

**ST. JOSEPH'S COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
CUDDALORE-1**



**PG & RESEARCH DEPARTMENT OF
COMPUTER SCIENCE**

**B.Sc(Computer Science)
SYLLABUS 2017 - 2018**

ST.JOSEPH'S COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)

Cuddalore - 607001.

Name of the Department : P.G. and Research Department of Computer Science

Name of the Course : B.Sc(Computer Science)

Minutes:

The meeting of the Board of Studies for B.Sc(Computer Science) was held at P.G and Research Department of Computer Science, St. Joseph's College of Arts & Science(Autonomous), Cuddalore on 10th , March 2017 at 10:00 AM.

Details of the Expert Members in the Board of Studies

S.No.	Category	Name And Official Address	Phone No.& E-Mail ID	Affiliation	Term
1.	Chairman	Mr.M.Arurai Selvam, Head, PG & Research Dept.Of Comp.Science, St.Joseph's College Of Arts & Science (Autonomous), Cuddalore-1.	9443260804 Arurai_selvam@yahoo.com	Thiruvalluvar University	
2.	University Nominee	Dr.K.Geetha Head,Dept.Of Comp.Science, Periyar Arts College, Cuddalore.	9442121371 kl.geethe@gmail.com	Thiruvalluvar University	
3.	Subject Expert	Dr.A.Martin Assitant Professor, Dept. Of Comp.Science, School Of Mathematics & Computer Science, Central University Of Tamil Nadu, Thiruvarur, Tamil Nadu-610 101	9500900380 cudmartin@gmail.com	Central University of Tamil Nadu	

4.	Subject Expert (Industry / Corporate Sector)	Mr.V.Vigneshwara Raj, Managing Partner and Founder, Vikiinformatic School Of Computing and Softskills Cuddalore.	9488249587 vikiinformatic@gmail.com		
5.	Alumni Representative	Mrs.G.Kalaiselvi, Head,Department of Computer Science, Krishnasamy College Of Science,Arts and Management For Women, Cuddalore.	9047842006 kalaiimani1981@gmail.com	Thiruvalluvar University	
6.	Member (Internal) B.Sc(CS)	Mrs.T.Miranda Lakshmi, Assistant Professor	cudmiranda@gmail.com 9600970087	Thiruvalluvar University	
7.		Mr. A.R. Johnson Durai Assistant Professor	duraiar@gmail.com 9842548585	Thiruvalluvar University	
8.		Mr. A Arun. Benedict , Assistant Professor	arunbenedict.sjc@gmail.com 9659323407	Thiruvalluvar University	
9.		Mrs. J.Hemalatha, Assistant Professor.	hema8727@gmail.com 9790559668	Thiruvalluvar University	
10.		Ms. D.Alice Ilamathy Alexis Assistant Professor	alice.d4309@gmail.com 9566987616	Thiruvalluvar University	

The meeting started with a prayer and the experts were formally introduced by the Chairman. The curriculum designed for B.Sc., Computer Science was taken for discussion and the members approved most of the subjects and proposed for some new papers.

- ✓ In IIIrd semester Java Programming and in IVth semester Advanced java Programming is Combined and it is introduced in the IIIrd semester as a single paper.
- ✓ Instead of Advanced Java Programming in IVth semester Internet Programming paper is introduced in IVth semester and it is removed from the VIth semester. In the VI semester Mini Project is introduced.
- ✓ In IV semester Computer Graphics is shifted to Vth semester as Elective Paper and Operating System paper in the Vth shifted to IVth semester as a core paper.
- ✓ In the existing syllabus C#.net(Vth semester) and Asp.Net(VIth semester) has been revised and made as a single paper named as Programming using Microsoft Technologies(C# with Asp.net) for Vth semester.
- ✓ In the existing syllabus DCN (VIth semester) is changed as elective in the Vth semester and computer Architecture (Vth semester) is shifted as core paper in VIth semester.
- ✓ Two new papers are introduced in the VIth semester Open Source Technologies- PHP and Advance Computer Technologies is added .

The changes were unanimously approved by all the members of the board and the restructured curriculum was framed successfully.

Finally Mrs.T.Miranda Lakshmi gave the Vote of Thanks. The meeting was over by 10.30 A.M.

Date: 10th , March 2017

PROGRAMME

BOARD OF STUDIES FOR B.Sc(Computer Science)

1. Prayer song
2. Welcome Address by Head of the Department
3. Agenda-1
Discussion of the Syllabus for B.Sc(Computer Science)
4. Vote of Thanks
4. Tea

PG and Research Department of Computer Science
B.Sc Computer Science (Template)

Semester	Code	Part	Subject Title	Hours	Credit
I	LT101S/LH101/LF101	I	Tamil-I / Hindi-I / French-I	4	3
	LE101S	II	English – I	4	3
	CS101S	III	Programming in C	4	3
	CS102S	III	Digital Logic Fundamentals	4	3
	CSP101S	III	Lab : Programming in C	3	2
	AMCS101	III	Allied (Maths– I)	8	6
	VE101	IV	Value Education	3	2
		IV	Extra curricular Course (After Class hours)	-	3
			Total	30	25
II	LT202S/LH202/LF202	I	Tamil-II / Hindi-II / French-II	4	3
	LE202S	II	English – II	4	3
	CS203S	III	Object Oriented Programming in C++	4	3
	CS204S	III	Fundamentals of Data Structures	4	3
	CSP202S	III	Lab – Object Oriented Programming in C++	3	2
	AMCS202	III	Allied (Maths – II)	8	6
		IV	Skill based courses	3	2
		IV	Extra Curricular Course (After Class hours)	-	3
			Total	30	25
III	LT303SLH303/LF303	I	Tamil-III / Hindi-III / French-III	4	3
	LE303	II	English – III	4	3
	CS305S	III	Java Programming	4	3
	CS306S	III	Fundamentals of Algorithms	4	3
	CSP303S	III	Lab III - Java Programming	3	2
	ASC301S	III	Allied Optional (Statistics – I)	8	6
		IV	Aptitude –I	3	2
		IV	Extra Curricular Course (After Class hours)	-	3
			Total	30	25

