CMS COLLEGE OF SCIENCE & COMMERCE

(AUTONOMOUS)

(Affiliated to Bharathiar University)

An ISO 9001: 2008 Certified Institution and Re-accredited at the

'A' level with a CGPA of 3.53 out of 4 by NAAC

Chinnavedampatti, Coimbatore – 641 049

Email: info@cmscbe.com

Website: www.cmscbe.com

Since 1988

I B. Sc. (Information Technology)

SCHOOL OF COMPUTER SCIENCE

SYLLABUS

SCHEME OF EXAMINATION (CBCS)

2015 Onwards

SCHOOL OF COMPUTER SCIENCE

REGULATIONS

Introduction

Applications of computer is one of the thrust areas in science and technology. In appreciation of its growing importance in business and visualizing the career prospects.The curriculum of this course is framed with theoretical concepts in Information Technologies and the students are capable of meeting the ever-changing challenges, having earnestly qualified themselves to be well ahead of time in the IT world.

The training imparted aims to prepare young minds for the challenging opportunities in the IT industry with a global awareness rooted in the Indian soil, nourished and supported by experts in the field.

Objectives

Visualizing on futuristic scenario the three year Bachelor in Information Technology spotlights the era of mass diffusion of computers in IT world.

Six semesters, with one paperinthefinal semester being an exposure to the real-time project, the course magnifies the minds of the students to explore & push forward, enrich & enable their potential through ample logical reasoning, analytical ability and group discussions to make their way towards developing technical and managerial skills.In order to develop the caliber of each individual, students are trained in logical and lateral thinking to establish them as well-grounded individuals.

Eligibility

Candidate for admission to the first year of the B.Sc. IT degree course shall be required to have passed the higher secondary examination conducted by the Govt. of Tamil Nadu or other examinations accepted as equivalent.

Duration of the Course

Duration of the course is three years comprising of six semesters with two semesters in one academic year. There will not be less than 90 working days for eachsemester. Examination will be conducted at the end of every semester.

DISTRIBUTION OF THE MARKS AND CREDITS UNDER CBCS

PART	SUBJECT	No.of Papers	Marks/ Paper	Credits /Paper	Total Credits	Total Marks
I	Language-I Tamil/Malayalam/ Hindi/French	2	100	4	8	200
II	Language- II English	2	100	4	8	200
III	Core Subjects	17	100	4	68	1700
		2	75	3	6	150
	Allied Subjects	4	100	4	16	400
	Elective Subjects	3	100	3	12	300
	Project & Viva Voce	1	Grade	-	-	-
IV	**Non Major Elective** Elective – I Tamil/Advanced Tamil/NME-I (Yoga/ Women's Rights/ Constitution of India) Elective – II Tamil/Advanced Tamil/NME-I (General Awareness)	2	50	2	4	100
	Skill Based Subjects	4	75	3	12	300
	Environmental Studies	1	50	2	2	50
	Value Education – Ethics & Culture	1	50	2	2	50
V	Extension Activity	1	50	2	2	50
	Add On Course	3	-	-	-	Grade
	Total	**43**			**140**	**3500**

Director

Note: I

@ Includes 25/40 % continuous assessment marks for theory and practical subjects respectively.

$ In core subjects both theory and practical should be included wherever applicable.

No Continuous Internal assessment for these subjects

No Continuous Internal assessment for these subjects and no end semester Examinations

(Evaluation is based on the performance of Case study/field work…)

!! The Evaluation of extension activities will be based on NSS/NCC/SPORTS

The following parameters are considered throughout study period.

i) Regularity of Attendance

ii) Active participation in classes/Campus/Games (College/District//University)

iii) Exemplary awards/certificates/prizes

iv) Other Social Components (Blood Camp, Fine Arts etc)

CMS COLLEGE OF SCIENCE & COMMERCE, COIMBATORE – 641 049

(Autonomous)

B.Sc. INFORMATION TECHNOLOGY

SCHEME OF EXAMINATION - CBCS PATTERN

(For the students admitted during the academic year 2015 onwards)

Part	Sub code	Subject	Ins.hrs/ week	Examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester - I								
I	11T/H/M/F	Language – I	6	3	25	75	100	4
II	12E	English – I	6	3	25	75	100	4
III	13A	Core I – C Programming	4	3	25	75	100	4
III	13B	Core II – Digital Principles and Computer Organization	4	3	25	75	100	4
III	13P	Core III – C Programming Lab	3	3	40	60	100	4
III	1AA	Allied I – Mathematics - I	5	3	25	75	100	4
IV	11FC	Environmental Studies	2	3	-	50	50	2
Semester - II								
I	21T/H/M/F	Language – II	6	3	25	75	100	4
II	22E	English – II	6	3	25	75	100	4
III	23A	Core IV – Object Oriented Programming in C++	4	3	25	75	100	4
III	23B	Core V – Data Structures& Algorithms	4	3	25	75	100	4
III	23P	Core VI – Programming Lab (C++& Data Structures)	4	3	40	60	100	4
III	2AA	Allied II: Mathematics-II	4	3	25	75	100	4
IV	2FCB	Value Based Education – Ethics and culture	2	3	-	50	50	2

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B.Sc. INFORMATION TECHNOLOGY

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(For the students admitted during the academic year 2015 onwards)

Part	Sub code	Subject	Ins.hrs/ week	Examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester - III								
III	33A	Core VII – JAVA programming	5	3	25	75	100	4
III	33B	Core VIII – Relational Database Management System	5	3	25	75	100	4
III	33P	Core IX – JAVA Programming Lab	5	3	40	60	100	4
III	33Q	Core X – RDBMS Lab	3	3	40	60	100	4
III	3AA	Allied III – Software Engineering	5	3	25	75	100	4
IV	SSS1	Skill Based Subject I – Introduction to Web design & development	4	3	20	55	75	3
		Tamil/Advanced Tamil or Non-major Elective I –(Women Studies)	2	3	-	50	50	2
		&Add on Course – I (Business English)	1	-	-	-	Grade	-
Semester - IV								
III	43A	Core XI – Operating systems	4	3	25	75	100	4
III	43B	Core XII – .Net Technologies I	5	3	25	75	100	4
III	43C	Elective I	4	3	25	75	100	4
III	43P	Core XIII- .Net Technologies I Lab	5	3	40	60	100	4
III	4AA	Allied IV – Computer Networks	5	3	25	75	100	4
IV	SSS2	Skill Based Subject II – Web Designing Lab	4	3	30	45	75	3
IV		Tamil/Advanced Tamil or Non-major Elective II – (General Awareness)	2	3	-	50	50	2
		&Add on Course–II (Life Education)	1	-	-	-	Grade	-

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B.Sc. INFORMATION TECHNOLOGY

SCHEME OF EXAMINATION - CBCS PATTERN

(For the students admitted during the academic year 2015 and onwards)

Part	Sub code	Subject	Ins.hrs/ week	University examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester - V								
III	53A	Core XIV– Principles of Compiler Design	6	3	20	55	75	3
III	53B	Core XV – .Net Technologies II	6	3	25	75	100	4
III	53C	Elective II	5	3	25	75	100	4
III	53P	Core XVI- Net Technologies II Lab	6	3	40	60	100	4
IV	SSS3	Skill Based Subject III : ASP.Net Programming	6	3	20	55	75	3
		&Add on Course – III (Soft Skills)	1	-	-	-	Grade	-
III	53V	Project and Viva voice	-	3		Grade	Grade	
Semester - VI								
III	63A	Core XVII – Open Source Software	6	3	25	75	100	4
III	63B	Core XVIII – Information Security	6	3	20	55	75	3
III	63C	Core XIX –Client/ Server Technologies	6	3	25	75	100	4
III	63D	Elective III	6	3	25	75	100	4
III	SSS4	Skill Based Subject IV : ASP.net Programming Lab	6	3	30	45	75	3
V		Extension Activities	-	-	-	-	50	2
						Total	**3500**	**140**

Director

List of Elective Papers:

ELECTIVE - I	A) Advanced Database B) Grid Computing **C)** System Software
ELECTIVE – II	A) Data Warehousing B) Software Project Management **C)** Cloud Computing
ELECTIVE– III	A) Mobile computing B) Enterprise Resource Planning C) Software Quality Assurance

Course	B.Sc Information Technology						
Subject Code	13A	**Subject Title**	Core I - C Programming			**Semester**	I
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	4
For the Batch	2015 onwards		**Credits**				4
Objective & Subject Description	This subject provides an introduction to C Programming with case studies. On successful completion of this subject the students will learn about C programs and their implementation and will be able to perform independent research in C.						

UNIT – I

Introduction to C: Structure of a C program. The Declarations: Character Set – Keywords – Identifiers – Constants – Variables - Data Types – Declaring and Initializing Variables – Type Conversion. Operators and Expressions.Input and Output in C.

UNIT– II

Decision Statements: *if* Statement – *if – else* statement – nested *if - else* statement – *Break*, *continue*, *goto* statement – *Switch* statement. Loop Control statements: The *for* loop and nested *for* loop - The *while* loop – the *do – while* loop.

UNIT – III

Arrays: Introduction– Array Initialization – Definition of Array – Characteristic of Array - One Dimensional arrays - Two Dimensional arrays - Multi dimensional arrays. Working with Strings & Standard Functions.

