handling. Security – Authentication, IP Address, Secure by SSL & Client Certificates

RECOMMENDED TEXT BOOK

- i. I.Bayross, 2000, Web Enable Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI, BPB Publications.
- ii. A.Russell Jones, Mastering Active Server Pages 3, BPB Publications.
- iii. J.Jaworski, 1999, Mastering Javascript, BPB Publications.

REFERENCE BOOKS

- i. Hathleen Kalata, Internet Programming with VBScript and JavaScript, Thomson Learning
- ii. Mike McGrath, XML Harness the Power of XML in easy steps, Dreamtech Publications
- iii. T.A. Powell, 2002, Complete Reference HTML , TMH.
- iv. Powell, Thomas; Schneider, Fritz, JavaScript: The Complete Reference, 2nd edition 2004, TMH

Elective Paper Theory – 16			
Title of the paper with subject code	System Software		
Category of the course	Year	Semester	Credits
Elective	III	VI	5

UNIT - 1 Language Processors: Introduction. **Assembler:**Elements of assembly language programming – simple assembly scheme – pass structure of assembler – design of two phase assembler.

UNIT – 2 Macro and Macro Processor:Macro definition and call – Macro expansion – Nested Macro call – Advanced Macro Facilities.

UNIT – 3 Linker: Relocating and linking concepts – Design of a linker – self relocating program – a linker for MSDOS – linking for overlays

UNIT – 4 Loader: Loader schemes – compile & go loader – general loader schemes – absolute loader – relocating loader – direct linking loader – design of direct linking loader

UNIT - 5 System Software Tools Text editors: Overview of the Editing Process - User Interface – Editor Structure. – InteractiveDebugging systems - Debugging functions and capabilities – Relationship with other parts of thesystem – User-Interface Criteria.

TEXT BOOK

1. Systems Programming by John J Donovan (McGraw-Hill Education)
2. Operating System and System Programming – Dhamdhare (McGraw-Hill Education)

REFERENCE BOOK

1. Beck, Leland L. System software: an introduction to systems programming. Addison-Wesley, 1997.
2. System Software : Nityashri,(McGraw-Hill Education)
3. Hoover, Adam. "System Programming with C and UNIX." Learning 8.9 (2010)

Elective Paper Theory – 17			
Title of the paper with subject code	E-Commerce		
Category of the course	Year	Semester	Credits
Elective	III	VI	5

UNIT - 1 Electronic Commerce and Opportunities : Background The Electronic Commerce Environment – Electronic Marketplace Technologies – Modes of Electronic Commerce: Overview : Electronic Data Interchange.

UNIT - 2 Approaches to Safe Electronic Commerce . Overview – Secure Transport Protocols – Secure Transaction – Secure Electronic Payment Protocol (SEPP) – Secure Electronic Transaction (SET)

UNIT - 3 Certificates for Authentication – Security on Web Servers – Payment Schemes: Internet Monetary Payment and Security Requirements- Payment and purchase order process – Online electronic cash.

UNIT – 4 Internet / Intranet Security Issues and Solutions : The Need for Computer Security – Specific Intruder Approaches – Security Strategies Security Tools – Encryption – Enterprise Networking and Access to the Internet Antivirus Programs.- Security Teams

UNIT - 5 MasterCard/Visa Secure Electronic Transaction : Introduction –Business Requirements – Concepts – payment Processing.E-mail and secure e-mail technologies for Electronic Commerce: Introduction _ The Means of Distribution – A model for Message Handling- MIME, S/MIME, MOSS , MIME and Related Facilities for EDI over the Internet.

Recommended text book:

1. Daniel Minoli & Emma Minoli, “Web Commerce Technology Handbook”. Tata McGraw Hill – 1999.
2. K.Bajaj & D Nag , “E-Commerce”, Tata McGraw Hill.
3. Mamta Bhusry – “E-Commerce”

Reference Book:

1. Ravi Kalakota and Andrew B. Whinston, Eleventh Impression, 2011,, Frontiers of Electronic Commerce, Pearson Education Inc., Delhi.
2. Marilyn Greenstein, Todd M Feinman - Electronic Commerce - Tata McGraw Hill - 2000.

Elective Paper Theory – 18			
Title of the paper with subject code	Data Mining		
Category of the course	Year	Semester	Credits
Elective	III	VI	5

UNIT - 1 Introduction: Data Mining tasks – Data Mining versus Knowledge Discovery in Data bases – Relational databases – Data warehouses – Transactional databases – Object oriented databases – Spatial databases – Temporal databases – Text and Multimedia databases – Heterogeneous databases - Mining Issues – Metrics – Social implications of Data mining.