Semester	Code	Part	Subject Title	Hours	Credit
IV	LT404S/LH404/LF404	I	Tamil-IV / Hindi-IV / French-IV	4	3
	LE404	II	English – IV	4	3
		III	Internet Programming	4	3
	CS408	III	Operating System	4	3
		III	Lab IV– Internet Programming	3	2
	ASCS402S	III	Allied Optional (Statistics – II)	8	6
	AOSS401S	IV	Soft Skills	3	2
		IV	Extra Curricular Course (After Class hours)	-	3
			Total	30	25
V	CS509	III	Relational Database Management System	6	5
		III	DOT Net Technologies	5	5
		III	Elective - I 1.Computer Graphics*	6	5
			2. Cloud Computing		
	ECS512	III	Elective - I: 1. * Data Communications and Networks	5	4
			2. Electronic Commerce		
	CSP505	III	Lab V: Oracle	3	3
	CSP506	III	Lab VI: DOT Net Technologies	5	3
		Total	30	25	
VI		III	Computer Architecture	5	5
		III	Open Source Technologies-PHP	6	5
	ECS615S	III	Software Engineering	6	5
		III	Elective - II: 1. Advanced Technologies*	5	4
			2. Multimedia		
		III	Lab VII: Open Source Technologies-PHP	5	3
		III	Lab VIII: Mini Project*	3	3
	EU601		Extension Activities		
		Total	30	25	

I B.Sc (CS)	PROGRAMMING IN C	CS101S
SEMESTER - I		HRS/WK-4
CORE - 1		CREDIT – 3

Objective:

To understand the basic concepts of a structured programming language.

UNIT – I

10hrs

Basics Of C: C fundamentals Character set – Identifier and keywords – data types – constants– Variables – Declarations – Expressions – Statements – operators – Library functions.

UNIT – II

10hrs

I/O and Control Statements: Data input output functions - Simple C programs - Flow of control – if, if- else, while, do-while, for loop, nested control structures – switch, break and continue, go to statements.

UNIT –III

15hrs

Function and Storage classes: Function – Definition – Prototypes – Passing arguments – Recursion - Storage classes.

UNIT – IV

15hrs

Arrays, Structures and Unions: Arrays – Defining and Processing – Passing arrays to functions – Arrays and string - Structures and Unions.

UNIT – V

10hrs

Pointers and Files: Pointers – Declarations – Passing pointers to function – Operation on Pointers – Pointer and Arrays – Files and operation on files.

Text Books:

1. Programming in ANSI C by E.Balagurusamy.
2. Ashok N.Kamthane, Programming with ANSI and Turbo C, Pearson Education.

Reference Books:

1. B.W. Kernighan and D.M. Ritchie, the C programming Language.
2. H. Schildt, C: The Complete Reference, TMH Edition,.
3. Kanetkar Y., “Let us C”, BPB Pub., New Delhi.

I B.Sc (CS)	DIGITAL LOGIC FUNDAMENTALS	CS102S
SEMESTER - I		HRS/WK-4
CORE - 2		CREDIT - 3

Unit-I: Binary Systems :

Digital Computers and Digital Systems - Binary Number System – Binary Addition – Binary Subtraction- Binary Multiplication and Division-Number Base Conversion: decimal, binary, octal, hexadecimal .

Unit-II: Boolean Algebra and Logic Gates :

Basic Definitions of Boolean Algebra - Basic Theorems and Properties of Boolean Algebra - Digital Logic Gates : AND, OR, NOT , NAND, NOR, Exclusive OR and Exclusive NOR Gates- DeMorgan’s Theorem – Universal gates.

Unit-III: Simplification of Boolean Functions :

Sum of Products and Product of Sums - Karnaugh Maps - Two and Three Variable Maps - Four Variable Map -Don't Care Conditions - Rolling the Map – Eliminating Redundant Groups.

Unit-IV: Combinational Logic circuits:

Adders: Half Adder, Full Adder – Subtractors: Half Subtractor, Full subtractor. - Binary Adder-BCD Adder – Encoder - Decoders – Multiplexers – Demultiplexers.

UNIT-V: Sequential circuits:

Flip Flops – RS Flip Flop – Clocked RS Flip Flop – D Flip Flop – JK Flip Flop – T Flip Flop – Master Slave Flip Flop - Counters: – Asynchronous and synchronous Counter

Text Books

1. M. Morris Mano, "Digital Logic and Computer Design", PHI, 1996
2. Principles of Digital Electronics, Dr. K. Meena, PHI Learning Private Limited, New Delhi 2009.

Reference Books

1. Louis Neshelsky, "INTRODUCTION TO DIGITAL TECHNOLOGY", John Wiley & Sons, Third Edition, 1983. 2. Digital Logic Design – Ployd
2. “**Digital Logic Design Principles**” -Norman Balabanian , Bradley Carlson -John Wiley & Sons, Inc.

I B.Sc (CS)	PROGRAMMING IN C	CSP101S
SEMESTER - I		HRS/WK-3
CORE- PRACTICAL -1		CREDIT - 2

Objective

To understand the working nature of a powerful programming language.

1. Control Statements
 - a. Implementing Control statements
 - b. Implementing Loop structures.
2. Summation of series
3. String Manipulation.
4. Sorting
 - a. Bubble Sort
 - b. Selection Sort
 - c. Insertion Sort
5. Searching
 - a. Linear Search
 - b. Binary Search.
6. Matrix Manipulations
7. Recursion
8. File Handling - Mark sheet.

I B.Sc (CS)	OBJECT ORIENTED PROGRAMMING IN C++	CS203S
SEMESTER - II		HRS/WK-4
CORE – 3		CREDIT - 3

Objective:

This paper deals with all the concepts involved in Object Oriented programming with reference to C++ .

UNIT –I

10 hrs

OOP'S: Principles of Object Oriented Programming [OOP]: Evolution of C++ - Programming paradigms – Key concept of OOP – Advantages of OOP- Usage of OOP and C++ - Input and Output in C++ - Streams.