UNIT – IV

Pointers: Introduction – Features of Pointers - Pointer Declaration – Arithmetic operations with pointers. Functions: Introduction – Definition and Declaration of Function – return statement – types of functions – Call by value and reference –Function with operators, arrays and pointers – Recursion.

UNIT – V

Storage class.Preprocessor Directives. Structures and Union: Introduction – Features of structures - Declaring and initialization of Structure – Structure within structure - Arrays of Structures – pointer to structure – structure and function -Unions – union of structure. File: Introduction – Streams and file types – file operations – file I/O – command line arguments.

Text Book:

1. Ashok N Kamthane - Programming with Ansi and Turbo C, Pearson Education Publication, Fourth Edition,2008.

Reference Books:

1. E.Balagurusamy - Programming in Ansi C, TATA McGraw Hill Publication, Third Print, Fourth Edition, 2008.

2. Dr.P. Pandiaraja, S Viswanathan - Programming in C, Printers & Publishers, Pvt. Ltd., First Edition, 2005.

Course	B.Sc Information Technology						
Subject Code	13B	**Subject Title**	Core II - Digital principles and Computer Organization			**Semester**	I
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr. / Week**	4
For the Batch	2015 onwards		**Credits**				4
Objective & Subject Description	This subject provides an introduction to digital Fundamentals and Computer Organization with case studies. On successful completion of this subject the students will learn about Digital principles and Computer Organization.						

UNIT – I

Number Systems: Decimal Number System – Binary Number System – Conversion of decimal to binary and binary to decimal conversions. Complements: 1's complement and 2's complement Number representation. Binary addition, Binary subtraction, Binary addition and subtraction using Complement Systems.

UNIT – II

Logic Gates: Gates Classifications: Basic Gates (AND, OR, NOT), Universal Gates (NAND, NOR), Exclusive Gates (XOR, XNOR) – Logic Symbols, Logic Operators, Logical expression and truth table of Basic, Universal and Exclusive gates. Conversion of Universal Gates to Basic Gates.

UNIT – III

Boolean Algebra & Simplifications: Boolean Rules (Rules & Verification with sample values only) - Logical Expression and Simplification Methods: Sum of product Simplification – Product of Sum Simplification – The K- Map method: 2 variable maps, 3-varibale map, 4-variable map, Don't care conditions.

UNIT – IV

Arithmetic Circuits & Combination Circuits: Half adder (Block Diagram, Truth Table, Circuit Diagram and Working Methodology)– Full adder(Block Diagram, Truth Table, Circuit Diagram and Working Methodology) – Half Subtractor (Block Diagram, Truth Table, Circuit Diagram and Working Methodology) – Full Subtractor (Block Diagram, Truth Table, Circuit Diagram and Working Methodology) – Parallel binary adder (Block Diagram, Truth Table, Circuit Diagram and Working Methodology), decimal adder (BCD adder - Block Diagram, Truth Table, Circuit Diagram and Working Methodology), Encoder (Block Diagram, Truth Table, Circuit Diagram and Working Methodology) – Multiplexers (Block Diagram, Truth Table, Circuit Diagram and Working Methodology) – De-Multiplexers (Block Diagram, Truth Table, Circuit Diagram and Working Methodology).

UNIT – V

Storage elements & Counters: Flip – Flops types: RS, Clocked RS, Edge triggered-RS, D-Flip Flop, T-Flip Flop, JK-Flip Flop (Block Diagram, Truth Table, Circuit Diagram and Working Methodology). Counter: Ripple Counter, Modulo N Counter – Shift registers- types: PIPO (Parallel-in-Parallel-out), PISO (Parallel-in-Serial-out), SISO (Serial -in-Serial-out), and SIPO (Serial-in-Serial-out).

Text book:

1. R K GAUR, Digital Electronics and Microcomputers, 3rd edition, Dhanpat Rai Publications (P) Ltd.

Reference Book:

1. Morris Mano, Computer System Architecture, 3rd edition, PHI.

Course	B.Sc Information Technology						
Subject Code	13P	**Subject Title**	Core III - Programming Lab I (C)			**Semester**	I
Internal Max:	40	**External Max :**	60	**Total Marks**	100	**Hr./Week**	3
For the Batch	2015 onwards		**Credits**				4
Objective & Subject Description	This subject provides a practical application using different tools and techniques in C program. On successful completion of this subject the students should have knowledge about the C techniques and their applicability to solve the real world problems.						

LIST OF PRACTICALS

Unit I : Demonstrate the usage of operators and data types in C

1. Write a program to print the size of all the data types supported by C and its range.
2. Write a program to convert the temperature from Fahrenheit to Centigrade and vice versa (F=1.8 X c+32; C=(F-32)/1.8).

Unit II: demonstrate the concept of if, if-else, while, do-while, for loops

1. Write a program to find greatest of three given numbers
2. Write a program to print first N prime numbers.

Unit III: demonstrate the concept of arrays and strings

1. Write a program to sort the given set of values of an array
2. Write a program to find number of palindromes in a given sentence.

Unit IV: demonstrate the usage of functions and pointers

1. Write a program to find the factorial value of a given number N using recursive function Call.
2. Write a function to swap two numbers using pointers

Unit V : Case Studies:

1. Create a structure to store the following details:
Rollno., Name, Mark1, Mark2, Mark3, Total, Average, Result and Class.
Write a program to read Rollno., Name and three subject marks. Find out the total, result and class as follows:
    a) Total is the addition of three Subject marks
    b) Result is pass if all subject marks greater than or equal to 40 else "Fail".
    c) Class will be awarded for students who have cleared 3 subjects
        i) Class "Distinction" if average >=75
        ii) Class "First" if average lies between 60 to 74.
        iii) Class "Second" if average lies between 50 & 59.
2. Develop a pay slip for an employee using file with the fields Eno, Ename, Basic. Calculate

DA= 32% of Basic. HRA = 15% of Basic. PF=15% of Basic and print all details with Netpay.

Course	B.Sc Information Technology						
Subject Code	23A	**Subject Title**	Core IV - Object Oriented Programming in C++			**Semester**	II
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr. / Week**	4
For the Batch	2015 onwards		**Credits**				4
Objective & Subject Description	This subject provides an introduction to C++ Programming with case studies. On successful completion of this subject the students will learn about C++ programs and their implementation and will be able to perform independent research in C++.						

UNIT – I

The Object Oriented Approach- Characteristics of Object Oriented Language-C++ and C-Output using cout-Input using cin-Objects and Classes-A simple class- C++ objects as physical objects-C++ objects as data types- Constructors-Destructors-Objects as function arguments-the default copy constructor-Returning objects from functions- Classes ,objects and memory-Static class data-**const** and classes.

UNIT – II

Arrays as class member data-Array of objects-Operator overloading: Overloading unary operators-the ***operator*** keyword-Operator arguments-Operator return values-Nameless temporary objects-Overloading binary operators-Arithmetic operators-Concatenating strings-Multiple overloading-Comparison operators-Arithmetic assignment operators-The subscript operator-Data conversion-Conversions between basic types-Conversion between objects and basic types-conversion between objects of different classes-Pitfalls of operator overloading and conversion.

UNIT – III

Inheritance:Derived class and Base class-Specifying the derived class-Accessing base class members-the protected access specifier-Derived class constructors-Overriding member functions-Class hierarchies-Public and private inheritance-Levels of inheritance-Multiple inheritance-Ambiguity in multiple inheritance.Pointers:memory management :new and delete-Pointers to objects.

UNIT – IV

Virtual functions: Virtual functions-Normal member functions accessed with Pointers- Virtual member functions accessedwith pointers-Late binding-Abstract classes and pure virtual functions-Virtual destructors-Virtual base classes-Friend functions-Static functions-Assignment and copy initialization-the **this** pointer-Dynamic type information.

UNIT - V

Streams and files: Stream classes-Advantages of streams-Stream class hierarchy-the ios class-the istream class-the ostream class- the iostream and withassign classes-stream errors-Disk file I/O with streams- File pointers-Error handling in file I/O-File I/O with member functions-Overloading the extraction and insertion operator.

Templates and exception: Function templates-Class templates-Exceptions.

Text Book:

1. Robert Lafore, "Object Oriented Programming in C++", Pearson ,Fourth edition, 2011.

Reference Book:

1. D.Ravichandran "Programming with C++ ",Tata McGraw Hill ,3rd edition,2011
2.Tony Gaddis "Starting Out with C++", Pearson Publication, 6th edition,2011.

Course	B.Sc Information Technology						
Subject Code	23B	**Subject Title**	Core V - Data Structures& Algorithms			**Semester**	II
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	4
For the Batch	2015 onwards		**Credits**				4
Objective & Subject Description	This subject provides a practical application using different tools and techniques in Data structure and algorithms. On successful completion of this subject the students should have knowledge about the data structure and algorithms techniques and their applicability to solve the real world problems.						

UNIT – I

Introduction:Algorithmic Specification-Introduction-Recursive Algorithm-Performance analysis-Space complexity-Time complexity-Asymptotic notation-Sparse matrices-Polynomials-Sparse matrices.Stacks and queues: Stacks –stacks using dynamic arrays- Queues- Circular Queues using Dynamic arrays-Evaluation of expressions-Multiple stacks and queues.