UNIT - 2 Data Preprocessing: Why preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization.

UNIT - 3 Data Mining Techniques: Association Rule Mining – The apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.

UNIT - 4 Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.

UNIT - 5 Clustering Techniques: cluster Analysis – Clustering Methods – Hierarchical Methods – Density Based Methods – Outlier Analysis – Introduction to Advanced Topics: Web Mining, Spatial Mining and Temporal Mining.

RECOMMENDED TEXTBOOK

- i. J.Han and M. Kamber,2001,Data Mining Concepts and Techniques,Harcourt India Pvt. Ltd - New Delhi.

REFERENCE BOOKS

- i. K.P. Soman , Shyam Diwakar, V.Ajay ,2006, Insight into Data Mining Theory and Practice, Prentice Hall of India Pvt. Ltd - New Delhi.

Elective Paper Theory – 19			
Title of the paper with subject code	Digital Image Processing		
Category of the course	Year	Semester	Credits
Elective	III	VI	5

UNIT - 1 Introduction – steps in image processing, Image acquisition, representation, sampling and quantization, relationship between pixels. – color models – basics of color image processing.

UNIT - 2 Image enhancement in spatial domain – some basic gray level transformations – histogram processing – enhancement using arithmetic , logic operations – basics of spatial filtering and smoothing.

UNIT - 3 Image enhancement in Frequency domain – Introduction to Fourier transform: 1- D, 2 – D DFT and its inverse transform, smoothing and sharpening filters.

UNIT - 4 Image restoration: Model of degradation and restoration process – noise models – restoration in the presence of noise- periodic noise reduction.. Image segmentation: Thresholding and region based segmentation.

UNIT - 5 Image compression: Fundamentals – models – information theory – error free compression –Lossy compression: predictive and transform coding. JPEG standard.

RECOMMENDED TEXTS

1. R.C. Gonzalez, R.E.Woods, 2002, Digital Image processing, 2nd Edition, Pearson Education.
2. Anil K. Jain, 1994, Fundamentals of Digital image Processing, 2nd Edition, Prentice Hall of India, New Delhi.
3. Pratt. W.K., Digital Image Processing, 3rd Edition, John Wiley & Sons.

REFERENCE BOOKS

1. Rosenfled A. & Kak, A.C, 1982, Digital Picture Processing, vol .I & II, Academic Press.

Elective Paper Theory – 20			
Title of the paper with subject code	Object Oriented Analysis and Design		
Category of the course	Year	Semester	Credits
Elective	III	VI	5

UNIT - 1 System Development - Object Basics - Development Life Cycle - Methodologies - Patterns - Frameworks - Unified Approach - UML.

UNIT - 2 Use-Case Models - Object Analysis - Object relations - Attributes - Methods - Class and Object responsibilities - Case Studies.

UNIT - 3 Design Processes - Design Axioms - Class Design - Object Storage - Object Interoperability - Case Studies.

UNIT - 4 User Interface Design - View layer Classes - Micro-Level Processes - View Layer Interface - Case Studies.

UNIT – 5 Quality Assurance Tests - Testing Strategies - Object orientation on testing - Test Cases - test Plans - Continuous testing - Debugging Principles - System Usability - Measuring User Satisfaction - Case Studies.

Books for Study:

1. Ali Bahrami - Object Oriented Systems Development - McGraw Hill International Edition - 1999.
2. Grady Booch- Object Oriented Analysis and design –Addison Wesley.
3. Mala, D. Jeya. Object Oriented Analysis and Design Using UML. Tata McGraw-Hill Education, 2013.

Reference Book:

1. Ramnath, Sarnath, and Brahma Dathan. Object-oriented analysis and design. Springer Science & Business Media, 2010.
2. Kahate, Atul. Object Oriented Analysis & Design. Tata McGraw-Hill Education, 2004.

Core Paper Theory – 21			
Title of the paper with subject code	Software Testing		
Category of the course	Year	Semester	Credits
Elective	III	VI	5

UNIT - 1 Introduction: Purpose – Productivity and Quality in Software – Testing Vs Debugging – Model for Testing – Bugs – Types of Bugs – Testing and Design Style.

