MINUTES OF THE BOARD OF STUDIES FOR THE ACADEMIC YEAR 2019-2020

BACHELOR OF COMPUTER APPLICATIONS (BCA)

The Board Studies for the Academic Year 2019-2020 was held on 4th, March, 2019 at M.Sc Lab. The Board suggested some valuable changes in the BCA Programme.

The following members were present at the meeting

Mr. A. John Pradeep Ebenezer, — **Chairman**
Assistant Professor and Head,
PG Department of Computer Applications,
St. Joseph's College of Arts and Science (Autonomous),
Cuddalore 607001.

Dr. M. Nandhini, — **University Nominee**
Assistant Professor,
Department of Computer Science,
School of Engineering & Technology,
Pondicherry University, Puducherry.

Mr. Nayeem A Khan — **Industry/Corporate Representative**
Manager, HR,
TCS, Chennai.

Mrs. R. Roseline,
Assistant Professor, St. Joseph's College of Arts and Science.

Mr. G. Suresh,
Assistant Professor, St. Joseph's College of Arts and Science.

Mrs. A. Lourdu Caroline,
Assistant Professor, St. Joseph's College of Arts and Science.

Mrs. I. Roseline Jecintha,
Asst. Professor, St .Joseph's College of Arts and Science

Mr. Z. John Bernard
Asst. Professor, St .Joseph's College of Arts and Science

Ms.A.Nirmala
Asst. Professor, St .Joseph's College of Arts and Science

Ms.R.Vidhylakshmi
Asst. Professor, St .Joseph's College of Arts and Science

Ms.A.Isabella Amali
Asst. Professor, St .Joseph's College of Arts and Science

Ms.K.Padmavathi
Asst. Professor, St .Joseph's College of Arts and Science

The meeting started with a welcome address followed by the agenda of the meeting read by Mr. A. John Pradeep Ebenezer, Head of the Department. The discussion was carried out by the Chairman, University Nominee, Industrial Expert and Board Members.

The new curriculum template was approved by the board with the following suggestions

SEMESTER-I

No Change in the Syllabus.

SEMESTER-II

No Change in the Syllabus.

SEMESTER-III

a. Organizational Behavior Paper was restructured based on the flow of contents in the book Dr. S.S. Khanka, Organizational Behaviour, S.Chand Publication, 4th Revised Edition

b. The following topics were included in the Computer Algorithm(CA306T) Paper
   - **i. Unit-I:** Best Case-Worst Case-Average Case in Complexity Analysis-Big Oh, Big Omega, theta, small Oh, small Omega.
   - **ii. Unit-II**: Binary Search.
   - **iii. Unit-III:** Application of Greedy Method –Single Source Shortest Path-Knapsack Problem
   - **iv. Unit-IV:** Definition- Principle of Optimality-Application of Dynamic Programming-Forward Approach-Backward Approach.
   - **v. Unit-V:** Graph-Algorithms-Applications of Graph traversals-Comparison between DFS and BFS-Connected Components.

c. The following topics were removed from the Computer Algorithm(CA306T) Paper
   - **i. Unit-II-**Quick Sort
   - **ii. Unit-III-**0/1 Knapsack
   - **iii. Unit-V-**Backtracking

d. **Unit-III** and **Unit-IV** were swapped.

SEMESTER-IV

No Change in the Syllabus.

SEMESTER-V

a. RDBMS Paper Unit-IV topics, indexes, clusters, views, snapshots, sequences, synonym, users, roles and privileges, grant and revoke permission, locks were removed.
b. The Board Suggested to include a Generic Elective paper on the topic Entrepreneurial Development.
c. The Board suggested to include Python Language as a E-Course component.

SEMESTER-VI

The Board suggested to include a Generic Elective paper on the title Information Technology and English Communication.

Conclusion

The points discussed in the meeting were unanimously accepted by the Members, University Nominee, and Industrial Expert and decided to propose the same to the Academic Council. The meeting ended with vote of thanks by Mr. G. Suresh, Assistant Professor, PG Department of Computer Applications.

BACHELOR OF COMPUTER APPLICATIONS (BCA)

PROGRAMME OUTCOMES
PO1: The Students find their footings in life through wholesome and integral education. **PO2: The Students are encouraged to climb the academic ladder by pursuing Post Graduate Education in different domain.** **PO3: The Students are academically and technically equipped to steer the Nation along the path of progress and peace.** **PO4: The Students are trained to be Employable and Entrepreneurial Citizen of the Nation.** **PO5: The Students are fortified intellectually, ethically and socially to face the challenges in life.**
PROGRAMME SPECIFIC OUTCOMES
PSO1:Holistic Knowledge
Apply the Knowledge gained through Algorithms, Mathematics, Statistics, Accounting to fields with Computer Applications.
PSO2:Problem Analysis
Capable of Identifying, Formulating, Reviewing and Analyzing problems were Computers are Applied.
PSO3:Design and Develop Solutions and Project Management
Ability to Design and Develop Applications for Complex Problem in real time with appropriate consideration to Cultural, Society and Environmental Consideration. Possess Knowledge and understanding of the Software Engineering Principles and apply this to a team as a team leader to achieve a specific goal.
PSO4:State of the Art Tools and E-learning
Able to Create, Select and Apply different state of the art software by proper understanding of its limitations. Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of E-Learning Sources and use appropriate software for analysis of data.
PSO5:Environment Sustainability
Understand the impact of Computers when applied to various divergence fields in context of environment sustainability.
PSO6:Ethics
Apply Ethical Principle and commit to Professional Ethics and norms of Information Technology Practice.
PSO7:Communication Skills
Ability to Communicate Effectively, Write effective reports, Documentation, give and receive clear Instructions.
PSO8: Analytical and critical thinking
Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyze data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints.