UNIT – II

Linked lists: Singly linked lists and chains- Linked stacks and queues- Polynomials-Additional list operations-trees-introduction-binary trees-Binary tree traversals-threaded binary trees-Heaps-Binary search trees-Counting binary trees.

UNIT – III

Graphs: The Graph abstract Data type-definitions-Graph representation-Elementary Graph operation-Depth first search-Breadth first traversal-Connected components-Spanning trees-Biconnected components.Hashing: Introduction- Static Hashing-Dynamic Hashing-

UNIT – IV

Sorting: Motivation-Insertion sort-Quick sort-Merge sort-Merging –Iterative merge sort-Recursive merge sort-heap sort-Sorting on several keys-List and table sorts-External sorting-introduction-k-way merging-buffer handling for parallel operation- run generation- optimal merging of runs.

UNIT - V

Efficient binary search trees:Optimal binary search trees-AVL trees-Red black trees-Definition-Representation of a Red Black tree-Searching aRed black tree-inserting into aRed Black tree-Deletion from aRed Black tree-Joining Red Black trees.B trees: Definition and properties-Number of elements in aB tree- Insertion into Black trees- Deltion from B tree.

Text Book:

2. Horowitz,Sahni,Anderson-freed-"Fundamentals of Data structures in C" ,Universities Press,Second edition,2008

Reference Book:

1. Trembly,Sorenson, "Data structures",TataMcGraw Hill ,2rd edition,1997

Course	B.Sc Information Technology						
Subject Code	23P	**Subject Title**	Core VI - Programming Lab II (C++& Data Structures)			**Semester**	II
Internal Max:	40	**External Max :**	60	**Total Marks**	100	**Hr./Week**	4
For the Batch	2015 onwards		**Credits**				4
Objective & Subject Description	This subject provides a practical application using different tools and techniques in C++ and data structure program. On successful completion of this subject the students should have knowledge about the C++ techniques and data structure & their applicability to solve the real world problems.						

List of Practicals

1.C++ Program using cin , cout and any basic concept.
2.C++ program for binary operator overloading.
3.C++ program for Data conversion between various classes.
4.C++ program for virtual functions and abstract base class.

Case study 1:
Student mark list processing with exception handling

List of Practicals (Data Structures)

1. Implement sparse matrix concept.
2. Implement queue operations.
3. Implement binary tree
4. Implement insertion sort

Case study 1: Study of evaluation of expressions in polynomial form.

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II	**Language – II** English	2	200	8
III	**Core** Subjects	19 **$**	1900	76
	Allied Subjects	4	400	16
	Project	1	250	10
IV	**1 - Non-Major Elective** **Elective – I** Tamil/Advanced Tamil/ Communicative English **Elective – II** Tamil/Advanced Tamil/ General Awareness	2	100 **#**	4
	2 – Skill Based Subjects	4	300	12
	3 – Environmental Studies	1	50 **#**	2
	4- Value Based Education – Ethics and culture	1	50 **#**	2
V	**Extension Activities**	-	50 !!	2
	Add on Courses	3	Grade ##	
	Total	**39**	**3500**	**140**

Note: I

@ Includes 25/40 % continuous assessment marks for theory and practical subjects respectively.
$ In core subjects both theory and practicals should be included wherever applicable.
No Continuous Internal assessment for these subjects
No Continuous Internal assessment for these subjects and no end semester Examinations (Evaluation is based on the performance of Case study/field work…)
!! The Evaluation of extension activities will be based on NSS/NCC/SPORTS
The following parameters are considered throughout study period.

i) Regularity of Attendance
ii) Active participation in classes/Campus/Games (College/District//University)
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	13B	Core II – Digital Principles and Computer Organization	4	3	25	75	100	4
	13P	Core III – Programming Lab I (C Programming)	3	3	40	60	100	4
	1AA	Allied I – Mathematics-I	5	3	25	75	100	4
IV	11FC	Environmental Studies	2	3	-	50	50	2
Semester - II								
I	21T/H/M/F	Language – II	6	3	25	75	100	4
II	22E	English – II	6	3	25	75	100	4
III	23A	Core IV – Object Oriented Programming in C++	4	3	25	75	100	4
	23B	Core V – Data Structures & Algorithms	4	3	25	75	100	4
	23P	Core VI - Programming Lab II (C ++ & Data Structures)	4	3	40	60	100	4
	2AA	Allied II: Mathematics-II	4	3	25	75	100	4
IV	2FCB	Value Based Education – Ethics and culture	2	3	-	50	50	2

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Part	Sub code	Subject	Ins.hrs/week	Examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester - III								
III	33A	Core VII – Programming with Visual Basic	6	3	25	75	100	4
	33B	Core VIII –Relational Database Management System	5	3	25	75	100	4
	33P	Core IX-Programming Lab III-(VB &RDBMS)	5	3	40	60	100	4
	33C	Core X - Operating Systems	6	3	25	75	100	4
	3AA	Allied III - Data Mining & Warehousing	5	3	25	75	100	4
IV		Tamil/Advanced Tamil or Non-major Elective I –(Women's Rights)	2	3	-	50	50	2
V		Add on Course – I (Business English) -	1	-	-	-	Grade	-
Semester - IV								
III	43A	Core XI – Java Programming	6	3	25	75	100	4
III	43B	Core XII – System Analysis and Design	5	3	25	75	100	4
III	43P	Core XIII-Programming Lab IV-(Java)	6	3	40	60	100	4
IV	SSS1	Skill based Subject I - Introduction to Web Design & development	6	3	20	55	75	3
IV	SSS2	Skill based Subject II- Web Designing Lab	4	3	30	45	75	3
IV		Tamil/Advanced Tamil or Non-major Elective II –(General Awareness)	2	3	-	50	50	2
V		Add on Course – II(Life Education) -	1	-	-	-	Grade	-

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(For the students admitted during the academic year 2014 onwards)

Part	Sub code	Subject	Ins.hrs/week	Examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester – V								
III	53A	Core XIV – VB.NET	6	3	25	75	100	4
III	53B	Core XV – Computer Networks	6	3	25	75	100	4
III	53C	CoreXVI – Client- server computing	6	3	25	75	100	4
III	53P	Core XVII-Programming Lab V-(VB.NET)	6	3	40	60	100	4
III	5AA	Allied IV –Grid and Cloud Computing	5	3	25	75	100	4
V		Add on Course – III (Soft Skills)	1	-	-	-	Grade	-
Semester – VI								
III	63A	Core XVIII – E-Commerce	5	3	25	75	100	4
III	63B	Core X IX – Information Security	6	3	25	75	100	4
III	63V	Project & Viva Voce	11	-		250	250*	10
IV	SSS1	Skill based Subject III - ASP.Net Programming	5	3	20	55	75	3
IV	SSS2	Skill based Subject IV- ASP.NET Lab	3	3	30	45	75	3
V		Extension Activities	-	-	-	-	50	2
Total							**3500**	**140**

*** Project -200 marks Project Viva-Voce-50 marks**

Course	B.Sc. Information Technology						
Subject Code	33A	**Subject Title**	Programming with Visual Basic			**Semester**	III
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr. / Week**	6
For the Batch	2014 onwards		**Credits**				4
Objective & Subject Description	This subject deals Visual Basic concepts. To inculcate knowledge on Programming and Project Development using Visual Basic.						

UNIT - I

Getting started with Visual Basic: Introduction to Visual basic 6.0 programming environment – working with forms – Developing an application – variables , data types, constants, - visual basic built in functions.

UNIT - II

Working with controls: Creating and using controls – working with control Arrays. Menus, Mouse Events and Dialog boxes: Introduction – Mouse events – Dialog Boxes.

UNIT - III

Graphics, MDI and Flex Grid: Graphics for Application – Multiple Document Interface(MDI) – using the Flex Grid control – Procedures and control structures – Arrays in visual basic.

UNIT - IV

Open Database Connectivity(ODBC): - Using ODBC with Dao-Accessing ODBC databases using data control-using DBGrid control-adding,updating and deleting records-using the remote data control-Remote Data Objects – ADO Object Model.

UNIT – V

Data environment designer:accessing data using data environment, connection object, command object, using SQL query designer– Data Report: using the data report object, methods of the data report object, creating an hierarchical report.
Case study – Railway reservation system, Payroll system.

Text Books:

1. Content Development Group", Visual Basic 6 Programming" TMH Publishers 2008.

Reference Books:

1. Gary Cornell "Visual Basic 6From the Ground Up" Tata MCGraw Hill Edition,2008
2. Steven Holzner et. al, "Visual Basic 2005 Black Book",Published by Dream Tech,2006.

Course	B.Sc. Information Technology						
Subject Code	33B	**Subject Title**	Relational Database Management System			**Semester**	III
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	5
For the Batch	2014 Onwards		**Credits**				4
Objective & Subject Description	This subject deals with RDBMS concepts using PL/SQL. Knowledge on PL/SQL Programming techniques. To inculcate knowledge on RDBMS concepts and Programming with PL/SQL.						

UNIT – I

Introduction: Database – purpose of database systems – view of data - data models –database languages – database users and administrators – database system structure.

