ALAGAPPA UNIVERSITY, KARAIKUDI
NEW SYLLABUS UNDER CBCS PATTERN (w.e.f.2017-18)

B.Sc. COMPUTER SCIENCE – PROGRAMME STRUCTURE

Sem	Part	Course Code	Title of the Course	Cr.	Hrs./ Week	Int.	Ext.	Total
I	I	711T	**Tamil/other languages – I**	3	6	25	75	100
	II	712E	**English – I**	3	6	25	75	100
	III	7BCE1C1	**Core–I**– Programming in C	4	6	25	75	100
		7BCE1P1	**Core–II**–Programming in C Lab	4	6	**40**	**60**	100
			Allied – I (Theory only) **(or)**	5	5	25	75	100
			Allied – I (Theory cum Practical)	4	3	15	60	75
			Allied Practical – I	-	2**	--	--	---
	IV	7NME1A/ 7NME1B/ 7NME1C	**(1) Non-Major Elective–I** – **(A)**jkpo;nkhopapd; mbg;gilfs;;;/ **(B)** ,f;fhy ,yf;fpak; / **(C)** Communicative English	2	1	25	75	100
			Total (Allied Theory only)	21	30	--	--	**600**
			Total (Allied Theory cum Practical)	20				**575**
II	I	721T	**Tamil/other languages – II**	3	6	25	75	100
	II	722E	**English – II**	3	6	25	75	100
	III	7BCE2C1	**Core – III** – Object Oriented Programming with C++	4	6	25	75	100
		7BCE2P1	**Core – IV** – Object Oriented Programming with C++ Lab	4	5	**40**	**60**	100
			Allied – II (Theory only) **(or) Allied– II** (Theory cum Practical)	5	5	25	75	100
				4	3	15	60	75
			Allied Practical – I	2	2	20	30	50
	IV	7BES2	**(3) Environmental Studies**	2	2	25	75	100
			Total (Allied Theory only)	21	30	--	--	**600**
			Total (Allied Theory cum Practical)	22				**625**
III	I	73IT	**Tamil/other languages – III**	3	6	25	75	100
	II	732E	**English – III**	3	6	25	75	100
	III	7BCE3C1	**Core – V** – Data Structures and Computer Algorithms	4	5	25	75	100
		7BCE3P1	**Core–VI**–Data Structures and Computer Algorithms Lab (using C and C++)	4	5	**40**	**60**	100
	IV		**Allied – I** (Theory only) **(or)**	5	5	25	75	100
			Allied – I (Theory cum Practical)	4	3	15	60	75
			Allied Practical – I	-	2**	--	--	---
	IV	7NME3A/ 7NME3B/ 7NME3C	**(1) Non-major Elective– II** – **(A)** ,yf;fpaKk; nkhopg;gad;ghLk;/ **(B)**goe;jkpo; ,yf;fpaq;fSk; ,yf;fpatuyhWk;/ **(C)** Effective Employability Skills	2	1	25	75	100
		7SBS3A1/ 7SBS3A2/ 7SBS3A3	**(2) Skill Based Subjects – I**	2	2	25	75	100
	V	7BEA3	**Extension activities**	1	-	100	--	100

			Total (Allied Theory only)	24	30	--	--	800
			Total (Allied Theory cum Practical)	23				775
IV	I	741T	**Tamil/other languages – IV**	3	6	25	75	100
	II	742E	**English – IV**	3	6	25	75	100
	III	7BCE4C1	**Core – VII** – Java Programming	4	4	25	75	100
		7BCE4P1	**Core–VIII–**Java Programming Lab	4	5	**40**	**60**	100
			Allied – II (Theory only) **(or) Allied– II** (Theory cum Practical)	5	5	25	75	100
				4	3	15	60	75
			Allied Practical – I	2	2	20	30	50
	IV	7SBS4B1/ 7SBS4B2/ 7SBS4B3	**(2) Skill Based Subjects – II**	2	2	25	75	100
	IV	7BVE4/ 7BMY4/ 7BWS4	**(4) Value Education / Manavalakalai Yoga / Women's Studies**	2	2	25	75	100
			Total (Allied Theory only)	23	30	--	--	700
			Total (Allied Theory cum Practical)	24				725
V	III	7BCE5C1	**Core – IX** – Operating System	4	5	25	75	100
		7BCE5C2	**Core – X** – Relational Database Management Systems	4	5	25	75	100
		7BCE5P1	**Core – XI** – Relational Database Management Systems Lab	4	6	**40**	**60**	100
		7BCEE1A / 7BCEE1B	**Elective–I-A)** Data Mining and Data Warehousing **(or) B)**WEB Design	5	5	25	75	100
		7BCEE2A / 7BCEE2B	**Elective–II– A)** Digital Principles and Computer Organization **(or) B)** Microprocessor and Microcontroller	5	5	25	75	100
	IV	7SBS5A4/ 7SBS5A5/ 7SBS5A6/ 7SBS5A7	**(2) Skill Based Subjects – I**	2	2	25	75	100
			(2) Skill Based Subjects – I	2	2	25	75	100
			Total	26	30	--	--	700
VI	III	7BCE6C1	**Core – XII –**Computer Networks	4	5	25	75	100
		7BCE6C2	**Core – XIII** – Computer Graphics	4	5	25	75	100
		7BCE6C3	**Core – XIV** – Software Engineering	4	5	25	75	100
		7BCE6PR	**Core–XV–Project Work & Viva-Voce**	4	6	**40**	**60**	100
		7BCEE3A/ 7BCEE3B	**Elective – III – A)** VB.NET and ASP.NET programming **(or) B)** Programming with Linux, Apache, MySQL, and PHP (LAMP)	5	5	25	75	100
	IV	7SBS6B4/ 7SBS6B5/ 7SBS6B6/ 7SBS6B7	**(2) Skill Based Subjects – II**	2	2	25	75	100
			(2) Skill Based Subjects – II	2	2	25	75	100
			Total	25	30	--	--	700
			Grand Total	140	180	--	--	4100

** University Examinations will be held in the Even Semesters only.

B.Sc. Computer Science

Practical Subjects:
The following list of parameters taken into account for the evaluation of practical examination. *Total Marks: 100 (Internal: 40 marks, External: 60 Marks)*

Parameters:
For Internal Marks:

i. Internal test: 20
ii. Record Work: 20

Total: 40

For External Marks:

i.	Aim, Procedure / Algorithm and Program:	15
ii.	Coding and Compilation:	15
iii.	Debugging:	15
iv.	Results:	15

Total: 60

For Project Work:

1. The students will be allowed to work on any project based on the concepts studied in core/elective courses.

2. The project work should be compulsorily done in the college only under the supervision of the department staffs.

3. The combined project shall be undertaken by the students as a team of two.

4. The number of teams should be equally assigned to existing Staff members.

5. The following list of parameters taken into account for the evaluation of Project work and Viva-voce.
   Total Marks: 100 (Internal: 40 marks, External: 60 Marks)

Parameters:

For Internal Marks: Two review meetings: $2 \times 15 = 30$ Marks
Overall Performance: $= 10$ Marks

For External Marks: Project Report: 20 Marks
Project demo &Presentation: 20 Marks
Viva-Voce: 20 Marks

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B.Sc., COMPUTER SCIENCE

I YEAR – I SEMESTER
COURSE CODE: 7BCE1C1

CORE COURSE-I–PROGRAMMING IN C

Unit I

Overview of C: History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – **Operators andExpressions:** Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

Unit II

Managing I/O Operations: Reading and Writing a Character – Formatted Input, Output – **Decision Making & Branching:** if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops.