UNIT-II

10 hrs

C++ Fundamentals and Functions: Stream classes-Unformatted console I/O Operations – Introduction to C++ - Tokens, Keywords, Identifiers, Variables, Operators, Expressions and Control structures in C++ pointers and arrays –Function in C++ - Main function–function prototyping –Parameters passing in Functions – Values Return by functions – Inline Functions –Function overloading.

UNIT-III

15 hrs

Object Manipulation and Polymorphism: Classes and objects; Constructors and Destructors; and Operator Overloading and type Conversion –Friend and Virtual functions.

UNIT-IV

15 hrs

Inheritance: Single Inheritance – Multilevel inheritance – Multiple inheritances – Hierarchical – Hybrid Inheritance - Virtual Base class-Virtual Functions and Polymorphism

UNIT-V

10 hrs

Working with Files: Classes for File Stream Operation – Opening and Closing a File – End –of – File Detection – File Pointers-Updating a File – Error Handling during File Operation – Command-line Arguments.

Text Books:

1. E.Balagurusamy, Object Oriented Programming with C++.
2. The C++ Programming Language: Special Edition by Bjarne Stroustrup
3. C++ Primer by Stanley B. Lippman, Josie Lajoie, and Barbara E. Moo

Reference Books:

1. Ashok N. Kamthane, Object Oriented Programming with ANSI & Turbo C + +, Pearson Education, Practical C++ Programming, by Steve Oualline
2. C++ Without Fear: A Beginner's Guide That Makes You Feel Smart by Brian R. Overland

I B.Sc(CS)	FUNDAMENTALS OF DATA STRUCTURES	CS204S
SEMESTER – II		HRS/WK-4
CORE – 4		CREDIT - 3

Objective:

This subject will make the student to get acquire with different storage techniques and also make them to implement the logic using different algorithms.

UNIT –I

10 hrs

Introduction to Data structure: Definition of a Data structure - Primitive and Composite Data types, Arrays, Operations on Arrays - Order Lists.

Unit-II

10 hrs

Stacks and Queues: Stacks – Operation - Application of Stack - Infix to Postfix Conversion - Queues- Operations on Queues, Queue Applications - Circular Queue.

Unit – III

15 hrs

Linked List: Singly Linked List - Representation of a Polynomial - Polynomial addition - Doubly Linked List.

Unit – IV

15 hrs

Trees: Binary trees - Representation – Conversion of Forest to Binary tree - Tree Traversals.

Unit – V

10 hrs

Graphs: Definition – Graph Representation - Types of Graphs - Shortest Path (Dijikistras Algorithm).

Text Books:

1. E. Horowitz, S.Sahni and Mehta – Fundamentals of “Data structures in C++” Galgotia.
2. R.Kruse and N.Dale and S.C. Lily – Pascal plus Data Structures Algorithms and Advanced Programming – Tata McGrawHill – New Delhi .
3. Data structures using C and C++ by Langsam, Augenstein and Tanenbaum, PHI/Pearson Education.

Reference Books:

S.E Goodman and S.T. Hedetniemi, Introduction to the Design and Analysis of Algorithms, Mc Graw Hill, International Edition.Data Structures and Algorithm Analysis in C++ by Mark Allen Weiss, Pearson Education.

I B.Sc(CS)	PROGRAMMING WITH C++ For the students admitted in the year 2010	CSP202S
SEMESTER - II		HRS/WK-3
CORE– Practical -2		CREDIT - 2

Objective:

To implement all object oriented programming concepts using C++ and to implement different data structures techniques using it.

1. Implementing class and Objects.
2. Implementing Inline function
3. Implementing Friend function.
4. Implementing Constructor and Destructor
5. Implementing Operator overloading
6. Implementing Inheritance.

DATA STRUCTURE USING C++

7. Implement PUSH, POP operations of stack using Arrays.
8. Implement add, delete operations of a queue using arrays.
9. Conversion of infix to postfix using stacks operations.
10. Binary tree traversals [In – order, Pre-order, and Post-order] using Recursion.

YEAR – II	JAVA PROGRAMMING	CS305S
SEMESTER - III		HRS/WK-4
CORE – 5		CREDIT - 3

Objective:

To understand the power of JAVA language in internet programming.

UNIT – I **10 hrs**

Fundamentals of Java Language: Introduction to Java – Features of Java – Object Oriented Concepts – Data Types – Variables – Arrays – Operators - Control Statements.

UNIT – II **15 hrs**

Inheritance, Polymorphism and Java Modifier: Classes – Objects – Constructors – Overloading method – Access control – Static and fixed methods – Inner classes – Inheritance – Overriding methods – Using super – Abstract class.

UNIT – III **10 hrs**

Packages, Interfaces and Exception Handling: Packages – Access Protection – Importing Packages – Interfaces – Exception Handling.

UNIT –IV **10 hrs**

Thread,I/O and File Stream: Thread – Synchronization - Runnable Interface – Multithreading - I/O Streams – File Streams .

UNIT – V **15 hrs**

String and Util Class : String Objects - String Buffer – Char Array - Java Utilities: Vector class, Random class, Calendar class, Date Class.

Text Books:

1. Cray S. Horstman, Gray Cornell – Core Java 2 Vol. I and Vol. II – 7th Ed. PHI, 2000.
2. H. Schildt – Java2 (The Complete Reference) – Fourth Edition, TMH 1999.
3. Java 2 Platform Unleashed by

Reference Books:

1. Wesley, K. Arnold and J. Gosling – The Java Programme Language Addison.
2. Java How to Program by H.M.Dietel and P.J.Dietel, Pearson Education/PHI, Sixth Edition
3. Beginning in Java 2 by Iver Horton, Wrox Publications

YEAR – II	FUNDAMENTALS OF ALGORITHMS	CS306S
SEMESTER - III		HRS/WK-4
CORE – 6		CREDIT - 3

Objective:

To enable the students learn the basic concepts of Algorithms.