UNIT - II

E R model: Basic concepts – Mapping constraints – keys - Entity Relationship diagram -weak entity sets - Extended ER features

UNIT - III

Relational model: Structure of relational databases – Basic Structure – Database schema – Keys – Query languages. The relational algebra – Fundamental operations – Select, Project, Union, Set difference – Cartesian product – Rename – Additional operations – set intersection, natural join, division, assignment operation

UNIT – IV

Relational database design: Pitfalls in Relational database design –Decomposition – Normalization using functional dependencies. Object oriented databases – New database applications – The object oriented data model - Object oriented languages.

UNIT – V

Oracle – Introduction - SQL: Create, drop, alter tables – rename and truncate table - describe table - simple select statements – order by, group by clauses – Sub queries – Creating views – Expanding the view –Date functions. Changing data with insert, update, merge and delete. PL/SQL: Overview –block structure – data types – variable declarations – control structures- procedures and functions - triggers.

Case study: College administration system, Banking system.

Text Book:

1. Silberschatz, Korth and Sudharshan, Database system concepts, McGraw Hill publications, 5th edition, 2006
2. Oracle database 10g – The Complete reference – Tata McGraw Hill publications Pvt. ltd, 2006

Reference Book:

1. Rajesh Narang, "Database management systems", Prentice Hall of India, 2006.

Course	B.Sc. Information Technology						
Subject Code	33P	**Subject Title**	Programming Lab III (VB &RDBMS)			**Semester**	III
Internal Max:	40	**External Max :**	60	**Total Marks**	100	**Hr. / Week**	5
For the Batch	2014 onwards		**Credits**				4

LIST OF PRACTICALS

VISUAL BASIC

1. Simple program to develop a Calculator.
2. Design a form using common dialog box to display the font, save, open a Dialog box.
3. Design a form to convert decimal numbers into octal and hexadecimal.
4. Car Animation Program.
5. Draw points on a form at random with red, blue and green colors.
6. Design a form to display the digital clock.
7. Develop a project for Payroll System
8. Develop a project for Students Information System.

RDBMS

1.Create the following table *(PK - Primary Key, FK – Foreign Key)* cat_head, route_head, place_head, route_detail, ticket_detail, ticket_headwith the mapping given below:

cat_headroute_head
(cat_code PK) (cat_code FK)
route_headroute_detail
(route_id PK) (route_id FK)
ticket_headticket_detail
(tick_no PK) (tick_no FK)
place_headroute_detail
(place_id PK) (place_id FK)

(i). Alter the table ticket_header to add a check constraint on ticket_no to accept values between 1 and 500
(ii). Alter table route_header to add a column with data type as long.
(iii). Insert values to above tables
(iv). Display only those routes that originate in madras and terminate at cochin

2.(i). Display only distinct category code from the table route_header in descending manner.
(ii). Update the above table route_header to set the distance between madras and Coimbatore as 500
(iii). Update the above table route_header to set the distance between Coimbatore and Nilgris as 80
(iv).Select rows from ticket_details such that ticket number greater than any ticket_number in Ticket_header.

(v). Select rows from route_header such that the route_id are greater than all route_id in route_detail where place id is "100".

3. Write PL/SQL Block to prepare the electricity bill
4. Splitting the table : Write a PL/SQL block to split the students information table into two, one with the passed and the other with failed
5. Joining the tables – Write a PL/SQL block to join two tables, first table contains roll number, name, total and second table contains the roll number and address.
6. Write a recursive function to find Factorial of N
7. Write a Database trigger for checking the input value of a mark which must not be less than 0 and greater than 100.

Course	B.Sc. Information Technology						
Subject Code	33C	**Subject Title**	Operating System			**Semester**	III
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	6
For the Batch	2014 onwards		**Credits**				4
Objective & Subject Description	This Subject deals with the Operating Systems concepts.On Successful Completion of this subject the students should haveunderstood the Concepts, Process, Dead Locks, and Files.						

UNIT – I

Introduction: What is an operating system?. Early history-open systems- Unix, Ethical issues. Hardware- Software- Firmware.

UNIT - II

Process concepts: Definition- States- Transitions- suspend and Resume-semaphore.Deadlock and indefinite postponement-examples of deadlocks- four necessary conditions for deadlock-prevention- banker's algorithm-detection and recovery.

UNIT – III

Storage Management: Real storage –storage management strategies - contiguous Versus noncontiguous storage allocation. Virtual storage organization: Basic concepts - paging - segmentation. Job and processor Scheduling: Levels-priorities-FIFO, RR, Quantum size, SJF,SRT,HRN.

UNIT - IV

Distributed computing: Pipelining-loosely coupled Versus Tightly Coupled systems- Why Disk Scheduling – characteristics – seek optimization –rotational optimization – system considerations disk caching.File and database systems: The file system-functions – data hierarchy – blocking and buffering - file organization- queued and basic access method – allocating and freeing space-backup and recovery.

UNIT - V

Case study: MS DOS : Early history – version 1.0,2.0,3.0 - users view, systems view, programmers view of MS-DOS – DOS 4.0 – Future of MS DOS and OS/2. Unix: History – shell – kernel – file system –process management – memory management.

Text Book :

1. An Introduction to Operating Systems , Harvey M Deitel, Addision Wesley Second edition , Pearson publication,2005.

Reference Books :

1. Operating Systems, A S Godbole, Tata Mcgraw Hill Publishing company limited Second edition, 2005.
2. Saiberschatz A. Perterson J. L. Galvan P. "Operating System Concepts", SixthEdition, Addison, Wesley Publishing Co., 2002.

Course	B.Sc. Information Technology						
Subject Code	3AA	**Subject Title**	Data Mining And Warehousing			**Semester**	III
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	5
For the Batch	2014 Onwards		**Credits**				4
Objective & Subject Description	To understand the fundamentals of Web designing concepts and to create programs in HTML and Java script						

UNIT – I

Data Mining: Introduction – What is Data Mining? – Definitions – KDD Vs Data Mining – DBMS Vs DM – Other Related Areas – DM Techniques – Other Mining Problems – Issues and challenges in DM – DM Application Areas – Case Studies.

UNIT - II

Association Rules: Introduction – What is an Association Rule? – Methods to discover Association Rules – A Priori Algorithm – Partition Algorithm – Pincer Search Algorithm – Dynamic Item set Counting Algorithm.

UNIT - III

Clustering Techniques: Introduction – Clustering Paradigms – Partitioning Algorithms – K Medoid Algorithms – CLARA – CLARANS – Hierarchical clustering – DBSCAN - BIRCH – CURE – Categorical clustering Algorithms.-ROCK.

UNIT - IV

Decision Trees: Introduction – What is a Decision Tree? –Tree Construction Principle – Best Split – Splitting Indices – Splitting Criteria – Construction Algorithms – CART –ID3 –C4.5 – CHAID.

UNIT - V

Data Warehousing: Introduction – what is a Data warehouse? – Definition – Multidimensional Data Model – OLAP operations - Ware house Schema – Data warehousing Architecture – Warehouse Server – Meta data – OLAP Engine – Data Warehouse Backend Process – Other Features.

Text Book :

1. Arun K Pujari, "Data Mining Techniques", Universities Press (India) Private Ltd,2007.

Reference Book :

1. Margaret H. Dunham - Data mining introductory and advanced topics, Pearson Education, 2008.
2. Jiawei Han and Micheline Kamber, "Data Mining Concepts and Techniques", MarganKanfmann Publishers, 2006.

Course	B.Sc. Information Technology						
Subject Code	-	**Subject Title**	Add on Course – I (Business English)			**Semester**	III
Internal Max:	-	**External Max :**	-	**Total Marks**	GRADE	**Hr / Week**	1
For the Batch	2014 Onwards		**Credits**				-
Objective & Subject Description	On successful completion of this subject, the students should know the basics of communication, grammar, listening & speaking and writing skills.This subject introduces oral and written communication concepts from basic to advanced levels.						

UNIT - I

Communication: What is Communication? Listening skills: Definition – Types of listening – Tips for effective listening.

UNIT - II

Telephone Skills: Basics of telephone communication – Telephone courtesy.

UNIT - III

Writing Skills: Standard business letter – Report writing.

UNIT - IV

Career Skills: Applying for jobs – Cover letters - Interviews.

UNIT - V

Soft Skills: Empathy – Intrapersonal skills – Interpersonal intelligence.

Text Book:

1. Bharathiar University, Communication Skills – A multi skill course, Macmillan publishers Indian Ltd., 2011.

Reference Books:

1. Paul J. PhD Donoghue and Mary E Siegel, Are you Listening? Keys to successful Communication. Indiana, Sorin Books, 2005.
2. Apple Books, Effective Communication, Apple publishing International (P)Ltd.,2011.

Course	B.Sc.Information Technology						
Subject Code	43A	**Subject Title**	Java Programming			**Semester**	IV
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	6
For the Batch	2014 Onwards		**Credits**				4
Objective & Subject Description	This subject deals with the concepts of Java Programming. To do the programming individually and effectively. On successful completion of the subject the student must have understood the concepts of the Java programming and the student can write the program effectively. The student can learn the web programming also.						