Unit III

Arrays: One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. **Strings:** Declaration, Initialization of string variables – reading and writing strings – string handling functions.

Unit IV

User-defined functions: need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. **Structures and Unions:** Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions – unions – size of structures – bit fields.

Unit V

Pointers: the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. **Files**: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Text Book:

1. Programming in ANSI C, E.Balagurusamy, 6th Edition, Tata McGraw Hill Publishing Company, 2012.
    UNIT I: Chapters 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)
    UNIT II: Chapters 4 – 6
    UNIT III: Chapters 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)
    UNIT IV: Chapters 9 (Except 9.20), 10
    UNIT V: Chapters 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

Books for Reference:
1. Programming with C, Schaum's Outline Series, Gottfried, Tata McGraw Hill, 2006
2. Programming with ANSI and Turbo C , Ashok N.Kamthane , Pearson Education, 2006
3. H. Schildt, C: The Complete Reference, 4th Edition, TMH Edition, 2000.
4. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

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CORE COURSE-II–PROGRAMMING IN C LAB

Group – A

1. Write a C Program to find the sum of digits.

2. Write a C Program to check whether a given number is Armstrong or not.

3. Write a C Program to check whether a given number is Prime or not.

4. Write a C Program to generate the Fibonacci series.

5. Write a C Program to display the given number is Adam number or not.

6. Write a C Program to print reverse of the given number and string.

7. Write a C Program to find minimum and maximum of 'n' numbers using array.

8. Write a C Program to arrange the given number in ascending order.

9. Write a C Program to add and multiply two matrices.

10. Write a C Program to calculate NCR and NPR.

Group- B

1. Write a C Program to find the grade of a student using else if ladder.

2. Write a C Program to implement the various string handling function.

3. Write a C Program to create an integer file and displaying the even numbers only.

4. Write a C Program to calculate quadratic equation using switch-case.

5. Write a C Program to count number of characters, words and lines in a text file.

6. Write a C Program to generate student mark list using array of structures.

7. Write a C Program to create and process the student mark list using file

8. Write a C Program to create and process pay bill using file

9. Write a C Program to create and process inventory control using file

10. Write a C Program to create and process electricity bill using file

Note:
        One Question from Group A and another one Question from Group B is compulsory for University Examination.

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CORE COURSE-III–OBJECT ORIENTED PROGRAMMING WITH C++

Unit I

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – Userdefined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types- Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit II

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

Unit III

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes: Nestingof classes.

Unit IV

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing output with manipulators.

Unit V

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

Text Book:

1. Object Oriented Programming with C++**,** E. Balagurusamy, Sixth Edition**-**2013, McGraw Hill Education (India) Private Limited, New Delhi.
   UNIT I – Chapter 1 (Except 1.3, 1.4),
   Chapter 2 (Only 2.6),
   Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4

UNIT II – Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)
UNIT III – Chapter 7, Chapter 8
UNIT IV – Chapter 9, Chapter 10
UNIT V – Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4)

Books for Reference:
1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deitel, Harvey Deitel, PHI, Ninth edition (2014).
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++, Pearson Education, 2006.
4. Object-Oriented Programming With C++, PoornachandraSarang, 2nd Edition, PHI Learning Private Limited, New Delhi, 2009.
5. Object-Oriented Programming Using C++, Alok Kumar Jagadev, Amiya Kumar Rath andSatchidanandaDehuri, Prentice-Hall of India Private Limited, New Delhi, 2007.

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CORE COURSE-IV–OBJECT ORIENTED PROGRAMMING WITH C++ LAB

Group – A

1. Printing Prime numbers between two given numbers.

2. Printing 3 digit numbers as a series of words. (Ex. 543 should be printed out as Five Four Three).

3. Finding area of geometric shapes using function overloading.

4. Inline functions for simple arithmetic operations.

5. Demonstrating the use of Pre-defined Manipulators.

6. Demonstrating the use of friend function.

7. Creating student mark list using array of objects,

8. Demonstrating constructor overloading.

9. Overloading the unary – operator.

10. Demonstrating single inheritance.

11. Demonstrating the use of "this" pointer.

12. Designing our own manipulator.

13. Illustrating function templates.

14. Illustrating class templates.

Group - B

1. Overloading the binary + operator.

2. Demonstrating Multiple inheritance.

3. Demonstrating Multilevel inheritance.

4. Demonstrating Hierarchical inheritance.

5. Demonstrating Virtual functions.

6. Processing mark list using binary file.

7. Count number of objects in a file.

8. Demonstrating the use of Command-line arguments.

Note:
   One Question from Group A and another one Question from Group B is compulsory for University Examination.
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CORE COURSE-V–DATA STRUCTURES AND COMPUTER ALGORITHMS

Unit I

    Introduction to data structure: The need for data Structure-Definitions-Data Structures-Arrays: Introduction, range of an array-one dimensional array-two dimensional array-special types of matrices-linked lists: Introduction - benefits and limitations of linked list-Types-singly linked lists-circular linked lists-doubly linked lists.

Unit II

    Stack: Introduction- ADT stack - implementation of stack- application of stack - **Queue:** Introduction - implementation of basic operations on array based and linked list based queue -circular Queues.

Unit III

    Trees: Introduction–binary Trees-representation of binary trees-Binary tree Traversals -Recursive procedures of traversal methods-Expression Trees-Threaded Trees-Application of Trees.

Unit IV

    Algorithms: Introduction: What is an Algorithm? – Algorithm Specification – Performance Analysis – Divide and Conquer: General method – Binary Search – Finding the maximum and minimum – Merge Sort – Quick Sort – Selection –Strassen's Matrix Multiplication.

Unit V

    The Greedy Method: General Method – Knapsack problem – Job Sequencing with deadlines – Optimal Storage on tapes – Optimal merge patterns

    Minimum cost spanning trees: Prim's Algorithm – Kruskal Algorithm – Dynamic Problem: All pairs of shortest path – single source shortest path-Travelling salesman problem.