UNIT-I

[12Hrs]

Divide and Conquer: Introduction to Algorithm- Complexity analysis- Divide and Conquer - Strassen's Matrix Multiplication-Quick sort-Merge sort- Binary Search- Finding Max and Min.

UNIT-II

[12Hrs]

Dynamic Programming: General method-multistage graph-Traveling salesman problem

UNIT-III

[12Hrs]

Basic Traversal and Search Technique: Depth first search- Breadth first search- Back Tracking- Graph colorings.

UNIT-IV

[12Hrs]

Greedy method: General Method - Shortest path- 0/1 Knapsack problem

UNIT-V

[12Hrs]

Np Hard and Np Complete Problem: Basic concepts of Np-Hard and Np-Complete.

Text Books:

1. E.Horowitz.S.Sahni and S.Rajasekaran- *Computer Alogrithms*- Glogtia Pub, Pvt.Ltd.,- 1998.
2. Design and Analysis of Computer Algorithms by Alfred V. Aho
3. Introduction to Algorithms, Third Edition by Thomas H. Cormen

Reference Books:

1. G.Brassard and Brately -Fundamentals of Algorithm- PHI-1997.
2. Data Structures and Algorithm Analysis in C++ by Mark Allen Weiss, Pearson Education, Second Edition

YEAR – II	JAVA PROGRAMMING	CSP303S
SEMESTER– III		HRS/WK-3
CORE – Practical - 3		CREDIT - 2

Objective:

To enable the students to learn the basic function of JAVA programming and to make students to acquire the skill in JAVA programming.

1. Finding area and Perimeter of a circle. Use Buffered Reader class.
2. Determining the order of numbers generated randomly using Random class.
3. Implementing and importing packages.
4. Implementing Interfaces-Arithmetic Manipulations
5. Exception Handling
6. Multithreading
7. String Manipulation using buffered Reader
8. Usage of Calendar Class and manipulation
9. Thread implementation using Synchronization
10. Application using File streams(Sequential File)

II B.Sc (CS)	INTERNET PROGRAMMING For the students admitted from the year 2017	
SEMESTER - VI		HRS/WK-
		CREDIT –

Objective:

To enable the students to learn the principles of Internet programming.

UNIT -I: [12 hrs]

Internal Concepts: Internet Services – Types of accounts - Media for internet – ISP – TCP/IP and Connection software – Dial-up Networking –setting up and Internet Connection – Testing connection – Disconnecting from the Internet .

UNIT -II : [12 hrs]

Contenters: Issues in high-speed Connection – Connecting via ISDN, ASDN and cable Modem – Intranets – Components of an Intranet – steps for creating Intranet – Maintenance – Connecting LAN to Internet .

UNIT- III: [12 hrs]

E-mails: Downloading E-Mails – Signatures and Stationery – Web based E-Mail – E-mail task – Outlook Express – Sending and Receiving Files using Eudora – Outlook Express and Pine – Multiple e-Mail Accounts – Sending form Letters – Formatting E-mail – E-mail mailing List.

UNIT IV [12 hrs]

Internet Basics: Introduction to HTML – List – Creating Table – Linking Document Frames – Graphics to HTML Doc.

UNIT V [12 hrs]

Java Script: Introduction – Advantage of JAVA Script - JAVA Script Syntax – Data type – Variable – Array – Operator and Expressions – Looping Constructor – Function – Dialog Box.

TEXT BOOKS:

1. Internet – Margaret Levine Young – The Complete Reference – Millennium Edition – TMH Edition – 1999 .
2. The Internet For Dummies by John R. Levine, Margaret Levine Young, and Carol Baroudi
3. The Everyday Internet All-in-One Desk Reference For Dummies (For Dummies (Computer/Tech)) by Peter Weverka
4. How the Internet Works (8th Edition) by Preston Gralla
Harley Hahn , The Internet – Complete Reference – Second Edition – TMH Edition
5. Bayross, Web Enable Commercial Application Development Using HTML, DHTML, Java Script, Pen CGI,BPB Publications, 2000.

Reference Books:

1. Harley Hahn , The Internet – Complete Reference – Second Edition – TMH Edition .
2. The Everyday Internet All-in-One Desk Reference For Dummies (For Dummies (Computer/Tech)) by Peter Weverka
3. T.A.Powell, Complete Reference HTML (Third Edition), TMH, 2002.

II B.Sc (CS)	OPERATING SYSTEM	
SEMESTER - V		HRS/WK-
		CREDIT – 5

Objective:

This paper is intended to make the student aware of all concepts related to operating system.

UNIT-I

[12 hrs]

Introduction to Operating System: Definition of Operating System- Booting – Kernel- History of Operating system - Operating system functions – File system.

UNIT-II

[12 hrs]

Process Management and Deadlock: Process Management - Inter-process communication - Dead Lock - Dead Lock prerequisites - Dead Lock Strategies.

UNIT-III

[12 hrs]

Memory Management: Memory Management - Single Contiguous – Fixed Partitioned – Variable Partitions – Non-Contiguous allocations - Paging – Segmentation - Virtual Memory Management Systems.

UNIT-IV

[12 hrs]

GUI and Security: GUI – Components of GUI – Requirements of Windows based GUI – Security Protection: Threats – Attacks – Worms – Virus - Design principles – Authentication – Protection mechanisms – Encryption.

UNIT-V

[12 hrs]

UNIX: Unix-Architecture of Unix-File System of Unix- Basic commands in UNIX.

Text Books:

1. A.S.Godbole-Operating Systems-TMH-1999.
2. A.Silberschatz and P.B.Galvin- Operating system concepts-Addison-Wesley Publishing company, Fifth Edition, 1998.

Reference Books :

1. Andrew S.Tannenbaum, “Operating Systems: Design and Implementation”, 3/e, PHI,2006.
2. Charles Crowley, ”Operating Systems-A design Oriented Approach”,Tata MCGraw Hill , 1998.
3. William Stallings, “Operating Systems”,5/e PHI/Pearson Education , 1997.