UNIT – I

Java Evolution: History-Features **–** How java Differs from C and C++ - Java and internet – Java and World Wide Web- Web Browsers- Java support systems – Java environment. Overview: Introduction – Java program Structure – Tokens - Statements – implementing Java program - Java Virtual Machine- Command Line Arguments. Constants, Variables and Data Types: Introduction - Constants – Variables – Data Types – Declaration of Variables – Scope of Variables – Type casting.

UNIT – II

Operators and Expressions: Arithmetic, Relational, Logical, Assignment, Increment, Decrement, Special Operators- Evaluation of Expressions. Decision Making and Branching: Simple If statement – if-else statement-Nesting of If-else statement - else if Ladder- Switch statement - ?: operator - Decision making and Looping**:** While – do – for – Jumps in Loops- Labeled Loops.

UNIT – III

Classes, Objects and Methods:Defining a class –Creating Objects- Accessing Class Members – Constructors - Methods Overloading - Static members – Inheritance- Overriding Methods – Final classes – Visibility control. Arrays:One Dimensional array – Creating an array – Two dimensional arrays – String arrays – Vectors – Wrapper Classes**.** Interfaces : Multiple Inheritance-Defining: Extending – Implementing – Accessing Interface Variables.

UNIT – IV

Packages: API Packages – Using System Packages- Naming Conventions- Creating Packages- Accessing a Package- Adding a Class to a Package- Hiding Classes. Multithreaded Programming: Introduction – Creating threads-Extending the Thread class – Life cycle of a thread-Using Thread Methods - Thread priority. Managing Errors and Exceptions : Types of Errors-Exception – Syntax –Multiple Catch – Using Finally-Throwing our own exceptions.

UNIT – V

Applet: Introduction –building Applet Code - Applet life cycle-designing web page-Applet tag-adding Applet to HTML file-Passing parameter to Applets-Aligning the Display- displaying numerical values . Graphics Programming: Graphics Class - Lines, Rectangles, Circles, Ellipses, Arcs, Polygons, Bar charts. Managing Input/Output Files in Java:Concept of Streams – Stream classes –Byte &Character stream classes- creation of Files-Reading / Writing characters and bytes-handling primitive data types- Random Access Files.

Text Book:

1. E.Balagurusamy - Programming with Java – A Primer, Tata McGraw HillPublication, Third Edition,2008.

Reference Books:

1. Herbert Schildt - The Complete Reference Java 2, Tata McGraw-Hill Publications, Fifth Edition, 2008.
2. C.Xavier- Programming with Java 2, Scitech Publication,2000.

Course	B.Sc. Information Technology						
Subject Code	43B	**Subject Title**	System Analysis And Design			**Semester**	IV
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	5
For the Batch	2014 onwards		**Credits**				4
Objective & Subject Description	To Analyze and Design the system and to implement their plans.Introduces the concepts of the system development life-cycle, skills of analysis stage and design stage of software .						

UNIT - I

System Concepts and the Information Systems Environment: Introduction-Systems Concept: Definition-Characteristics of a System-Elements of a system-Types of Systems.

UNIT – II

The System Development Life Cycle-Introduction - consideration for candidate systems-prototyping. The Role of System Analyst: Multifaceted Role of the Analyst- Systems Planning and the Initial Investigation: Bases for Planning in system Analysis – Strategies for Determining the User's Information Requirements.

UNIT - III

Information Gathering: Information Gathering tools- The Tools of Structured Analysis: DFD-Data Dictionary.

UNIT - IV

FeasibilityStudy: Feasibility Considerations – Steps in Feasibility Analysis - The process and stages of Systems Design : The process of Design –Design methodology - Structured Design-Input/Output and Forms Design : Input Design – Input Data – Output Design – Form Design - Classification of Forms.

UNIT - V

System Testing and Quality Assurance: Types of System Tests – Quality Assurance – Software Maintenance – Procedure for Hardware/Software Selection- Evaluation Process.

Text Book:

1. Elias M.Awad, Second Edition, "System Analysis and Design ", Galgotia Publication 2006.

Reference Book:

1. Jeffrey A.Hoffer, Joey F.George, Joseph S. Valacich, Prabin K. Panigrahi, "Modern Systems Analysis and Design", 4th Edition, Pearson Publication, 2006.

Course	B.Sc. Information Technology						
Subject Code	43P	**Subject Title**	Programming Lab IV-(Java)			**Semester**	IV
Internal Max:	40	**External Max :**	60	**Total Marks**	100	**Hr./Week**	6
For the Batch	2014 onwards		**Credits**				4

LIST OF PRACTICALS

1.Write a program for displaying the numbers from 1 to 20 using Do-While Loop.
2. Calculate the factorial of a number using for loop.
3. Write a program to print multiplication table for a given number.
4. Design a program to implement constructors.
5. Write a program to calculate the area of a rectangle using inheritance.
6. Write a program to implement interface.
7. Write a Java Applications to extract a portion of a string and print the extracted string.
8. Write a Java Program to implement the concept of multiple inheritance using Interfaces.
9. Write a Java Program to implement different types of Exception.
10. Write a Java Program to implement the concept of multithreading with thread priority.
11. Write a Java Program to draw several shapes.
12. Write a Java Program to create a frame with four text fields as name, street, city and pin code with suitable tables. Also add a button called “my details”, When the button is clicked its corresponding values are to be appeared in the text fields.
13. Write a program to create an Applet to draw a Grid Lines
14. Write a program to copy file content to another file.
15. Display the contents of a file using command line arguments.

Course	B.Sc. Information Technology						
Subject Code	SSS1	**Subject Title**	Skill Based Subject: Introduction to Web Design & Development			**Semester**	IV
Internal Max:	20	**External Max :**	55	**Total Marks**	75	**Hr./Week**	6
For the Batch	2014 onwards		**Credits**				3
Objective & Subject Description	To understand the fundamentals of Web designing concepts and to create programs in HTML and JavaScript						

UNIT – I

Introduction to HTML – History of HTML – Creating a Web Page – Setting web page colors – Basic Text formatting – Physical HTML styles – Logical HTML styles – Fonts – Headings – Arranging Text – Using <DIV> and <SPAN>. Images: Creating Images – Add an image to a web page – Borders – Aligning text & images

UNIT – II

Link: Creating a hyperlink – Hyperlink colors – Graphical hyperlink – Base for hyperlinks – Link information – Email links – Client-side & Server-side Image Maps. List: Creating list items – Unordered list – Ordered list – Definition list – Nesting list. Tables: Create a table –Borders – Cell padding – Cell spacing – Aligning data – Table & Column widths – Colors – Images in tables

UNIT - III

Frames: Creating frames – Vertical frames – Horizontal frames – Named frames – Opening new browser windows – Borderless frames – Scrolling – Resizing – Colors – Inline frames. Forms: Creating a form & adding HTML controls – Submitting data from forms.

UNIT - IV

VB Script : Introduction – functions of VB script – VB script Execution Environments – VB script into HTML – Objects & Events – VB Script Comments – Constant declaration and assignment – Variables – Variable Scope – Manipulating VB Script Variables with Operators – Comparison Operators – Conditional Statements – Looping Statements – Functions & Procedures -The VB Script Msg box Function – VB Script Input Box

UNIT V

JavaScript: What is JavaScript? – JavaScript Objects – Object properties & methods – Server-Side Scripts – Comments – Variables – Operators – Statements – Functions

Text Book:

1. Steven Holzner, "HTML Black Book", Dreamtech Press & Paraglyph Press Publishers, 2007 Edition.

Reference Book:

1. Raymond Greenlaw, Ellen Hepp , Fundamentals of the INTERNET and the World Wide Web, Second Edition , Tata McGRAW –Hill Edition, 2005.
2. Shelley powers et.al. "Dynamic Web Publishing" Tech Media,1998.

Course	B.Sc. Information Technology						
Subject Code	SSS2	**Subject Title**	Skill Based Subject : Web Designing Lab			**Semester**	IV
Internal Max:	30	**External Max :**	45	**Total Marks**	75	**Hr./Week**	4
For the Batch	2014 Onwards		**Credits**				3

LIST OF PRACTICALS

1. Create a web page using basic HTML tags.
2. Display the Mark List using TABLE tag in HTML.
3. Design a web page to display images Using HTML tags.
4. Design a Website for our College using HTML tags.
5. Design a website using Frames
6. Design a Personal Website.
7. Create a web site for online Admission.
8. Create a web site for online Shopping.
9. Write code which does the form validation in various INPUT elements
10. Create a Website for Bank loan using Java Script.
11. Displaying Fancy text using Java Script.
12. Displaying Mouse moving text using Java Script.
13. Displaying News trial using Java Script.
14. Develop a Simple Calculator using Java script
15. Create a Website for Bank transaction using Java Script.

Course	B.Sc. Information Technology						
Subject Code	-	**Subject Title**	Add on Course – II (Life Education)			**Semester**	IV
Internal Max:	-	**External Max :**	-	**Total Marks**	GRADE	**Hr / Week**	1
For the Batch	2014 Onwards		**Credits**				-
Objective & Subject Description	To make students aware of yoga for health, human values, to face challenges and to manage stress at bay.Helps learn moral values to students.						

UNIT - I

Family: Introduction – Family in the changing society – Indian joint family: Dimensions and issues – will joint family survive?