    Graph: Graph terminology-connecteed graph-graph traversal techniques-

Text Books:

1. Data Structures, A. Chitra, P. T. Rajan, Vijay Nicol Imprints Pvt Ltd, 2006, McGrawHillEducation of India Pvt Ltd.
   > UNIT I – Chapter 1, 3 (Except Multi-dimensional Arrays) and 4 (Except Simple Algorithms on linked lists, Circular doubly linked lists, multiple linked lists, applications, polynomial representation, polynomial addition, representation of polynomials)
   > UNIT II – Chapters 5, 6 (Except Tower of Hanoi, Dequeue)
   > UNIT III – Chapters (Except Priority Queues)
2. Fundamentals of Computer Algorithms, Ellis Horrowitz, SaratajSahni, Galgottia Publications Pvt Ltd, New Delhi
   > UNIT IV – Chapter 1 (Except 1.4), Chapter 3 (Except 3.2, 3.9)
   > UNIT V – Chapter 4 (Except 4.2, 4.6.3)

Books for Reference:

1. Data Structure and Algorithm Analysis in C – Mark Allen Weiss – Second Edition, Addison Wesley publishing company, 1997.
2. C and C++ Programming concepts and Data Structures, P.S.Subramanyam, BS Publications, 2013.
3. Data Structures and Algorithms, Alfred V.Aho, John E.Hopcraft and Jeffrey D.Ullman, Pearson Education, Fourteenth Impression, 2013.

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CORE COURSE-VI–DATA STRUCTURES AND COMPUTER ALGORITHMS LAB
(Using C and C++)

Group A
(Programs from Data Structures Using C)

1. Implementing Stack as an array.

2. Implementing Stack as a linked list.

3. Convert Infix expression to Postfix expression using stack.

4. Convert Infix expression to Prefix expression using Stack.

5. Implementing Queue as an Array.

6. Implement Queue as a linked list.

7. Binary tree traversals.

8. Implement Binary Search Tree.

Group B
(Programs from Computer Algorithms Using C++)

1. Linear Search

2. Binary Search

3. Bubble Sort

4. Insertion Sort

5. Merge Sort

6. Quick Sort

7. Selection Sort

Books for Reference:

1. C and C++ Programming concepts and Data Structures, P.S.Subramanyam, BS Publications,2013.

Note:
  One Question from Group A and another one Question from Group B is compulsory for University Examination.

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CORE COURSE-VII–JAVA PROGRAMMING

Unit I

Java Evolution:

Java History – Java Features – Java and Internet – World Wide Web –Web Browsers – H/W and S/W requirements – Java Support Systems – Java Environment.

Overview of Java language:

Introduction – Simple Java Program –Comments – Java Program Structure –Tokens – Java Statements – Implementing a Java Program – JVM – Command Line Arguments. Constants – Variables – Data Types – Type Casting.

Unit II

Operators and Expressions:

Arithmetic Operators – Relational, Logical, Assignment, Increment and Decrement, Conditional, Bitwise, Special Operators – Arithmetic expressions, Evaluation of expression – Precedence of Arithmetic Operators – Type Conversions – Operator Precedence and associativity – Mathematical Functions. **Decision Making and Branching:** If – if…..else – Nesting of if……. Else – else if – switch - ?Operator. **Decision Making and Looping:** While – do – for – jump in loops – labeled loops.

Unit III

Classes, Objects and Methods:

Defining a class – Adding variables, methods – Creating objects – Accessing Class Members– Constructors – Methods overloading – static members – Nesting of Methods – Inheritance – Overriding methods – final Variables and methods – Final classes – finalizer methods – Abstract methods and classes – visibility control. **Arrays, Strings and Vectors:** Arrays – One Dimensional Arrays – Creating an array – Two Dimensional Arrays – Strings – Vectors – Wrapper Classes **Interfaces: Multiple Inheritance** Defining interfaces – Extending interfaces – implementing interfaces – Accessing interface variables.

Unit IV

Packages:

Java API Packages – Using system packages – Naming conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – hiding classes.

Multithreaded Programming:

Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread methods – Thread Exceptions – Thread Priority – Synchronization – Implementing the 'Runnable' Interface

Managing Errors and Exceptions:

Types of errors – Exceptions – Syntax of Exception handling code – Multiple Catch Statements – Using finally statement – Throwing our own Exceptions – Using Exceptions for Debugging.

Unit V

Applet Programming:

How applets differ from Applications – preparing to write applets – Building Applet Code – Applet life cycle – creating an Executable Applet – Designing a Web Page – Applet Tag – Adding Applet to HTML file – Running the Applet – Passing parameters to Applets – Displaying Numerical values – Getting input from the user

Graphics Programming:

The Graphics Class – Lines and Rectangles – Circles and Ellipses – Drawing Arcs – Drawing Polygons – Line Graphs – Using Control Loops in Applets – Drawing Bar Charts.

Text Book:

1. Programming with java, E.Balagurusamy TMH, 4th Edition.

Books for Reference:

1. Java 2- The Complete Reference , Herbert Schildt , 5th Edition(2002) , McGraw Hill Education (India) Private Limited.
2. Programming with Java (Schaum's Outline Series) , John R.Hubbard, , 2ndEdition(2004), McGraw-Hill International Editions.
3. Programming in Java2, By Dr.K.Somasundaram , Publisher : First Edition JAICO Publishing House, 2008.

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CORE COURSE-VIII–JAVA PROGRAMMING LAB

Group –A

1. Applet Program to Displaying Digital Clock . (Ex: 09:15:45 AM)

2. Applet Program to Draw our National Flag.

3. Applet Program to Draw Bar Charts with different colors.

4. Applet Program to draw Building with attractive colors.

5. Applet Program to addition and multiplication of two numbers

6. Write applets to draw the following Shapes:

7. **(a).** Cone **(b).** Cylinder **(c).** Square inside a Circle **(d).** Circle inside a Square

8. Write an applet Program to design a simple calculator.

9. Write an Applet Program to animate a ball across the Screen.

Group – B

1. To perform addition and subtraction of complex numbers using class and objects.

2. Program to calculate area of Square and Rectangle using Method Overloading.

3. Program to implement User-Defined Exception (minimum 3 types of exception should be used).

4. Create two threads such that one of the thread generate Fibonacci series and another generate perfect numbers between two given limits.

5. Using command line arguments, test if the given string is palindrome or not.

6. Program to perform Matrix Addition and Multiplication using class.

7. Program to perform the String operations. (Reverse, Copy, Concatenate, Compare)

8. Program to display student mark details using Single Inheritance.

9. Using multilevel inheritance process student marks.

10. Implement multiple inheritance for payroll processing.

11. Program to implement banking transaction using Interface.

12. Program to implement Multiple Thread.

13. Program to implement Package .

Note:

One Question from Group A and another one Question from Group B is compulsory for University Examination.