PG DEPARTMENT OF COMPUTER APPLICATIONS

BCA SYLLABUS-2019-20

B.C.A. – CURRICULUM DESIGN TEMPLATE

Semester	Part		Subject Title	Subject Code	Hrs	Cr
I Semester	I	Language	Tamil-I	LTC101T	5	3
			Hindi-I	LH101S		
			French-I	LF101		
	II	Language	English – I	LEC101T	5	3
	III	Core-1	Programming in C	CA101S	4	4
	III	Core-2	Digital Logic Fundamentals	CA102T	5	4
	III	Practical- I	C-Programming	CAP101T	3	3
	III	Allied-1	Mathematical Foundations	AMTCA101	5	4
	IV	AECC	English Communication	19AEC101	1	1
	IV	SEC	Value Education	VE101T	2	2
				Total	**30**	**24**
II Semester	I	Language	Tamil-II	LTC202T	5	3
			Hindi-II	LH202S		
			French-II	LF202		
	II	Language	English – II	LEC202T	5	3
	III	Core-3	Object Oriented Programming using C++	CA203Q	5	4
	III	Core-4	Fundamentals of Data Structures	CA204S	4	4
	III	Practical – II	Programming in C++	CAP202T	3	3
	III	Allied-2	Statistical Methods	ASCA202T	5	4
	IV	AECC	English Communication	19AEC202	1	1
	IV	SEC	Dynamics of Personality	EPD201T	2	2
				Total	**30**	**24**

	Part		SECOND YEAR			
III Semester	III	Core–5	Programming in Java	CA305Q	6	4
	III	Core–6	Computer Algorithms	19CA306	6	4
	III	Practical – III	Java Programming	CAP303T	5	3
	III	GE-I	Entrepreneurial Development	19GCA31A	5	4
			Management and Professional Leadership	19GCA31B		
	III	Allied-3	Numerical Methods	AMTCA302	5	4
	IV	AECC	Environmental Science	EVS301S	3	2
				Total	**30**	**21**
IV Semester	III	Core–7	Internet Technologies	CA407T	6	4
	III	Core–8	Advanced Java Programming	CA408T	6	4
	III	Practical – IV	Advanced Java Programming	CAP404T	5	3
	III	Allied-4	Resource Management Techniques	AMCA403S	5	4
	III	Allied-5	Financial Accounting	ACCA401	5	4
	IV	SEC	Soft Skill	AOSS401S	3	2
				Total	**30**	**21**
			THIRD YEAR			
V Semester	III	Core–9	Relational Database Management Systems	19CA509	5	4
	III	Core–10	Programming using ASP.Net and C#	CA510T	5	4
	III	DSE-I	Data Communication Networks*	ECA511	5	4
			Computer Graphics	ECA512A		
			Multimedia and Virtual Reality	ECA512S		
	III	Allied-6	Organizational Behavior	19ACA501	5	4
	III	Practical – V	RDBMS Package-Oracle	CAP505T	5	3
	III	Practical – VI	Programming in ASP.Net using C#	CAP506T	5	3
	IV	SEC	Online E-Course: Spoken Tutorial –IIT Bombay: Python	19SCA51	-	2
				Total	**30**	**24**
VI	III	Core–11	Open Source Technologies-PHP	CA614Q	5	4
	III	Core–12	Operating Systems	CA615S	5	4

Semester	III	DSE-II	Computer Architecture	ECA613T	5	4
			Management Information Systems	ECA616A		
			Software Engineering*	ECA616T		
	III	GE-II	Tech-Empowerment English Training	19GCA64A	5	4
			Communication Skills and Media Awareness	19GCA64B		
	III	Practical – VII	Open Source Technologies-PHP	CAP607T	5	3
	III	Project	Mini –Project	JCA601	5	5
	VI	SSC*		19SSCA61	-	2
				Total	**30**	**24**
	V		Extension Activities	EU601	**-**	2
Total					**180**	**140**

*Extra Course –Given Extra Credits (Only Internal)

I B.C.A	PROGRAMMING IN C	CA101S
SEMESTER - I		HRS/WK- 4
CORE-1		CREDIT - 4

Objective:
To make the students abreast with the programming concepts and to master them in C Language.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Knowledge pertaining to C-Language Fundamentals
CO2: Logic using Control Statements
CO3: Modular Programming using Functions
CO4: Knowledge pertaining to arrays and structures.
CO5: Advanced Programming techniques using pointers and files concepts.