UNIT - II

Learning and forgetting: Significance and meaning – Definition – Kinds and elements of memory – Intelligence of memory – Signs of good memory – Measuring memory or retention – Significant facts regarding remembering and forgetting – Memory development and improvement.

UNIT - III

Diverse Issues: Instincts – Sentiments – will – Habits – Character – Play and play way Education – Sex Education.

UNIT - IV

Mental hygiene and mental health: Introduction – Aims and objectives – Common characteristics of a mentally healthy person – Mental disorders – Defense mechanism.

UNIT - V

Drug Abuse and Addiction: Different causes of drug addiction – Prevention and treatment – Drug abuse scenario.

Text Books :

1. Krishna Chakraborthy, Family in India, Rawat publications, 2002.
2. J C Aggarwal, Essentials of Educational Psychology, Vikas Publishing House Pvt. Ltd, 2002.
3. Baljit Singh Virk, Addiction to alcohol and other drugs, Indian Publishers and Distributors delhi, 2002.

Reference Books :

1. Ishwar modi, Human values & social changes, Rawat publications, 2000.
2. S.K Sarangi, Values and Ethics of Profession And Business,Asian Book Private Ltd,2004**.**

CMS COLLEGE OF SCIENCE & COMMERCE

(AUTONOMOUS)

(Affiliated to Bharathiar University)

An ISO 9001: 2008 Certified Institution and Re-accredited at the 'A' level with a CGPA of 3.53 out of 4 by NAAC

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Since 1988

III B. Sc. (Information Technology)

SCHOOL OF COMPUTER SCIENCE

SYLLABUS

SCHEME OF EXAMINATION (CBCS)

2013 Onwards

SCHOOL OF COMPUTER SCIENCE

REGULATIONS

Introduction

Applications of computer is one of the thrust areas in science and technology. In appreciation of its growing importance in business and visualizing the career prospects. The curriculum of this course is framed with theoretical concepts in Information Technologies and the students are capable of meeting the ever-changing challenges, having earnestly qualified themselves to be well ahead of time in the IT world.

The training imparted aims to prepare young minds for the challenging opportunities in the IT industry with a global awareness rooted in the Indian soil, nourished and supported by experts in the field.

Objectives

Visualizing on futuristic scenario the three year Bachelor in Information Technology spotlights the era of mass diffusion of computers in IT world.

Six semesters, with one paper in the final semester being an exposure to the real-time project, the course magnifies the minds of the students to explore & push forward, enrich & enable their potential through ample logical reasoning, analytical ability and group discussions to make their way towards developing technical and managerial skills. In order to develop the caliber of each individual, students are trained in logical and lateral thinking to establish them as well-grounded individuals.

Eligibility

Candidate for admission to the first year of the B.Sc. IT degree course shall be required to have passed the higher secondary examination conducted by the Govt. of Tamil Nadu or other examinations accepted as equivalent.

Duration of the Course

Duration of the course is three years comprising of six semesters with two semesters in one academic year. There will not be less than 90 working days for each semester. Examination will be conducted at the end of every semester.

DISTRIBUTION OF THE MARKS AND CREDITS UNDER CBCS

PART	SUBJECT	No of Papers	Marks @	Credits
I	**Language – I** Tamil /Malayalam/Hindi/French	2	200	8
II	**Language – II** English	2	200	8
III	**Core** Subjects	19 **$**	1900	76
	Allied Subjects	4	400	16
	Project	1	250	10
IV	**1 - Non-Major Elective** **Elective – I** Tamil/Advanced Tamil/ Communicative English **Elective – II** Tamil/Advanced Tamil/ General Awareness	2	100 **#**	4
	2 – Skill Based Subjects	4	300	12
	3 – Environmental Studies	1	50 **#**	2
	4- Value Based Education – Ethics and culture	1	50 **#**	2
V	**Extension Activities**	-	50 !!	2
	Add on Courses	3	Grade ##	
	Total	**39**	**3500**	**140**

Note: I

@ Includes 25/40 % continuous assessment marks for theory and practical subjects respectively.
$ In core subjects both theory and practicals should be included wherever applicable.
No Continuous Internal assessment for these subjects
No Continuous Internal assessment for these subjects and no end semester Examinations (Evaluation is based on the performance of Case study/field work…)
!! The Evaluation of extension activities will be based on NSS/NCC/SPORTS
The following parameters are considered throughout study period.

i) Regularity of Attendance
ii) Active participation in classes/Campus/Games (College/District//University)
iii) Exemplary awards/certificates/prizes
iv) Other Social Components (Blood Camp, Fine Arts etc)

CMS COLLEGE OF SCIENCE & COMMERCE, COIMBATORE – 641 049
(Autonomous)
B.Sc. INFORMATION TECHNOLOGY
SCHEME OF EXAMINATION - CBCS PATTERN
(For the students admitted during the academic year 2013 onwards)

Part	Sub code	Subject	Ins.hrs/week	Examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester - I								
I	11T/H/M/F	Language – I	6	3	25	75	100	4
II	12E	English – I	6	3	25	75	100	4
III	13A	Core I – Programming in C	4	3	25	75	100	4
	13B	Core II – Digital Principles and Computer Organization	4	3	25	75	100	4
	13P	Core III – Programming Lab I (C Programming)	3	3	40	60	100	4
	1AA	Allied I – Mathematics-I	5	3	25	75	100	4
IV	11FC	Environmental Studies	2	3	-	50	50	2
Semester - II								
I	21T/H/M/F	Language – II	6	3	25	75	100	4
II	22E	English – II	6	3	25	75	100	4
III	23A	Core IV – Object Oriented Programming in C++	4	3	25	75	100	4
	23B	Core V – Data Structures & Algorithms	4	3	25	75	100	4
	23P	Core VI - Programming Lab II (C ++ & Data Structures)	4	3	40	60	100	4
	2AA	Allied II: Mathematics-II	4	3	25	75	100	4
IV	2FCB	Value Based Education – Ethics and culture	2	3	-	50	50	2

CMS COLLEGE OF SCIENCE & COMMERCE, COIMBATORE – 641 049
(Autonomous)
B. Sc. INFORMATION TECHNOLOGY
SCHEME OF EXAMINATION - CBCS PATTERN
(For the students admitted during the academic year 2013 onwards)

Part	Sub code	Subject	Ins.hrs/week	Examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester - III								
III	33A	Core VII – Programming with Visual Basic	6	3	25	75	100	4
	33B	Core VIII –Relational Database Management System	5	3	25	75	100	4
	33P	Core IX-Programming Lab III-(VB & RDBMS)	5	3	40	60	100	4
	33C	Core X - Operating Systems	6	3	25	75	100	4
	3AA	Allied III - Data Mining & Warehousing	5	3	25	75	100	4
IV		Tamil/Advanced Tamil or Non-major Elective I –(Women's Rights)	2	3	-	50	50	2
V		Add on Course – I (Business English) -	1	-	-	-	Grade	-
Semester - IV								
III	43A	Core XI – Java Programming	6	3	25	75	100	4
III	43B	Core XII – System Analysis and Design	5	3	25	75	100	4
III	43P	Core XIII-Programming Lab IV-(Java)	6	3	40	60	100	4
IV	SSS1	Skill based Subject I - Introduction to Web Design & development	6	3	20	55	75	3
IV	SSS2	Skill based Subject II- Web Designing Lab	4	3	30	45	75	3
IV		Tamil/Advanced Tamil or Non-major Elective II –(General Awareness)	2	3	-	50	50	2
V		Add on Course – II(Life Education) -	1	-	-	-	Grade	-

CMS COLLEGE OF SCIENCE & COMMERCE, COIMBATORE – 641 049
(Autonomous)
B.Sc. INFORMATION TECHNOLOGY
SCHEME OF EXAMINATION - CBCS PATTERN
(For the students admitted during the academic year 2013 onwards)

Part	Sub code	Subject	Ins.hrs/week	Examinations				
				Dur. in hrs	CIA	ESE	Total marks	Credit
Semester – V								
III	53A	Core XIV – VB.NET	6	3	25	75	100	4
III	53B	Core XV – Computer Networks	6	3	25	75	100	4
III	53C	Core XVI – Client- server computing	6	3	25	75	100	4
III	53P	Core XVII-Programming Lab V-(VB.NET)	6	3	40	60	100	4
III	5AA	Allied IV –Grid and Cloud Computing	5	3	25	75	100	4
V		Add on Course – III (Soft Skills)	1	-	-	-	Grade	-
Semester – VI								
III	63A	Core XVIII – E-Commerce	5	3	25	75	100	4
III	63B	Core X IX – Information Security	6	3	25	75	100	4
III	63V	Project & Viva Voce	11	-		250	250*	10
IV	SSS1	Skill based Subject III - ASP.Net Programming	5	3	20	55	75	3
IV	SSS2	Skill based Subject IV- ASP.NET Lab	3	3	30	45	75	3
V		Extension Activities	-	-	-	-	50	2
Total							**3500**	**140**

*** Project -200 marks Project Viva-Voce-50 marks**

Course	B.Sc. Information Technology						
Subject Code	53A	**Subject Title**	VB.NET			**Semester**	V
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	6
For the Batch	2013 onwards		**Credits**				4
Objective & Subject Description	This course presents the concepts of .Net Framework and VB.NET programming. On successful completion the students should have understood the Principles of .NET framework and to develop VB.NET applications.						