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B.Sc. Computer Science

III YEAR – V SEMESTER
COURSE CODE: 7BCE5C1

CORE COURSE-IX–OPERATING SYSTEM

Unit I

Introduction to Operating Systems: Introduction, What is an Operating systems, Operating system components and goals, Operating systems architecture. Process Concepts: Introduction, Process States, Process Management, Interrupts, Interprocess Communication.

Unit II

Asynchronous Concurrent Execution: Introduction, Mutual Exclusion, Implementing Mutual Exclusion Primitives, Software solutions to the Mutual Exclusion Problem, Hardware solution to the Mutual Exclusion Problem, Semaphores. Concurrent Programming: Introduction,Monitors.

Unit III

Deadlock and Indefinite Postponement: Introduction, Examples of Deadlock, Related Problem Indefinite Postponement, Resource concepts, Four Necessary conditions for Deadlock, Deadlock solution, Deadlock Prevention, Deadlock Avoidance with Dijkstra's Banker's algorithm, Deadlock Detection, Deadlock Recovery. **Processor Scheduling:** Introduction, Scheduling levels, Preemptive Vs NonPreemptive Scheduling Priorities, Scheduling objective, Scheduling criteria, Scheduling algorithms.

Unit IV

Real Memory Organization and Management: Introduction, Memory organization, Memory Management, Memory Hierarchy, Memory Management Strategies, Contiguous Vs Non-Contiguous Memory allocation, Fixed Partition Multiprogrammimg, Variable Partition multiprogramming.

Virtual Memory Management: Introduction, Page Replacement, Page Replacement Strategies, Page Fault Frequency (PFF) Page replacement, Page Release, Page Size.

Unit V

Disk Performance Optimization: Introduction, Why Disk Scheduling is necessary, Disk Scheduling strategies, Rotational optimization.

File and Database Systems: Introduction, Data Hierarchy, Files, File Systems, File Organization, File Allocation, Free Space Management, File Access control.

Text Book:
1. Operating Systems, Deitel&DeitelChoffnes, Pearson education, Third edition, 2008.
   UNIT I: Chapter 1: 1.1, 1.2, 1.12, 1.13 &
             Chapter 3: 3.1, 3.2, 3.3, 3.4, 3.5
   UNIT II: Chapter 5: 5.1, 5.2, 5.3, 5.4(up to 5.4.2), 5.5, 5.6 &
             Chapter 6: 6.1, 6.2
   UNIT III: Chapter 7: 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10
             Chapter 8: 8.1, 8.2, 8 3, 8.4, 8.5, 8.6, 8.7
   UNIT IV: Chapter 9: 9.1, 9 2, 9.3, 9 4, 9.5, 9.6, 9.8, 9.9
             Chapter 11: 11.1, 11.5, 11.6, 11.8, 11.9, 11.10
   UNIT V: Chapter 12: 12.1, 12.4, 12.5, 12.6
             Chapter 13: 13.1, 13 2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8

Books for Reference:

1. An introduction to Operating systems concepts and Practice, Pramod Chandra P. Bhatt, PHI, Second Edition, 2008.
2. Operating System Concepts, Abraham Silberschatz Peter Galvin Greg Gagne, 6th edition Windows XP Update, Wiley India edition, 2007.
3. Operating Systems Principles and Design, Pal Choudhury, PHI Learning, 2011.
4. Operating Systems, A Concept Based Approach DhananjayM.Dhamdhere Tata Mc Graw Hill, 3rd Edition, 2012

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CORE COURSE-X–RELATIONAL DATABASE MANGEMENT SYSTEMS

Unit I

Introduction: Database System Applications – Purpose of Database Systems – View of Data– Database Languages – Relational Databases – Database Design – Object based and semi structured databases – Data storage and Querying – Database Users and Administrators– Transaction Management – Database users and Architectures – History of Database System.

Entity-Relationship Model: E-R model – constraints – E-R diagrams – E-R design issues – weak entity sets – Extended E-R features.

Unit II

Relational Database Design: Features of good Relational designs – Atomic domains and First Normal Form – Decomposition using functional dependencies – Functional dependency theory – Decomposition using functional – Decomposition using multivalued dependencies – more Normal forms – database design process – modeling temporal data

Unit III

Database System Architecture: Centralized and Client-Server architecture – Server system architecture – parallel systems – Distributed systems – Network types. Parallel databases: I/O parallelism – Interquery Parallelism – Intraquery parallelism. Distributed Databases: Homogeneous and Heterogeneous databases – Distributed Data storage – Distributed transactions – Distributed query processing.

Unit IV

Schema Objects Data Integrity – Creating and Maintaining Tables – Indexes – Sequences – Views – Users Privileges and Roles –Synonyms.

Unit V

PL/SQL: PL/SQL – Triggers – Stored Procedures and Functions – Package – Cursors – Transaction

Text Books:
1. Database System Concepts – SilberschatzKorthSudarshan, International (5th Edition) McGraw Hill Higher Education 2006
2. Jose A.Ramalho – Learn ORACLE 8i BPB Publications 2003

Books for Reference:
1. "Oracle 9i The complete reference", Kevin Loney and George Koch, Tata McGraw Hill, 2004.
2. "Database Management Systems", Ramakrishnan and Gehrke, Mc Graw Hill, Third Edition, 2003.
3. "Oracle 9i PL/SQL Programming "Scott Urman, Oracle Press, Tata Mc Graw Hill, 2002.

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**III YEAR – V SEMESTER
COURSE CODE: 7BCE5P1**

CORE COURSE-XI–RELATIONAL DATABASE MANAGEMENT SYSTEMS LAB

The following concepts must be introduced to the students:

DDL Commands

• Create table, alter table, drop table

DML Commands

• Select, update, delete and insert statements
• Condition specification using Boolean and comparison operators (and,
or,not,=,<>,>,<,>=,<=)
• Arithmetic operators and aggregate functions (Count, Sum, Avg, Min, Max)
• Multiple table queries (join on different and same tables)
• Nested select statements
• Set manipulation using (any, in, contains, all, not in, not contains, exists, not exists,
union,
intersect, minus, etc.)
• Categorization using group by……..having
• Arranging using order by

I. Create a table Student-master with the following fields client_no,name, address, city, state,
   pincode, remarks, bal_due with suitable data types.
       a. Create another table supplier_table from client_master. Select all the fields
       and rename client_no with supplier_no and name with supplier_name.
       b. Insert data into client_master
       c. Insert data into supplier_master from client_master.
       d. Delete the selected row in the client_master.