UNIT - 2 Flow/Graphs and Path Testing – Achievable paths – Path instrumentation – Application – Transaction Flow Testing Techniques – Data Flow Testing Strategies

UNIT - 3 Domain Testing: Domains and Paths – Domains and Interface Testing – Linguistic – Metrics – Structural Metric – Path Products and Path Expressions.

UNIT - 4 Syntax Testing – Formats – Test Cases – Logic Based Testing – Decision Tables – Transition Testing – States, State Graph, State Testing.

UNIT - 5 Verification and Validation – Fundamental Tools - Levels of Testing – Testing Approaches – Types of Testing – Test Plan – Software Testing Tools: WinRunner – Silk Test

RECOMMENDED TEXTBOOKS

- 1.B. Beizer , 2003, Software Testing Techniques, II Edn., DreamTech India, New Delhi.
- 2.K.V.KK. Prasad , 2005, Software Testing Tools, DreamTech. India, New Delhi.
3. R.Rajani, and P.P.Oak, 2004, Software Testing, Tata Mcgraw Hill, New Delhi.

REFERENCE BOOKS

1. I. Burnstein, 2003, Practical Software Testing, Springer International Edn.
2. E. Kit, 1995, Software Testing in the Real World: Improving the Process, Pearson Education, Delhi.

WEBSITE, E-LEARNING RESOURCES

(i)http://www.amazon.com/gp/reader/0201877562/ref=sib_dp_pt/102-1957971-9723354#reader-link

Core Practical Paper – 6			
Title of the paper with subject code	Web Application Lab		
Category of the course	Year	Semester	Credits
Core	III	VI	3

VB SCRIPT & JAVASCRIPT

1. Write a program outputs the squares, roots, cubes and complements of integers between 1 and 100.
- 2.Create a calculator.
3. Write a script to Sort numbers and strings
4. Create a program to generate a hit counter
5. Create a program to verify whether email address provided by user is valid or invalid.
6. Write a program to scroll the text on status bar.
7. The form consists of two multiple choice list and one single choice list
 - a. the first multiple choice list display the major dishes available.
 - b. the second Multiple choice list display the stocks available.

- c. The single choice list display the miscellaneous (Milkshakes, soft drinks, softy available etc.)
8. Write a script to create a digital clock.
9. Create a web page using two image file which switch black and white one another as the mouse pointer moves over the image. Use the On Mouse over and On Mouse event, onDbclick handler
10. Build a WWW page with an image and 3 buttons., Pick three favorite graphics, Label the buttons and make each one swap in the graphic you have chosen
11. Create a frameset that has two frames, side by side.
 1. Make the left-hand frame contain a form with 3 radio buttons
 2. The buttons should be for three search engines:
 - a. Yahoo (<http://www.yahoo.com>)
 - b. Altavista (<http://www.altavista.com>)
 - c. Infoseek (<http://www.infoseek.com>)
 3. When the user clicks on of the option buttons, the frame on the right hand side should be loaded with the right search engine.
12. Write a program to implement Employee database with all validation
ASP:
 1. Create a login form, to expire, if the user does not type the password within 100 seconds
 2. Create an employee database and manipulate the records using command object in ASP
 3. Develop an application to illustrate the usage of Request and Response Objects in ASP.
 4. Write an ASP program using Request Object to give the exact list of headers sent by the browser to the Web server.
 5. Create an Active Server Page to display the records one by one from a student database. The student database should contain roll no, name, marks & total.
 6. Design an ASP application that describes books in the Online Bookshop.(Use AD Rotator Component, Content Rotator Component, Content Linking Component)
 7. Create a document and add a link to it. When the user moves the mouse over the link it should load the linked document on its own (User is not required to click on the link).
 8. Create a document, which opens a new window without a toolbar, address bar, or a status bar that unloads itself after one minute.
 9. Create a document that accepts the user's name in a text field form and displays the same the next time when the user visits the site informing him that he has accessed the site for the second time, and so on.

NON –MAJOR ELECTIVE:

HTML

UNIT - 1 Introduction :Web Basics: What is Internet – Web browsers – What is Web page – HTML Basics: Understanding tags.

UNIT - 2 Tags for Document structure(HTML, Head, Body Tag). Block level text elements: Headings paragraph(<p> tag) – Font style elements: (bold, italic, font, small, strong, strike, big tags)

UNIT - 3 Lists: Types of lists: Ordered, Unordered – Nesting Lists – Other tags: Marquee, HR, BR- Using Images – Creating Hyperlinks.