UNIT - I

Introduction to vb.net - .net framework& CLR-System namespace-class library-building vb.net application- IDE environment.

UNIT – II

Data types- constants- variables- operators - program flow control statements-procedures-functions-Msgbox () functions, inputbox () functions—built in dialog box-creating MDI application.

UNIT – III

Textbox- Button- Label-Link label-Checkbox- Radio button -Group box- Timer- Horizontal and Vertical scrollbar – Picture Box-List box – Combo box – Track bar – Rich text box – Tree View – List View.

UNIT – IV

Data access with ADO.NET: What are Databases - datasets – accessing data with server-Accessing data with data adapter and datasets- working with ado.net – overview of ado.net objects using server explorer – Creating dataset- populating dataset- Data provider- Displaying data in data grid.

UNIT – V

File handling-Using file Stream Class-File Mode – File Access-File Share-File stream class-Stream Writer – Stream Reader-Binary Reader- Binary Writer-Directory class – File class.
Case study: Payroll, Loan analysis.

Text Book:

1. 'Visual Basic .Net programming black book', Para Glyph Press, 3rd Edition, 2009.

Reference Book :

1. Shirish Chavan , Visual Basic .Net, Pearson Education, 4th Edition, 2004.
2. Visual Basic.Net programming Bible bill, Evjen, Jason Beres et al., 2007.

Course	B.Sc. Information Technology						
Subject Code	53B	**Subject Title**	Computer Networks			**Semester**	V
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	6
For the Batch	2013 onwards		**Credits**				4
Objective & Subject Description	On successful completion of the course the students should have, Understood the use of computer networks and the functions of network layers. This course presents the Introduction to computer networks, the physical layer, Data link layer, network layer, Session layer.						

UNIT – I

Introduction: Use of computer networks: Business Applications – Home Applications – Mobile Users. Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues – Connection Oriented and Connectionless Services. References Models: OSI Reference Model – TCP/IP Reference Model – Comparison of OSI and TCP/IP - Critique of OSI Protocols – Critique of TCP/IP Reference Model.

UNIT – II

Physical Layer – Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission = Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geo-Stationery Satellites – Medium Earth Orbit Satellites – Low Earth Orbit Satellites – Satellites versus Fiber - Public Switched Telephone System – Structure of Telephone System.

UNIT – III

Data Link Layer: Data Link Layer Design Issues – Services Provided To The Network Layer – Framing. Error Detection and Correction: Error Detecting Codes – Error Correcting Codes. Elementary Data Link Protocols: Unrestricted Simplex Protocol – Simplex Stop and Wait Protocol – Simplex Protocol For Noisy Channel. Sliding Window Protocol 1 -Bit Sliding Window Protocol.

UNIT – IV

Network Layer: Design Issues: Store And Forward Packet Switching – Services Provided To The Transport Layer – Implementation Of Connectionless Service – Implementation Of Connection Oriented Service – Comparison Of Virtual Circuit And Datagram Subnets. Routing Algorithms: Optimality Principle – Shortest Path Routing – Flooding – Distance Vector Routing – LinkState Routing – Hierarchical Routing - Broadcast Routing – Multicast Routing - Distant Vector Routing.

UNIT – V

Transport Layer: Services Provided To The Upper Layers – Transport Service Primitives - Elements Of Transport Protocols – Addressing – Connection Establishment And Connection Release. DNS (The Domain Name System): The DNS Name Space – Resource Records – Name Servers.

Text Book:

1. Andrew S. Tanenbaum, Computer Networks, Prentice hall India Pub, Fourth Edition, 2005.

Reference Books:

1. Douglas E. Comer, Computer Networks & Internets with Internet Applications, Pearson Education, Fourth Edition, 2008.
2. William Stallings, Data and computer communications, PHI, seventh edition, 2000.

Course	B.Sc. Information Technology						
Subject Code	53C	**Subject Title**	Client –Server Computing			**Semester**	V
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	6
For the Batch	2013 onwards		**Credits**				4
Objective & Subject Description	This subject deals with the overview of client/server computing, client/server application development and production environments. To enable the students to learn the concept of client/server computing						

UNIT – I

Basic concepts of Client/Server- The client/server computing era-What is client/server-File server- Database servers-Transaction servers- Groupware servers-Object servers-web servers-Middleware. Client/server building blocks - Operating system services - Base services - Extended services - server scalability - Remote procedure calls – Multi servers.

UNIT – II

SQL database servers-What does a Database Server Do?: SQL Database server architectures-Stored procedures, Triggers and Rules Client/Server Transaction Processing: The ACID Properties-Transaction Models.TP Monitors: Managing client/server Transactions: TP Monitors.

UNIT – III

Data warehouses: Information Where you want it: What is OLTP-What is Decision Support System (DSS)-Comparing Decision-Support System(DSS) and OLTP System- The Data Warehouse:What is Data warehouse- The elements Datawarehousing – WareHouse Hierarchies: The DataMarts.EIS/DSS: Query Reporting Tools-OLTP and Multidimensional Data.

UNIT - IV

Client Server Groupware: Why is Groupware Important?-.What is Groupware?- The component of Groupware-Client/Server with Distributed ?Objects: Distributed objects and components : What Distributed object promise- From Distributed Object to components-3 tier Client/Server Object Style

UNIT – V

Web Client/Server- The interactive Era: 3 tier Client/Server, Web Style-HTML 2.0's web based forms- CGI: the server side of the web-Web security.

Text Book:

1. Robert Orfali, Dan Harkey& Jeri Edwards-'The Essential Client / Server Survival Guide',GalgotiaPublication Private Limited, Second Edition, 2008.

Reference Book:

1. Patrick Smith, Steve Guenferich, 'Client / Server Computing', PHI, Second Edition, 2007.
2. Dawana Travis Devire, 'Client / Server Computing',Tata MacGraw Hill, Second Edition, 2008.

Course	B.Sc. Information Technology						
Subject Code	53P	**Subject Title**	Programming lab V (VB.NET)			**Semester**	V
Internal Max:	40	**External Max :**	60	**Total Marks**	**100**	**Hr./Week**	6
For the Batch	2013 onwards		**Credits**				4

LIST OF PRACTICALS

1. Write a console application to create a function to show the difference in passing arrays using byval and byref arguments.
2. Write a console application to create a procedure to calculate the sum of array elements using ParamArray arguments.
3. Write a console application using namespaces.
4. Develop window applications to change the back colors of the form using horizontal Scroll Bars.
5. Develop window applications to use Message Box and Input Box functions.
6. Develop a window application for a notepad.
7. Develop a window application for a simple calculator.
8. Write a window application to create a car animation using timer control.
9. Write a window application to display a digital clock.
10. Write a window application to create a MDI form to display the child form in different style.
11. Write a window application program to create menu bar with sub menus and its type.
12. Write a program to perform the status bar panel and progress bar control
13. Write a program for creating and reading text file.
14. Develop a window application to process student marks(using basic controls).
15. Develop a window application to process for employee payroll system (using basic controls).

Course	B.Sc. Information Technology						
Subject Code	5AA	**Subject Title**	Grid & Cloud Computing			**Semester**	V
Internal Max:	25	**External Max :**	75	**Total Marks**	100	**Hr./Week**	5
For the Batch	2013 onwards		**Credits**				4
Objective & Subject Description	On successful completion of the course the students should have: Understood the cloud computing concepts and understood the grid computing concepts						

UNIT I

Cloud Computing Basics-Cloud computing overview - -Applications- -Intranets and the Cloud-First movers in the cloud – Your organization and cloud computing – when you can use cloud computing – Benefits – limitations – Security concerns – Regulatory Issues.

UNIT II

Cloud Computing Technology-Hardware and Infrastructure-clients-security – Network – services-Accessing the cloud – platform - web Applications – web APIS – Web Browsers.

UNIT III

Standards-Application – Client – Infrastructure – service – cloud computing at work - Software as a service – overview – Driving Forces – Company offerings – Industries.

UNIT IV

Grid Computing-Introduction-Early grid Activities – Current Grid Activities – An overview of grid business Areas – Grid Applications - Grid infrastructure – Grid computing organizations and their roles – organizations developing grid standards and best practice guidelines – organizations developing grid computing toolkits and the framework.

UNIT V

Open grid service Architecture (OGSA) – OGSA Platform components - OGSA Basic services – Common management model – service Domains – policy Architecture –GLOBUS GT3 Toolkit – Architecture - GT3 Software Architecture model.

Text Books:

1. Anthony T. Velte, Toby J.Velte, RobertElsenopeter, 'Cloud Computing a Practical Approach ', TataMcGraw Hill Edition, 2009.
2. JoshyJoseph, CraigFellenstein, 'Grid Computing on DemandSeries', 2004.

Reference Book:

1. Barry Wilkinson Horst D. Simon, Grid Computing, Computational Science Series, Chapman & Hall/CRC, 2009.

Course	B.Sc. Information Technology						
Subject Code	-	**Subject Title**	Add on Course – III (Soft Skills)			**Semester**	V
Internal Max:	-	**External Max :**	-	**Total Marks**	GRADE	**Hr / Week**	1
For the Batch	2013 Onwards		**Credits**				-
Objective & Subject Description	On successful completion of this subject, the students should have understood H.C.M and L.C.M of numbers, decimal fractions, goal setting and its importance, time management matrix and stress management, group Discussion. Helps students learn numerical & analytical abilities, goals, GD.						