II. Create a table sales_order with s_order_no and product_no as primary key. Set other fields
    to store client number, delivery address, delivery date,order status.
        a. Add a new column for storing salesman number using ALTER Command.
        b. Set the s_order_no as foregin key as column constraints.
        c. Set the s_order_no as foreign key as table constraints.
        d. Enforce the integrity rules using CHECK.

III. Create a table student_master with the following fields name, regno, dept and year with
     suitable data types. Use Select command to do the following.
         a. Select the student's name column.
         b. Eliminate the duplicate entry in table.
         c. Sort the table in alphabetical order.
         d. Select all the Students of a particular department.
IV. Create a table sales_order_details with the s_order_no as primary key and with the
     following fields: product_no, description, qty_ordered, qty_disp,product_rate,
     profit_percent, sell_price, supplier_name.

       a. Select each row and compute sell_price*.50 and sell_price*1.50 for each row
          selected.

b. Select product_no, profit_percent, Sell_price where profit_per is not between 10 and 20 both inclusive.
c. Select product_no, description, profit_percent, sell_price where profit_percent is not between 20 and 30.
d. Select the suppliername and product_no where suppliername has 'r' or 'h'as second character.

V. Create and use the following database schema to answer the given queries

EMPLOYEE			
DEFAULT			
Field	**Type**	**Null**	**Key**
Eno	Char(3)	No	Primary
Ename	Varchar(50)	No	
Job_type	Varchar(50)	No	
Manager	Char(3)	Yes	Foreign
Hiredate	Date	No	
Dno	Integer	Yes	Foreign
Commission	Decimal(10,2)	Yes	
Salary	Decimal(7,2)	No	

DEPARTMENT			
DEFAULT			
Field	Type	Null	Key
Dno	Integer	No	Primary
Dname	Varchar(50)	Yes	

Perform the following queries:

a. Query to display Employee Name, Job, Hire Date, Employee Number; for each employee with the Employee Number appearing first.
b. Query to display unique Jobs from the Employee Table.
c. Query to display the Employee Name concatenated by a Job separated by a comma.
d. Query to display all the data from the Employee Table. Separate each Column by a comma and name the said column as THE_OUTPUT.
e. Query to display the Employee Name and Salary of all the employees earning more than $2850.
f. Query to display Employee Name and Department Number for the Employee No= 7900.
g. Query to display Employee Name and Salary for all employees whose salary is not in the range of $1500 and $2850.
h. Query to display Employee Name and Department No. of all the employees in Dept. 10 and Dept 30 in the alphabetical order by name.
i. Query to display Name and Hire Date of every Employee who was hired in 1981.
j. Query to display Name and Job of all employees who don't have a current Manager.
k. Query to display the Name, Salary and Commission for all the employees who earn commission.

l. Sort the data in descending order of Salary and Commission.
m. Query to display Name of all the employees where the third letter of their name is ‗A‗.
n. Query to display Name of all employees either have two ‗R‗s or have two ‗A‗s in their name and are either in Dept. No=30 or their Manger‗s Employee No=7788.
o. Query to display Name, Salary and Commission for all employees whose Commission Amount is 14 greater than their Salary increased by 5%.
p. Query to display Name, Hire Date and Salary Review Date which is the 1st Monday after six months of employment.
q. Query to display Name and calculate the number of months between today and the date each employee was hired.
r. Query to display Name with the 1st letter capitalized and all other letter lower case and length of their name of all the employees whose name starts with ‗J‗, ‘A‗ and ‗M‗.
s. Query to display Name, Department Name and Department No for all the employees.
t. Query to display Unique Listing of all Jobs that are in Department # 30.
u. Query to display Name, Job, Department No. And Department Name for all the employees working at the Mumbai location.
v. Query to display Name, Dept No. And Salary of any employee whose department No. and salary matches both the department no. and the salary of any employee who earns a commission.
w. Query to display the Highest, Lowest, Sum and Average Salaries of all the employees
x. Query to display the Employee No. And Name for all employees who earn more than the average salary.
y. Query to display Employee Number and Name for all employees who work in a department with any employee whose name contains a ‗T‗.

VI. Create a table master_book to contain the information of magazine code, magazine name and publisher. Weekly/biweekly/monthly, price. Write PL/SQL block to perform insert, update and delete operations on the above table.

VII. Create a table to contain phone number, user name, address of the phone user. Write a function to search for a address using phone numbers.

VIII. Create a table stock to contain the item-code, item-name, current stock, date of last purchase. Write a stored procedure to seek for an item using item-code and delete it, if the date of last purchase is before 1 year from the current date. If not, update the current stock.

IX. Create a table to store the salary details of the employees in a company. Declare the Cursor to contain employee number, employee name and net salary. Use Cursor to update the employee salaries.

X. Create a table to contain the information about the voters in a particular constituency. Write a proper trigger to update or delete a row in the table.

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III YEAR – V SEMESTER
COURSE CODE: 7BCEE1A

ELECTIVE COURSE-I (A)–DATA MINING AND DATA WAREHOUSING

Unit I

    INTRODUCTION: What is a data Warehouse? **DELIVERY PROCESS:** Data warehouse delivery method **SYSTEM PROCESSES:** Introduction – Overview – Typical process flow within a data warehouse – Extract and load process – Clean and transform data – Backup and archive process – Query management process. **PROCESS ARCHITECTURE:** Introduction – Load manager – Warehouse manager – Query manager

Unit II

    SYSTEM AND DATA WARE HOUSE PROCESS MANAGERS Introduction – Why you need tools to manage a data warehouse – system managers – Data warehouse process managers – Load manager – Warehouse manager – Query manager **CAPACITY PLANNING, TUNING AND TESTING** Introduction – Process – Estimating the load **TUNING THE DATA WAREHOUSE** Introduction – Assessing performance – Tuning the data load – Tuning queries

Unit III

    INTRODUCTION Introduction – Basics of Data Mining – Data Mining Versus Knowledge Discovery in Database – Data Mining Issues – Data Mining Metrics – Social Implications of Data Mining – Data Mining from a Database Perspective

Unit IV

    RELATED CONCEPTS Databse/OLTP Systems – Fuzzy Sets and Fuzzy Logic – Information Retrieval – Decision Support Systems – Dimensional Modeling – OLAP – Web Search Engines **DATA MINING TECHNIQUES** Introduction – A Statistical Perpective on Data Mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms

Unit V

    ASSOCIATION RULES Introduction – Large Itemsets – Basic Algorithms – Parallel and Distributed Algorithms –Comparing Approaches – Incremental Rules – Advanced Association Rule Techniques – Measuring the Quality of Rule Techniques – Measuring the Quality of Rules

Text Books:
1. Data Warehouseing In The Real World,Sam Anahory, Dennis Murray, Pearson Education [LPE] ,Thirteenth Indian Reprint, 2005.
2. Data Mining Introductory And Advanced Topics, Margaret H.Dunham, Pearson Education [LPE] First Impression, 2006.