YEAR – II	SOFT SKILLS For the students admitted from the year 2013	AOSS401S
SEMESTER– IV		HRS/WK-4
		CREDIT - 3

Unit-I

Group Discussion: Why Group Discussion is important- Types of Group Discussion- Techniques in Group Discussion-Tips for Group Discussion.

Unit-II

Interview Preparation- Common Interview Questions - Questions to Ask Your Employer- What Employers Want- Attitude & Effort - Body Language –Types of Interview: The Mock Interview- Phone Interviews- Behavioural Interviews- Closing the Interview- Thank You Notes & Follow-Ups.

Unit-III

Quantitative Aptitude: Time and work -Time and Distance -Heights and Distances
Data Interpretation: Tabulation – Bar Graphs – Pie Charts – Line Graphs.

Unit-IV:

Logical Reasoning (1): Analogies –Arrangement-Causes and Effects -Family Tree- Puzzles based questions.

Unit V

Logical Reasoning (2): Sequence and Series -Code based questions on letters of alphabet-Syllogism-Statement and Conclusion.

References:

1. Group Discussion: A Practical Guide to Participation And Leadership by Kathryn Sue Young, Julia T. Wood, Gerald M. Phillips and Douglas J. Pedersen (Jun 25, 2006)
2. How To Interview Like A Pro: Forty-Three Rules For Getting Your Next Job Paperback – July 25, 2012-by JD Mary Greenwood (Author)
3. R.S. Aggarwal, Objective Arithmetic , S. Chand & Company, New Delhi , 2005
4. Govind Prasad Singh and Rakesh Kumar, Text Book of Quickest Mathematics (for all Competitive Examinations), Kiran Prakashan, 2012
- 5.R.S. Aggarwal, Quantitative Aptitude, S. Chand & Company, New Delhi, 2012

II B.Sc, (CS)	Internet Programming Practicals For the students admitted from the year 2017	
SEMESTER - IV		HRS/WK-
Core – Practical		CREDIT –

1. Design a simple web page in html using formatting tags to display your address at the center of the screen.
2. Display you're like things and dislike things using Html list.
3. Display an image in html with comments.
4. Design a web page using anchor tag to display about the important persons in India.
5. Use html Frames to divide the screen and load few web pages in a screen.
6. Use html Forms to design your Bio-data.
7. Design menus in Html.
8. Design simple Calculator using Java Scripts.
9. Use functions in Java script.
10. Use strings in Java Script.

III B.Sc (CS)	Relational Database Management System	CS509
SEMESTER – V		HRS/WK-6
CORE –		CREDIT – 5

Objective:

To make the students aware of all concepts related to Database.

Unit – I

[12 hrs]

Database management system: Definition – purpose of database systems – data abstraction – data models – instances and schemes – data independence – database manager – database administrator – database users – overall system structure.

Unit II

[12 hrs]

Entity Relationship Model: Entities and entity sets – Relationships and Relationship sets – attributes – mapping constraints – keys –E-R diagram – Reducing E-R diagrams to tables – generalization – aggregation.

Unit – III

[12 hrs]

Relational Model: the relational algebra – the tuple relational calculus – the domain relational calculus.

Unit – IV

[12 hrs]

Normalization: First Normal Form – Second Normal Form – Third Normal Form – Boyce – Codd normal form - Fourth Normal Form.

Unit – V

[12 hrs]

Oracle SQL: DDL,DML,DCL operations – integrity constraints – string functions – number functions – data arithmetic – selecting distinct values – working with null values –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.

Text Books:

1. Henry F.Korth & Abraham Silberschatz “Database System concepts”- TMH-1998.
2. Albert Lulushi-Developing ORACLE FORMS Applications – PHI-1997.
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.

III B.Sc, (CS)	PROGRAMMING USING MICROSOFT TECH. (C# WITH ASP.NET) For the students admitted in the year 2017	
SEMESTER - V		HRS/WK-5
CORE –		CREDIT – 5

Objective:

To make the student get exposed with the latest programming concept Dot net and to equip them with skills related to c# programming.

UNIT-I [15 hrs]

Introduction to Dot Net:- Dot Net Framework –CLR-MSIL-JIT-Managed Code-Benefits of Dot Net.

UNIT -II: [15 hrs]

C#.Net: Data types-Variables-Arrays-Properties-Namespace-Methods-Interface-Delegation.

UNIT-III: [15 hrs]

Asp.net: Difference between Asp and Asp.net-Architecture of Asp.net-Execution model-Difference between Code Behind and aspx file-Implementation of simple web application.

UNIT-IV: [15 hrs]

Controls in C#: Button-Textbox-Timer-PictureBox-RadioButton-Menu. Web Controls: AdRotator-Validation-Calendar .

UNIT –V: [15 hrs]

ADO.NET: ADO.Net Objects Model – Architecture of ADO.NET-Working with Grid control-Working with Crystal Report Viewer control.

TEXT BOOKS:

1. Harvey M.Deitel & Paul J.Deitel- c# Programmers- Second Edition-Pearson Edition.
2. Yashavant Kanetkar, 2004 C#.Net. Motilal Books of India.
3. Peter Drayton , Ben Albahari, Ted Neward. C# in an nutshell. O'Reilley Publication.
4. E.Balaguruswamy. Programming with C# - 1- Edition. Tata McGraw – Hill Publication.

REFERENCE BOOKS

1. Herbert Schlitz. 2002 C# - A Beginner's Guide. Osborne/ McGraw – Hill Publication.
2. Burton Harvey, Simon Robinson, Julian Templeman and Karli Waston, 'C# Programming with the Public Bata', Shroff Publishers & Distributors Pvt. Ltd(SPD) Mumbai, April 2001.
3. Ben Albahart, Peter Drayton and Brad Merrill, 'c# Essentials', SPD, Mumbai March 2001.
4. Thamari Selvei, A text Book on C#: A Systematic Approach to OOP, Pearson Ed.

III B.Sc(CS)	DATA COMMUNICATION NETWORKS For the students admitted in the year 2017	
SEMESTER - V		HRS/WK-
Elective –		CREDIT - 5

Objective:

To enable the students to get acquainted with the basics of Networks and to make them concentrate on research side with respect to networks.