UNIT - I

Soft Skills: Introduction – What are soft skills? – Importance of soft skills – Soft skills: social, thinking, negotiating – Exhibiting your soft skills – Identifying, improving and training your soft skills.

UNIT - II

Know Thyself/Self-Discovery: Introduction – Importance of knowing yourself –Process of knowing yourself – SWOT analysis – Benefits of SWOT analysis – Using SWOT analysis – SWOT analysis grid – Questions to complete the grid.

UNIT - III

Career panning: Introduction – Benefits of career planning – Guidelines for choosing a career – Myths about choosing a career – Tips for successful career planning – Developing career goals – Final thoughts on career planning.

UNIT - IV

Group Discussion: Introduction – Meaning of GD - Why GD? – Tips on GD – Types of GD – Skills required in GD – Consequences of GD – Behavior in a GD – Essential elements of GD – Different characters in GD.

UNIT - V

Interview skills: - Introduction – Why an interview? – Types of Interview – Interview panel - Types of questions asked – Reason for selecting a candidate – Reasons for rejecting a candidate – On the day of interview – On to the interview table.

Text Book:

1. Dr.K.Alex, "Soft Skills-Know Yourself and Know the World", S.Chand & Company Ltd, 2011.

Reference Book:

1. Shiv Khera, " You can win", Macmillan publishers India Pvt. Ltd, 2011.
2. Priyadarshipatnaik, "Group Discussion & Interview Skills", Cambridge University Press India Pvt. Ltd, 2011.

Course	B.Sc. Information Technology						
Subject Code	63A	Subject Title	E-Commerce			Semester	VI
Internal Max:	25	External Max :	75	Total Marks	100	Hr./Week	5
For the Batch	2013 Onwards		Credits				4
Objective & Subject Description	After the successful completion of the course the student must be aware of Techniques in Application of e-commerce. This course is designed to provide knowledge about Electronic Commerce.						

UNIT - I

E-Commerce Frame work- E-commerce and media convergence - Anatomy of E-Commerce Applications- E-Commerce consumer applications- E-Commerce organization application. The internet as a network infrastructure: Internet Terminology- NSFNET: Architecture and component- National research and education network- Globalization of the academic internet.

UNIT - II

Network security and Firewalls: Client Server Network Security Emerging Client Server Security threats- Firewalls and Network security – Data and message security-Encrypted documents and Electronic Mail. E-Commerce and WWW: Hypertext publishing– Technology behind the web- Security and the web.

UNIT – III

Electronic Payment systems – Types of Electronic Payment systems –Digital Token based Electronic payment System- Smart Card and Electronic Payment systems - Credit Card based Electronic Payment System – Risks and Electronic Payment systems – Designing Electronic Payment System. Interorganizational commerce and EDI: Electronic data exchange- EDI applications in business- EDI and Electronic commerce.

UNIT - IV

EDI Implementation, MIME, and value added networks: Standardization and EDI- EDI Software Implementation – EDI Envelope for message transport- Value Added Networks- Internet-based Networks (VANs). Inter organizational E-Commerce: Internal information systems- Macro forces and internal commerce.

UNIT - V

The internet protocol suite: Layers and networking- internet protocol suite- desktop TCP/IP: SLIP and PPP- other forms of IP-Based networking- Mobile TCP/IP-based networking-Multicast IP. Broadband telecommunications: Broadband background concepts- frame relay- cell relay- Switched multimegabit data service (SMDS) – Asynchronous Transfer Mode (ATM).

Text Book :

1. Ravi Kalakota & Andrew B. Whinston, " Frontiers of Electronic Commerce", 4th Edition, Pearson Education, 2006.

Reference Book :

1. David R. Kosiur, "Understanding Electronic Commerce", Microsoft Press, 1997

Course	B.Sc. Information Technology						
Subject Code	63B	Subject Title	Information Security			Semester	VI
Internal Max:	25	External Max :	75	Total Marks	100	Hr./Week	6
For the Batch	2013 onwards		Credits				4
Objective & Subject Description	On successful completion of the course the students should have: Understood the Information security concepts.						

UNIT –I

Information storage and Communication – Information Storage – Purpose of Storage – Types of Storage Devices – File Organization – Internal File Structure – External File structure and File Extensions – Data Communication – an Overview – What is Data Communications – signals – Basic Data Communication Model – Modulation Techniques – Summary.

UNIT II

Introduction to E-Commerce – Introduction – The Elements of commerce – Building an E-commerce site –who stands to Gain – who Stands to lose – Security Threats to E-commerce – client Threats – Communication channel Threats – Server Threats – Implementing Security (Life cycle) – Security Engineering Life Cycle – Security Requirements – Security policy – Security Infrastructure – Testing E-commerce security – Compliance checking – penetration Testing – Ecommerce Infrastructure – E-Governance – Electronic payments – Electronic Tokens - Electronic or Digital cash – Electronic cheques – Electronic Publishing – Summary.

UNIT III

Cryptographic systems – Introduction – Cryptographic System Types – Symmetric cryptography – Asymmetric or public key ,cryptography – Hash function – why three Encryption Techniques – public key Algorithms – RSA public key Algorithm – Digital signature s- Diffie–hellman – ElGamal -cyber laws and ethics – introduction to cybercrime – prevention – preventive step for individual – preventive steps for organizations and Government – How to protect the Computer Against Threat's - Detection – Cyber Laws – Legal Issues involved in E-Commerce – Summary.

UNIT –IV

Indian IT Act and Ethical Issues – Indian IT Act – Ethical Issues in IT – Types of Ethical Issues in I.T – Intellectual property Rights and Ethical Issues – Copy Rights and Ethical Issues – Ethical Hacking and Ethical Issues – plagiarism – Software privacy and Ethics – Summary – Information security Framework – Information security and privacy – Security Framework – Information systems security framework – Framework for network security .

UNIT –V

Access control Techniques – Computer security and Access control – Access control Techniques – Biometrics Authentication –Authentication Token – Token types and usages – Digital signature – Embodiments and vendors – Related Authentication Technologies – Computer Forensics - cases study – Information security in Defense – Information security in Banking.

Text Book:

1. Pankaj Agarwal, "Information Security & Cyber Laws" Publisher : Acme Learning Private Limited, First Edition, 2010.

Reference Book:

1. Amy Rose, Deborah Arrand, Kristin E.Ohlim, Malloy, Michael G.Solomon, Mike Chapple, "Information Security Illuminated", Jones & Barlett Publishers, 2005.

Course	B.Sc. Information Technology						
Subject Code	SSS1	**Subject Title**	Skill Based Subject ASP.Net Programming			**Semester**	VI
Internal Max:	20	**External Max :**	55	**Total Marks**	75	**Hr./Week**	5
For the Batch	2013 onwards		**Credits**				3
Objective & Subject Description	This course presents the concepts of .Net Framework and ASP.NET programming. On successful completion the students should have understood the Principles of .NET framework and to develop ASP.NET applications.						

UNIT – I

Introduction to ASP.net - .net framework- CLR-Common type system -.net framework class library-IDE environment- application state – session state-view state.

UNIT – II

Control class-Web control class – label – textbox – list box – dropdown list – view control- tree view control – sitemap path control – creating static menu – dynamic menu – add rotator control – xml control.

UNIT – III

Base Validators class - Validation Controls- Required Field Validators-Comparison Validator-Range Validator- Regular Expression validator- Custom Validators – Validation Summary- using menu class :menu control-menu display properties-menu styles.

UNIT – IV

ADO.net –entity framework-Data binding using data bound controls- SQL data source - Working with data Grid view control- Working with details view control- form view control.

UNIT – V

Introduction to web service- Infrastructure of asp.net web service-code model of asp.net web service – asp.net AJAX and web service – securing web service.
Case study: online reservation system, banking system.

Text Book:

1. ASP.Net Black Book Published by Dream Tech Press, 3rd edition, 2009.

Reference Book:

1. ASP.Net Complete Reference Published by McGraw-Hill Companies, 4th edition, 2002.
2. "Visual Basic.Net programming Bible" bill evjen, Jason beres et al, 2007.

Course	B.Sc. Information Technology						
Subject Code	SSS2	**Subject Title**	Skill Based Subject ASP.NET Lab			**Semester**	VI
Internal Max:	30	**External Max :**	45	**Total Marks**	75	**Hr./Week**	3
For the Batch	2013 onwards		**Credits**				3

LIST OF PRACTICALS

1. Design a web page.
2. Create a college website with using link labels
3. Write a program to find the number of hits in a website.
4. Write an asp.net program using HTML and CSS.
5. Design an online application form using html form class.
6. Create a nested master page.
7. Write a program to upload a file.
8. Write an asp.net program to create a tree view for the web pages.
9. Write an asp.net program to create a site map path.
10. Write an asp.net program to perform validation control.
11. Create a directory class to retrieve the file.
12. Create a text file to read and append a text.
13. Display a data grid using SQL data source.
14. Develop a window application to process student marks (using basic controls).
15. Develop a window application to process for employee payroll system.
    (Using basic controls)