Books for Reference:
1. Insight Into Data Mining Theory And Practice By K.P.SomanShyamDiwakarV.Vijay PHI   Publication
2. Data Warehousing, Data Mining And Olap By Alex Berson And Stephen J.SmithTMH Publication
3. Data Mining Introductory And Advanced Topics, Margaret H.Dunham, Pearson Education [LPE] First Impression, 2006

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III YEAR – V SEMESTER
COURSE CODE: 7BCEE1B

ELECTIVE COURSE-I (B)–WEB DESIGN

Unit I

Introduction to HTML: Markup Languages – editing HTML – common tags – header – text styling – linking – images – formatting text – special characters, horizontal rules and line breaks – unordered list – nested and ordered list – tables and formatting – forms – linking – frames.

Unit II

Cascading Style Sheets:

Introduction – Inline styles – Embedded Style Sheets – Conflicting Style – Linking External Style Sheets – Positioning Elements – Backgrounds – Element Dimension – Box Model and Text Flow – Media Types – Building a Dropdown menu

Unit III

Java Script: introduction – control structures – if structure – while structure – assignment operators – increment and decrement operators – for structure – switch structure – do/while structure – break and continue statement – logical operators

Unit IV

Java Script Functions: Programmer defined functions – function definitions – duration of identifiers – scope rules – recursion – recursion vs iteration – global functions

Java Script Arrays: Arrays – declaring and allocating arrays – references and reference parameters – passing arrays to functions – sorting arrays – searching arrays – multiple-subscripted arrays

Java Script Objects: Math object – String object – Date object – Boolean and Number Object – document object – window object.

Unit V

Document Object Model (DOM): Modeling a document – Traversing and modifying a DOM Tree – DOM collections and Dynamic styles.

Events: Registering Event Handlers – onload - onmousemove, the event Object and this – on mouseover and on mouseout – onfocus and onblur – form processing with onsubmit and onreset – event bubbling and other events.

XML: Basics – structuring Data – XML Name Spaces – Document Type Definations – W3C XML schema documents – XML Vocabularies – XSLT

Text Book:

1. "Internet and World Wide Web – How to Program", H.M.Deitel, P.J.Deital, T.R.Nieto, Pearson Education Asia – Addison Wesley Longman Pte Ltd.

Book for Reference:
1. "Special edition using HTML", Mark R Brown and Jerry Honeycutt, Third edition

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III YEAR – V SEMESTER
COURSE CODE: 7BCEE2A

ELECTIVE COURSE-II (A)–DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION

Unit I

Number Systems and Codes: Binary Number system – Binary to decimal –decimal to binary – hexa decimal – ASCII code – Excess-3 Code – Gray code.
Digital Logic: The Basic Gates – NOT, OR, AND - Universal Logic Gates – NOR, NAND.

Unit II

Combinatorial Logic Circuits: Boolean Laws and Theorems. - Sum of Products method -Truth table to Karnaugh Map – Pairs, Quads, Octets – Don't Care Conditions- Product-of sums method -Product-of sums Simplifications.
Data Processing Circuits: Multiplexers – Demultiplexers-1-of-16 Decoder – BDC-todecimal Decoders – Seven-segment Decoders – Encoders – Exclusive-OR Gates- Parity Generators and Checkers.

Unit III

Arithmetic Circuits: Binary Addition- Binary Subtraction – 2'S Complement Representation - 2'S Complement Arithmetic – Arithmetic Building Blocks.

Unit IV

Basic Computer organization and Design: Instruction codes - stored program organization - Computer registers and common bus system - Computer instructions - Timing and control - Instruction cycle: Fetch and Decode - Register reference instructions.
Micro programmed Control: Control memory organization - Address sequencing, micro instruction format and symbolic microinstructions - symbolic micro-program - binary microprogram.

Unit V

Central Processing Unit : General register organization - stack organization – instruction formats - addressing modes - Data transfer and manipulation - Program control. CISC and RISC - Parallel processing - Pipeline- general consideration.
Input-output organization: Peripheral devices - I/O interface - Memory organization: Memory hierarchy - Main memory - Auxiliary memory.

Text Book:

1. Digital Principles and Applications – Donald P Leach, Albert Paul Malvino, GoutamSaha, 8th edition , McGraw-Hill Education, 3rd reprint 2015. 2.
2. Computer System Architecture, M. Morris Mano, Pearson Education, 3rd edition.,2007

UNIT I	Chapters 5: (5.1 to 5.9) and 2: (2.1 to 2.3)	Text Book 1
UNIT II	Chapters 3: (3.1 to 3.8) and 4: (4.1 to 4.7)	Text Book 1
UNIT III	Chapters 6: (6.1 to 6.8)	Text Book 1
UNIT IV	Chapters 5 (5.1 to 5.5) and 7 (7.1 to 7.3)	Text Book 2
UNIT V	Chapters 8 (8.1 to 8.8), 9 (9.1 to 9.2), 11 (11.1 to 11.5) and 12(12.1 to 12.3)	Text Book 2

Books for Reference:

1. Digital design, R.Anantha Natarajan, PHI Learning, 2015.

2. Principles of digital Electronics, K.Meena, PHI Learning, 2013.
3. Digital Computer Fundamentals, Thomas C. Bartee TMH 2007.
4. Digital Circuits and Design, S. Salivahanan and S. Arivazhagan, Vikas Publishers, 2005.
5. Computer Organization and Architecture, V.Rajaraman and T.Radhakrishnan, PHI learning, 5th Print, 2015.
6. Computer Organization, Carl HamacherZvonkoVranesicSafwatZaky, McGraw Hill Education, 5th Edition, 11th reprint, 2015.
7. Computer Organization and Architecture, SmrutiRanjan Sarangi, McGraw Hill Education.

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III YEAR – V SEMESTER
COURSE CODE: 7BCEE2B

ELECTIVE COURSE-II (B)–MICROPROCESSOR AND MICROCONTROLLER

Unit I   THE 8086 MICROPROCESSOR

Introduction to 8086 – Microprocessor architecture – Addressing modes - Instruction set and assembler directives – Assembly language programming – Modular Programming - Linking and Relocation - Stacks - Procedures – Macros – Interrupts and interrupt service routines – byte and String Manipulation.

Unit II   8086 SYSTEM BUS STRUCTURE

8086 signals – Basic configurations – System bus timing –System design using 8086 – IO programming – Introduction to Multiprogramming – System Bus Structure Multiprocessor configurations – Coprocessor, Closely coupled and loosely Coupled configurations – Introduction to advanced processors.