UNIT – 4 Tables: Creating basic Table, Table elements, Caption – Table and cell alignment – Rowspan, Colspan – Cell padding.

UNIT – 5 Frames: Frameset – Targeted Links – No frame – Forms : Input, Textarea, Select, Option.

RECOMMENDED TEXTS

(i). HTML Complete Reference, Teach Yourself Web Publishing with HTML – Laura Lemay.

REFERENCE BOOKS

(i). HTML – E Stephen Mack, Janan Platt.

FLASH

UNIT - 1 Introduction to Flash – simple drawing techniques – adding some easy animations – learning the tools – buttons

UNIT - 2 Controlling drawing object – creating symbols – instances- making use of Library – painting – motion guide path.

UNIT - 3 Flash tweening – using masking techniques – layers and frames.

UNIT - 4: Overview of animation -Animating your production – sound – video - publish flash movies – importing.

UNIT - 5 Introduction to scripting - Action script applications

REFERENCE BOOK :

1. Mr. K. K. Thyagarajan, A.P., . B. **Anbumani**, K.K, “**Flash 2004**” .4 Robert Reinhardt, Flash 5 Bible

MS ACCESS

UNIT - 1 Introduction to database - What is a Database , Why use a Relational Database, Overview of database design – Data Normalization(Determining tables, Determining Fields, Determining Relationships)Integrity Rules (Primary/Foreign Key, One-to-Many, Many-to-Many, One-to-One) Introduction to MS Access .

UNIT - 2 Create a Table in MS Access - Data Types, Field Properties , Fields: names, types, properties--default values, format, caption, validation rules Data Entry Add record delete record and edit text Sort, find/replace, filter/select, re-arrange columns, freeze columns . Edit a Tables-copy, delete, import, modify table structure find replace.

UNIT - 3 Setting up Relationships- Define relationships, add a relationship, set a rule for Referential Integrity, change the join type, delete a relationship, save relationship Queries & Filter – difference between queries and filter , filter using multiple fields AND,OR , advance filter Queries create Query with one table , find record with select query, find duplicate record with query , find unmatched record with query, run query ,save and change query.

UNIT - 4 Introduction to Forms Types of Basic Forms: Columnar, Tabular, Datasheet, Main/Sub forms, add headers and footers, add fields to form, add text to form use label option button, check box ,combo box, list box Forms Wizard, Create Template.

UNIT - 5 Introduction to Reports , Types of Basic Reports: Single Column, Tabular Report Groups/Total, single table report multi table report preview report print report, Creating Reports and Labels, Wizard

REFERENCE BOOKS

1. A first course in Computers , Sanjay Saxena, Vikas Publishing house Pvt Ltd.,New Delhi
2. Ms Office XP complete BPB Publications
3. Ms Access 2002 fast and easy by Faithe Wempen PHI

HTML - LAB

01. Write a script to create an array of 10 elements and display its contents.
02. Create a simple calculator using form fields. Have two fields for number entry and one field for the result. Allow the user to be able to use plus, minus, multiply and divide.
03. Create a document and add a link to it. When the user moves the mouse over the link, it should load the linked document on its own. (user is not required to click on the link)

04. Create a document which opens a new window without a toolbar, address bar or a status bar that unloads itself after one minute.
05. Design an HTML page that includes document structure tags, title, line break, multiple headings and link to e-mail address.
06. Create an HTML file which is the main page with an image and some text messages along with hyperlinks which is linked to various pages. The navigation should be such that the links take you to the appropriate page and then back to the main page.
07. Create a HTML page to demonstrate the usage of Frames. Choose the content of the page on your own.
08. Design an application for pay slip through HTML forms.

FLASH - LAB

1. Drawing a Semi Circle by snap tool, a sine wave , 24 spokes on a wheel, five pointed star using , a flower by changing the center coordinates
2. Placing a text along a curved path.
3. Changing on objects shape using shape tweening , text tweening,
4. Application using buttons, animating the button
5. Tweening a using the shape hints , motion tweening
6. An application to show the masking effect in Flash
7. Slide show presentation (minimum 5 slides)
8. Creating smudge effect for an image using Hybrid Tweening.
9. Applications using Action scripts
10. Usage of textbox, dynamic text box, buttons with action scripts

MS ACCESS –LAB

1. Pay Bill
2. Electricity Bill
3. Mark list preparation of a student
4. Inventory report preparation
5. Invoice report preparation
6. Income tax preparation