Unit I [12 hrs]

Networks : protocols and standard – line configuration – topology – transmission mode – categories of networks – inter networks.

Unit II [12 hrs]

The OSI Model : functions of the layers – TCP/IP protocol suite – signals – analog and digital signal – periodic and a periodic signals – analog signals – digital signal – data transmission – data terminal equipment – data circuit terminals equipment – modems.

Unit III [12 hrs]

Transmission Media: guided media – unguided media – transmission impairments – media comparison. Multiplexing – FDM – TDM – WDM. Error detection and correction – types of errors–detection – vertical redundancy check (VRC) – longitudinal redundancy check (LRC) – cyclic redundancy check (CRC) – check sum – error correction.

Unit IV [12 hrs]

Switching: Circuit switching – packet switching – message switching – networking and internetworking devices – repeaters – bridges – routers – gateways.

Unit V [12 hrs]

Routing algorithms: distance vector routing – link state routing – data link control – line discipline – flow control – error control.

Text Books:

1. “Data Communications and Networks” – Behrouz A Forouzan, Second Edition, Tata McGraw Hill, 2002.
2. “Data and Computer Communication”, William Stallings, 7th Edition, Pearson Education – 2006.
3. Introduction to Data Communications and Networking by Wayne Tomasi

Reference Books:

1. William Stallings, “Data & Computer Communications”, Sixth Edition, Pearson Education, 2001.
2. Introduction to Data Communications and Networking by Behrouz Forouzan, Catherine Ann Coombs, and Sophia Chung Fegan.
3. Fred Halsall, “Data Communications, Computer Networks and Open Systems”, Addison Wessley, 1995.

III B.Sc (CS)	CLOUD COMPUTING	
SEMESTER - V		HRS/WK-6
Elective - I		CREDIT - 5

UNIT I – Fundamentals Of Grid And Cloud Computing [12 hrs]
Fundamentals – Cloud computing – History of Cloud Computing – Cloud Architecture – Cloud Storage – Why cloud computing Matters – Advantages of Cloud computing – Disadvantages of Cloud Computing – Companies in the Cloud Today – Cloud Services

UNIT II – Developing Cloud Services [12 hrs]
Web-Based Application – Pros and Cons of Cloud Service Development – Types of Cloud Service Development – Software as a Service – Platform as a Service – Web Services – On-Demand computing – Discovering Cloud Services Development Services and Tools – Amazon Ec2- Google App Engine – IBM Clouds.

UNIT III – Cloud Computing For Everyone [12 hrs]
Centralizing Email communications – collaborating on Schedules – Collaborating on To-Do Lists – Collaborating Contact Lists – Cloud computing for the Community – Collaborating on Group Projects and Events – Cloud Computing for the Corporation.

UNIT IV – Using Cloud Services [12 hrs]
Collaborating on Calendars, Schedules and Task Management – Exploring Online Scheduling Applications – Exploring Online Planning and Task Management – Collaborating on Event Management – Collaborating on Contact Management – Collaborating on Project Management – Collaborating on Word Processing – Collaborating on Databases – Storing and Sharing Files – Evaluating Web Mail Services – Evaluating Web Conference Tools – Collaborating via Social Networks and Groupware – Collaborating via Blogs and Wikis.

UNIT V – Grid Computing [12 hrs]
OGSA – Sample Use Cases – OGSA Platform Components – OGSI – OGSA Basic Services. Globus Toolkit – Architecture – Programming Model – High Level Services – OGSI.Net. Middleware Solutions.

Text Book:
Michael Miller, Cloud Computing : Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.

REFERENCE BOOK :
Haley Bear, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs.

III B.Sc (CS)	E -COMMERCE	
SEMESTER - V		HRS/WK-5
Elective –II		CREDIT - 4

Objective:

Almost all Business that is done in this world is electronically. This paper deals with all issues pertaining to the E-Commerce and equips the students with almost all technical issues regarding E-Commerce.

Unit-1

[12 HRS]

Electronic commerce environment and opportunities: Background – the electronic commerce environment - electronic marketplace technologies – models of electronic commerce: Overview – electronic data interchange – migration to open EDI – electronic commerce with WWW/Internet – Commerce Net Advocacy – Web commerce going forward.

Unit-2

[12 HRS]

Approaches to safe electronic commerce: Overview – secure transport protocols – secure transactions – secure electronic payment protocol(SEPP) – Secure electronic transaction(SET) – certificates for authentication – security on web servers and enterprise networks – electronic cash and electronic payment schemes: Internet monetary payment and security requirements – payment and purchase order process – on-line electronic cash.

Unit-3

[12 HRS]

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-4

[12 HRS]

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 – how does E-mail work? – MIME: Multipurpose internet mail extensions – S/MIME: Secure multipurpose internet mail extensions – MOSS: Message object. Security services – Comparisons of security methods – MIME and related facilities for EDI over the internet.

Unit-5

[12 HRS]

Internet and web site establishment: Introduction – technologies for web servers – internet tools relevant to commerce – internet applications for commerce – internet charges – internet access and architecture – searching the internet – internet resources: A travelogue of web malls: Introduction – a shopping experience – a travelogue – applications: Advertising on the internet: Issues and technologies: Introduction – advertising on the web – “Marketing 101” – creating a web site.

Text Books:

1. Daniel Minoli and Emma Minoli. 1999. *Web commerce technology handbook*. Tata Mc Graw Hill.
2. Kamallesh K Bajaj and Debjani Nag. 1999. *E-Commerce, the cutting edge of business*. TataMc Graw Hill.
3. Janice Reynolds. 2004. *The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business*. Focal Press Publication.

Reference Books:

1. Kenneth C. Laudon, Carol Guercio Traver. 2001. *E-commerce: Business, Technology, Society*. Addison Wesley Publication.
2. Constance H. McLaren, Bruce J. McLaren. 1999. *E-commerce: Business on the Internet South*. Western Educational Publication.