Unit III   I/O INTERFACING

Memory Interfacing and I/O interfacing - Parallel communication interface – Serial communication interface – D/A and A/D Interface - Timer – Keyboard /display controller – Interrupt controller – DMA controller – Programming and applications Case studies: Traffic Light control, LED display , LCD display, Keyboard display interface and Alarm Controller.

Unit IV   MICROCONTROLLER

Architecture of 8051 – Special Function Registers(SFRs) - I/O Pins Ports and Circuits - Instruction set - Addressing modes - Assembly language programming.

Unit V   INTERFACING MICROCONTROLLER

Programming 8051 Timers - Serial Port Programming - Interrupts Programming – LCD & Keyboard Interfacing - ADC, DAC & Sensor Interfacing - External Memory Interface-Stepper Motor and Waveform generation.

Text Books:
1. Yu-Cheng Liu, Glenn A.Gibson,"Microcomputer Systems:The 8086 /8088 Family - Architecture,Programming and Design",Second Edition, Prentice Hall of India, 2007.
2. Mohamed Ali Mazidi, Janice GillispieMazidi, RolinMcKinlay, "The 8051 Microcontroller and Embedded Systems: Using Assembly and C", Second Edition, Pearson Education, 2011

Book for Reference:
1. DoughlasV.Hall, "Microprocessors and Interfacing, Programming and Hardware:,TMH, 2012

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<div align="center">**III YEAR – VI SEMESTER**</div>

CORE COURSE-XII–COMPUTER NETWORKS

Unit I

Uses of Computer Networks:– Network Hardware –Network software – OSI and TCP/IP Reference models – Example Networks :Internet.

Unit II:

The Physical Layer: Guided Transmission Media – Wireless Transmission– Communication Satellites – Public Switched Telephone Network – The Mobile Telephone System

Unit III

Data Link Layer: Design Issues – Error Detection and Correction – Elementary Data link Protocols – Sliding Window Protocol - Medium Access Control Layer: Channel Allocation Problem – Multiple Access Protocol – Ethernet.

Unit IV

Network Layer: Design Issues – Routing Algorithms.
Transport Layer: Transport Services – Elements of Transport Protocols.

Unit V

Application Layer: DNS– Electronic Mail – World Wide Web Architectural overview.
Network Security: Cryptography – Symmetric Key Algorithms – Public Key Algorithms

Text Book:

1. Computer Networks, Andrew S Tanenbaum and D. J. Wetherall, 5th Ed, Pearson, 2011.

Books for Reference:

1. UylessD.Black, Computer Networks, PHIE.
2. Data and Computer Communications, PHI, W.Stallings
3. Data Communications and Computer Networks, Brijendra Singh ,Second Edition, PHI, 2006.
4. Data Communications and Computer Networks , Prakash C. Gupta, Prentice Hall of India, 2005.
5. Data Communications and Networks ,Achyut S Godbole, TMH,2005.
6. Data Communication and Networking ,Behrouz A. Forouzan, TMH, 2005.

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III YEAR – VI SEMESTER
COURSE CODE: 7BCE6C2

CORE COURSE-XIII–COMPUTER GRAPHICS

Unit I

Geometry and Line Generation: Introduction – Line – Line Segments – Perpendicular Line – Distance between a point and a Line – Vector – Pixels and Frame Buffers – Vector Generation – Bresenham's Algorithm – Antialiasing of Lines – Thick lines Segments – Character Generation – Display the Frame Buffer – Programming Problems.

Unit II

Graphics Primitivies: Introduction – Display Devices – The Display-File Interpreter – Display-File Structure – Display Control – Text – The Line-Style Primitive – Programming Problems.

Polygons: Introduction – Polygons – Polygon Representation – Entering Polygons – An Inside test – Polygon Interfacing Algorithms – Filling Polygons – Filling with Pattern – Initialization – Programming Problems.

Unit III

Transformations: Introduction – Matrices – Scaling Transformations – Sin and Cos – Rotation– Homogeneous Coordinates and Translation – Coordinate Transformations – Rotation about an Arbitary Point – Other Transformations – Inverse Transformations – Display Procedures – Programming Problems.

Segments: Introducton – Segment Table – Creation – Closing – Deleting – Renaming Segment – Visibility – Saving and Showing – Other Display-File Structure – Some Raster Techniques – Programming Problems.

Unit IV

Windowing and Clipping: Introduction – The Viewing Transformation – Implementation – Clipping – The Cohen-Sutherland – Sutherland-Hodgman Algorithm – Clipping Polygons – Adding Clipping Generalized Clipping – Arbitrary Line – Multiple Windowing Programming Problems.

Unit V

Interaction: Introduction – Hardware – Input Device – Event Handling – Sampled Devices – Attribute – Simulating a Locator – Echoing – Interactive Techniques – Programming Problems.

Text Book:
1. Computer Graphics (A Programming Approach) Second Edition by Steven Harrington. McGRAW-HILL INTERNATION EDITIONS

Book for Reference:
1. M. Newman and F.Sproull, Interactive Computer Graphics, McGraw Hill. Plastok and Gordon Kalley, Computer Graphics, McGraw Hill.

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III YEAR – VI SEMESTER
COURSE CODE: 7BCE6C3

CORE COURSE-XIV–SOFTWARE ENGINEERING

Unit I

Introduction: Introduction to software engineering – some definitions – some size factors –quality and productivity factors – managerial issuesPlanning a software project: Defining the problem– developing a solution strategy – planning the development process – planning an organizational structure – other planning activities

Unit II

Software Cost Estimation: software cost factors – software cost estimation techniques –estimating software maintenance costs

Software Requirements Definition: The software requirements specification – formal specification techniques

Unit III

Software Design: Fundamental design concepts – modules and modularization criteria – design notations – design techniques – Stepwise refinement – Integrated top down development – Jackson Structured Programming -detailed design considerations –test plan – milestones,walkthroughs and inspections – design guidelines

Unit IV

Software Implementation: Structured coding techniques – coding style – standards and guidelines - Verification and validation techniques – Quality Assurance – Walkthrough and inspection -Unit Testing and Debugging – System Testing

Unit V

Software Maintenance: Enhancing maintainability during development – managerial aspects of software engineering – configuration management – source code metrics – other maintenance tools and techniques

Text Book:

   1. Software Engineering Concepts – Richard E. Fairley, Tata McGraw Hill Publishing Company Ltd, New Delhi

Books for Reference:

  1. Software Engineering – A Practitioner's approach – Roger S. Pressman, (Fourth Edition) McGrawHill International Editions
  2. An Integrated Approach to Software engineering – Pankaj Jalote, Second Edition Narosa Publishing House
  3. Fundamentals of Software Engineering, CarloGhezzi, Mehdi Jazayeri, Dino Mandrioli, Prentice Hall of India Pvt. Ltd.,New Delhi