III B.Sc (CS)	ORACLE	CSP505
SEMESTER – V		HRS/WK-3
CORE –		CREDIT - 3

Objective:

To make the student aware of the Back-End tool.

SQL

1. Simple Queries using DDL,DML and DCL
2. SQL Aggregate Functions
3. SET Operations
4. Views and Snapshots
5. Multiple Tables and Nested Queries

PL/SQL

6. PL/SQL Block
7. Function and Procedures
8. Subprograms and Packages
9. Triggers
10. Cursors

Forms and Reports

11. Designing Oracle Forms using Menus and Buttons
12. Developing Oracle Reports.

III B.Sc, (CS)	PROG. USING MS TECH. (C # WITH ASP.NET) PRACTICAL For the students admitted in the year 2017	
SEMESTER - V		HRS/WK-5
PRACTICAL 6		CREDIT - 3

Objective:

To improve the programming skills of the students with respect to C# and also to develop web application using asp.net and to make the students to know the latest programming concepts.

WINDOWS APPLICATION:

1. To develop simple student bio data
2. Create a color chooser using standard control.
4. To develop Notepad Application.
5. Login Form Creation using Ms Access.

WEB APPLICATION:

6. Create an application to sending a request from one page to another using session.
7. Create a simple website for an organization using Master Page.
8. To develop database application for student mark list processing using validation control (Oracle)
9. To develop database Application for Telephone Directory to store phone number, Customer name and Customer address and display it with Grid View control.(SQL server)

III B.Sc (CS)	SOFTWARE ENGINEERING	ECS615S
SEMESTER - VI		HRS/WK-6
Elective - I		CREDIT - 5

Objective:

To introduce the concepts of software Engineering and the various phases in Software development in order to equip the students in developing project.

Unit - I: [12 hrs]

Software Engineering and Models: Introduction -Characteristics of Software-Software Myths-**Process Models:** The Waterfall Model- Incremental Process Models: The Incremental Model ,The RAD Model - **Evolutionary Process Models** : Prototyping ,The Spiral Model ,The Concurrent Development Model.

Unit –II : [12 hrs]

Requirement Engineering: Requirement Engineering Tasks - Initiating the Requirements Engineering Process- Eliciting Requirements.

Unit III: [12 hrs]

Building Analysis Model: Requirement Analysis - Data Modeling – Flow Oriented Modeling – Class Based Modeling – Creating a Behavioral Model.

Unit –IV: [12 hrs]

Testing: Testing strategies: Test Strategies For Conventional Software- Validation Testing – System Testing –White Box Testing – Basic Path- Control Structure – Black Box Testing.

Unit –V: [12 hrs]

Project Management: The Management Spectrum- The People – The Product, The Process - Formal Technical Reviews.

Text Books:

1. R.S.Pressman – Software Engineering –Sixth Edition McGraw Hill International edition – 2005.

Reference Books:

1. Richard Fairley – Software Engineering – (Design,Reliability and Management) – Tata McGraw Hill edition –1983.
2. Software Engineering: (Update) (8th Edition) by Ian Sommerville

III B.Sc (CS)	COMPUTER ARCHITECTURE For the students admitted in the year 2017	
SEMESTER - VI		HRS/WK-
		CREDIT -

Objective:

Know and understand the main components of a computer system and the considerations in their design.

Unit-I **[12 hrs]**

Central Processing Unit: General Register and stack Organization-Instruction Formats-Addressing Modes-Data Transfer and Manipulation.

Unit-II **[12 hrs]**

Pipelining: Arithmetic, Instruction and RISC Pipelining-Vector Processing.

Unit –III **[12 hrs]**

Computer Arithmetic: Addition and Subtraction –Multiplication and division Algorithms – Floating Point and Decimal Arithmetic operations.

Unit- IV **[12 hrs]**

Input Output Organization: Peripheral Devices- I/O Interface - Asynchronous Data Transfer-Models of Transfer-Priority Interrupt – Direct Memory Access – I/O Processor.

Unit –V **[12 hrs]**

Memory Organization : Memory Hierarchy – Main Memory-Auxiliary Memory – Associative Cache and Virtual Memory.

Text Books:

1. M.M.Mano-Computer System Architecture -3rd Edition-PHI-1994
2. J.P.Haynes- Computer System Architecture-McGrawHill-1988
3. Computer Architecture: A Quantitative Approach, 4th Edition by John L. Hennessy and David A. Patterson

Reference Books :

1. Pal Chaudhary p, Computer Organization and Design, Prentice Hall of India , 2004.
2. Hayes J P , Computer Organization and Architecture , 2nd Edition , McGraw Hill, 1998.
3. Tanenbaum A S, Structured Computer Organization, 6th Edition, Prentice Hall, 2006.

III B.Sc (CS)	MULTIMEDIA	
SEMESTER - VI		HRS/WK-5
Elective II		CREDIT - 4

Objectives:

- ❖ To enable the students to learn the concepts of Multimedia.

UNIT - I: (10 Hrs)

WHAT IS MULTIMEDIA: Definitions – Where to use multimedia – Introduction to Making Multimedia: What you need – Macintosh and Windows production platforms.

TEXT: The power of meaning – About fonts and faces – Using text in multimedia – Computers and Text – Font editing and Design tools – Hypermedia and Hypertext.

UNIT - II: (13 Hrs)

SOUND: The power of sound – Multimedia system sounds – MIDI versus Digital Audio – Digital Audio – Making MIDI audio – Audio, File formats – Working with sound on the Macintosh – Notation Interchange File Format (NIFF) – Adding sound to your multimedia project. **IMAGES:** Making still Images – Color – Image file formats.

UNIT - III: (12 Hrs)

ANIMATION: The Power of Motion – Principles of Animation – Making animations that works.

VIDEO: Using Video – How Video works – Broadcast video standards – Integrating computers and television – Shooting and Editing Video – Video tips – Recording formats – Digital Video.

UNIT - IV: (13 Hrs)

PLANNING AND COSTING: Project planning – Estimating – RFPs and Bid Proposals - Designing – Producing.

MULTIMEDIA PACKAGES: Cool3d, Photoshop, Sound forge, Windows Movie maker, Flash- a Simple Project for Multimedia using the Multimedia Packages.

UNIT - V: (12 Hrs)

INTRODUCTION TO VIRTUAL REALITY: Introduction to virtual reality – goals of virtual reality- Issues in Virtual Reality- Introduction to VRML.

Text Books:

1. Tay Vaughan – “Multimedia Making it Work” - McGraw Hill, 1994.
2. John Hayward – Adventures in Virtual Reality, One Publications

Reference Book(s):

1. Jeffcoate, Judith – “Multimedia in Practice” - Prentice Hall, 2001.
- 2.

III B.Sc, (CS)	Open Source Technologies-PHP For the students admitted in the year 2017	
SEM – VI		CREDIT - 5
CORE PRACTICAL- 7		HRS/WK- 5

Objective:

To impart basic knowledge of PHP and MySQL.

UNIT-I [15 Hrs]

ESSENTIAL PHP: Creating your Development Environment – Mixing HTML and PHP – Command - Line PHP – Working with Variables – Creating Constants – Understanding PHP’s Internal Data types – Operators and Flow Control.

UNIT-II [15 Hrs]

STRINGS AND ARRAYS: String Functions- Converting to and from Strings - Formatting Text String -Modifying Data in an Array-Deleting Array Elements- Arrays with Loops - PHP Array Functions-Sorting Arrays.

UNIT-III [15 Hrs]

CREATING FUNCTIONS: Passing Functions-Passing Arrays to Functions- Passing by Reference-Using Default Arguments- Returning Data from functions- Nesting Functions.
CONTROL STATEMENTS: Data Input/Output functions - flow of control-control structures - switch, break and continue - Go to statement-comma operator.

UNIT-IV [15 Hrs]

READING DATA IN WEB PAGES: Setting up web pages to communication with PHP- Handling Text Fields-Checkbox-Radio buttons-Password Controls- List boxes- Buttons – Hidden Control – File Upload.

UNIT-V [15 Hrs]

WORKING WITH DATABASES: Creating a MYSQL Database-Creating a New Table- Putting Data into the New Database-Accessing the Databases in PHP-Updating Databases- Inserting New Data Items into a Database- Deleting Records-Creating New Tables-Creating a New Database-Sorting your Data.

TEXT BOOK

Steven Holzner, "The Complete Reference PHP", Tata McGraw Hill Pvt.Ltd., 2008.

BOOK FOR REFERENCE

Leon Atkinson, "Core PHP programming", Pearson Education, 2004.

III B.Sc, (CS)	PROGRAMMING IN PHP For the students admitted in the year 2017	
SEM – VI		CREDIT - 5
CORE PRACTICAL-		HRS/WK- 5

Objective:

To enable the student to build applications in PHP.

1. Simple Programs
2. String Functions
3. Arrays
4. Functions
5. Create a Home Page using PHP
6. Form creation using POST method
7. Database Operations
8. Login form
9. Student mark list creation
10. Electricity bill preparation.

III B.Sc, (CS)	Project Viva-Voce For the students admitted in the year 2014	
SEMESTER - VI		HRS/WK-3
CORE-8 Project Viva-Voce		CREDIT - 3

Objective:

The main objective of this Project is to expose the students to industry atmosphere and to get a broad idea to develop project.

Group Project : A group consist of 3 students.

FORMAT FOR PREPARING PROJECT REPORT

Arrangement of contents

1. Title Page
2. Bonafide Certificate
3. Acknowledgement
4. Table of contents
5. Abstract
6. Chapters of the Report
7. References
8. Appendices, if any

Appendices should be named as

APPENDIX - A
APPENDIX - B

BINDING SPECIFICATION

Report should be bound using flexible cover of thick white art paper.
The Spine for the bound volume should be of black color of 2cms width.
The Cover should be printed in block letters.

MARGIN SPECIFICATION

Top : 4 cm s
Bottom : 3 cm s
Left : 4.5 cm s
Right : 2.5 cm s

PAGE NUMBERING

All Page numbers should be typed without punctuation on the bottom-center portion of the page. The Preliminary pages(table of contents and abstract) should be numbered in lowercase roman literals. Pages of main text, starting with chapter-1, Should be consecutively numbered using Arabic numerals.

TITLE PAGE

TITLE OF THE PROJECT

A project report

Submitted for the partial fulfillment for

the award of degree of

BACHELOR OF COMPUTER SCIENCE

By

STUDENT'S NAME

(Register Number)

Under the Guidance of

GUIDE'S NAME

COLLEGE ADDRESS

Month and year

CERTIFICATE

CERTIFICATE

This is to certify that the project report entitled

TITLE OF THE PROJECT

being submitted to the St.Joseph's College of Arts and Science (Autonomous),Affiliated to

Thiruvalluvar University-Vellore.

By

Mr./Ms.STUDENT'S NAME

For the partial Fulfillment for the award of degree of

BACHELOR OF COMPUTER SCIENCE

Is a Bonafide record of work carried out by him/her, under

my guidance and supervision.

Head of the Department

Internal Guide

Submitted for the viva-voce examination on-----

Examiners:

1.

2.

THEORY EXAMINATION

Continuous Internal Assessment (CIA) 25 marks

Two Internal Examinations	10 marks
Assignment / Seminar	10 marks
Attendance	5 marks
Total	25 marks

External Examination (75 marks)

Question Pattern

B. Sc. Computer Science

Time: 3 Hrs

Max. Marks: 75

Section – A (5 x 5 = 25)

Answer ANY FIVE out of eight.

One question from each unit and three questions from important topics with problems and programs

Section – B (5 x 10 = 50)

Answer ANY FIVE out of EIGHT.

One question from each unit and three questions from important topics with problems and programs

PRACTICAL EXAMINATION

Continuous Internal Assessment (CIA) (40 marks)

Based on the periodical evaluation of record and experiments assessed by the staff in charge

External Examination (60 marks)

Total Marks: 60

Time: 3 Hrs

Program	- 50 marks
Record	- 10 marks
Total	- 60 marks