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III YEAR – VI SEMESTER
COURSE CODE: 7BCE6PR

CORE COURSE-XV–PROJECT WORK & VIVA-VOCE

1. The students will be allowed to work on any project based on the concepts studied in core/elective courses.

2. The project work should be compulsorily done in the college only under the supervision of the department staffs.

3. The combined project shall be undertaken by the students as a team of two.

4. The number of teams should be equally assigned to existing Staff members.

5. The following list of parameters taken into account for the evaluation of Project work and Viva-voce.
   Total Marks: 100 (Internal: 40 marks, External: 60 Marks)

Parameters:

For Internal Marks: Two review meetings - 2×15 = 30 Marks
Overall Performance   = 10 Marks

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Total   = 40 Marks
_____

For External Marks: Project Report   = 20 Marks
Project demo &Presentation = 20 Marks
Viva-Voce   = 20 Marks

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Total   = 60 Marks
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ELECTIVE COURSE-III (A)–VB.NET AND ASP.NET PROGRAMMING

Unit I

The .Net framework and the CLR – Building VB .Net Applications–The VB IDE - Declaring constants–enumeration– variables– Data types – Operators – Conditional Statements : If else, Select Case, Switch , choose- Loops: Do, for, for each, next, while– The with statement.Sub Procedures – Functions – Understanding Scope – Unstructured and Structured Exception Handling

Unit II

Windows Forms–MDI– Windows Control: Msgbox – Input box – Textboxes – Rich text box – Labels – Buttons – Check boxes – Radio Button – Panels –List boxes – Combo boxes – Scroll bars – Timers–Checked List Boxes –Picture Boxes– Scroll Bars – Tool Tips– Menus – Built –in Dialog Boxes– Printing– Tree and List Views –Toolbars – Status and Progress Bars and Tab.

Unit III

Object Oriented Programming : Classes and objects – Inheritance – Polymorphism-Graphics class – Pen class – Brush class – File stream class – File mode enumeration – File stream class – File class – Directory class.

Unit IV

ASP .Net Applications – ASP. Net file types – Importing Namespaces – Global.asax application file – HTML Server controls – The Page Class – BASIC WEB CONTROLS: Button – Check box- Hyperlink-image-Label – Radio button – Table – Text box. LIST CONTROLS: DropdownList – List Box. RICH CONTROLS: Add Rotator – Calendar. VALIDATION CONTROLS: Compare validator – Range Validator. DATA CONTROLS: Repeater – Data list. HTML CONTROLS: Htmlanchor – HtmlButton- HtmlForm – HtmlImage.

Unit V

ADO.NET : Introducing Ado.Net and Data management- Characteristics of Ado.Net – The Ado.Net object model – SQL Basics – SQL select statement – SQL update statement – SQL Insert – SQL Delete statement. Date Binding : Introducing Data binding – Single- value data binding.

Text Books:
1. Visual Basic.Net Programming Black Book,Steven Holzner ,Dream Tech Press, 2010.
2. The Complete Reference –ASP .NET- Mathew Mac Donald – Mc Graw Hill.

Books for Reference:
1. Visual Basic.Net, C.Muthu , Tata McGrawHill Education , 2008.
2. The Complete Reference Visual Basic.Net, Jeffrey R.Shapiro , Tata McGraw Hill Education ,2002

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ELECTIVE COURSE-III (B)–PROGRAMMING WITH LINUX, APACHE, MYSQL, AND PHP (LAMP)

Unit I

Installing and Configuring of Apache Web Server, MySQL and PHP on platforms Linux and Windows.

PHP: Variables, Data types, Operators and expressions, Constants, Switching flow, Loops, Code blocks and browser Output.

Unit II

Working with Functions,Defining and calling a function, Returning values, Variable scope, Static Statement, More about arguments, Testingthe existence of a function.

Arrays: Creating Arrays, array Related Functions.

Objects: Creating an Object, Object inheritance.

Strings Formatting, Investigating and Manipulating with PHP,Date and Time functions in PHP, Other String, Date and Time Functions.

Unit III

Creating a Simple Input Form, Accessing Form Input with User-Defined Arrays, Combining HTML and PHP Code on a Single Page, Using Hidden Fields to Save State, Redirecting the User, Sending Mail on form Submission, Working with File uploads, Working with Cookies, User Sessions, Files, Directories and Images Introducing Cookies, Setting a Cookie with PHP, Deleting a Cookie with PHP Session Function(s) Overview, Starting a Session, Working with Session Variables, Passing Session IDs in the Query String, Destroying Sessions and Un-setting Variables, Using Sessions in an Environment with Registered Users

Unit IV

Including Files with include(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from files, Writing or Appending to a file Working with Directories Opening Pipes to and from Processes Using popen(), Executing System Commands

Understanding the Image Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting fancy with Pie Charts, Modifying Existing Images, Image Creation from User Input, Using Images Created by Scripts

Unit V

Learning the MySQL Data Types andtable creation, Insert, Select, Update, Replace and Delete Commands Frequently used String functions in MySQL, Using Date and Time functions in MySQL, Using Transactions and Stored Procedures in MySQL.

Interacting with MySQL using PHP, MySQL Versus MySQL Functions, Connecting to MySQL with PHP, Working with MySQL Data

Text Books:
1. Julie C Meloni, "Sams Teach Yourself PHP, MySQL and Apache All in One" 4th edition, Pearson Education
2. Jeremy McPeak Beginning JavaScript Wrox Publication

Books for Reference:

1. James Lee and Brent Ware, "Open source web development with LAMP" , Pearson Education
2. Jason Gerner, Morgan Owens, Elizabeth Naramore, Matt Warden, "Professional LAMP: Linux, Apache, MySQL and PHP5 Web Development" WROX Publication
3. PHP6 and MySQL Bible –Steve Suehring, Tim Converse and Joyce Park – Wiley India Edition.
4. PHP and MySQL Web Development – Luke Welling, Laura Thomson – Pearson
5. Beginning Ajax with PHP From Novice to Professional, By Lee BabinApress
6. Head First AJAX by Rebecca Riordan , O'Reilly Media
7. Head First PHP& MySQL by Lynn Beighley, Michael Morrison, O'Reilly Media
8. Head First jQuery by Ryan Benedetti and Ronan Cranley, O'Reilly Media
9. Learning jQuery By Jonathon chaffer and Karl Swedberg, O'Reilly Media
10. List of Software/Learning Websites
    1. http://www.codecademy.com/learn
    2. https://www.udemy.com/learn-html5-programming-from-scratch/
    3. http://www3schools.com
    4. http://www.tutorialspoint.com/ajax/
    5. http://www.tutorialspoint.com/jquery/
    6. http://www.tutorialspoint.com/php

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