SEMESTER I	COURSE CODE: CA101S					TITLE OF THE PAPER:PROGRAMMING IN "C"								HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	4	4	3	4	4	4	4	4	2	4	4	5	3.75	
CO2	4	4	4	3	4	4	4	4	4	2	4	4	5	3.85	
CO3	4	4	4	3	4	4	4	4	4	2	5	4	4	3.90	
CO4	4	4	4	3	4	4	4	4	4	2	5	4	5	3.90	
CO5	5	5	5	3	4	4	4	5	4	2	5	4	5	4.20	
Mean Overall Score														3.92	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

I B.C.A	PROGRAMMING IN C	CA101S
SEMESTER - I		HRS/WK- 4
CORE-1		CREDIT - 4

UNIT-I **[12 Hrs]**

C Fundamentals: Character set – Identifiers - keywords - Data types-Constants – Variables –Declarations – Expressions - Statements-Operators - Library functions.

UNIT-II **[12 Hrs]**

Control Statements: Data Input/Output functions - Simple C programs - flow of control-control structures - switch, break and continue - Go to statement-comma operator.

UNIT-III **[12 Hrs]**

Functions: Defining, accessing functions - functions prototypes-passing arguments - call by value - call by reference - Recursions-storage classes.

UNIT-IV **[12 Hrs]**

Arrays: Defining and processing – passing arrays of functions- Arrays and string – Structures - passing structures to functions - self-referential structures - unions.

UNIT-V **[12 Hrs]**

Pointers: Declarations - passing pointers to functions - operation with pointers - pointer and arrays - arrays of pointers - structure and pointers – Files and its operations.

TEXT BOOK:

E. Balagurusamy -Programming in ANSI C -Tata McGraw Hill Pub.

REFERENCE BOOKS:

1. Byron S. Gottfied - Schaum's outline Theory and problems of programming with C. Tata McGraw Hill Pub.
2. YeshwanthKanethkar -Let us C, BPB Publications.
3. K. R. Venugopal, S. R. Prasad -Mastering C – Tata McGraw Hill Pub.

I B.C.A	DIGITAL LOGIC FUNDAMENTALS	CA102T
SEMESTER - I		HRS/WK- 5
CORE- 2		CREDIT - 4

Objective:

To get acquainted with the internals of the System logic circuits and to know the working principles of the computers.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Knowledge pertaining to Number System
CO2: Simplification Logic using K-Map and Tabulation Method
CO3: Designing Skills using Adders and Subtractors.
CO4: Designing Skills using Combinational Logic.
CO5: Advanced Designing Skills using Sequential Logic Circuit.

SEMESTER I	COURSE CODE: CA102T					TITLE OF THE PAPER: DIGITAL LOGIC FUNDAMENTALS								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	3	3	4	4	5	4	4	4	2	3	2	4	3.15	
CO2	4	4	4	4	4	5	5	5	4	2	2	2	5	3.50	
CO3	4	4	4	4	4	5	5	4	5	3	3	2	5	3.70	
CO4	4	4	4	4	4	5	4	5	5	3	3	2	5	3.70	
CO5	4	4	4	4	4	5	4	4	4	3	3	2	5	3.50	
Mean Overall Score														3.51	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

I B.C.A	DIGITAL LOGIC FUNDAMENTALS	CA102T
SEMESTER - I		HRS/WK- 5
CORE- 2		CREDIT - 4

UNIT-I **[15Hrs]**

Number System: Binary number system - The Basic Gates - Boolean Algebra - Universal Gates - Boolean Laws and Theorem – Number system and its conversations.

UNIT-II **[15Hrs]**

Simplification: Sum of products - Product of Sums - K-map simplifications - Don't care conditions-QuineMcclausky tabulation method.

UNIT-III **[15Hrs]**

Combinational Arithmetic Circuits: Adders-Subtractors-full adder-subtractor-BCD Adder- ROM-PLA-Designing circuits using ROM/PLA

UNIT-IV **[15Hrs]**

Combinational Logic Circuits: Multiplexers-Demultiplexers-Decoders: 1 of 16 Decoders-seven segment decoders-Encoders.

UNIT-V **[15Hrs]**

Sequential Logic Circuit: Flip-Flops - Its types - RS Flip flop, JK Flip flop, D Flip flop, T and Master Slave. Counters and its types - counter Design. Shift Registers and its types.

TEXT BOOK:

M. Morris Mano -Digital Logic and Computer Design- PHI.

REFERENCE BOOKS:

1. Thomas C. Bartee Digital ComputerFundamentals- McGraw Hill Pub.
2. Malvino& Leach- Digital Principles and Applications –McGraw Hill Pub.
3. S. Ramalatha - Digital Computer Fundamentals, Meenakshi Agency.

I B.C.A	C- PROGRAMMING	CAP101T
SEMESTER - I		HRS/WK- 3
PRACTICAL -I		CREDIT - 3

Objective:

To make the students skilled in programming and to make them logically efficient and marketable in the Programming Industry.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Programming Skills using Operators and Control Statements
CO2: Programming Skills using Functions and Recursive Functions
CO3: Programming Skills using Arrays and Structures
CO4: Programming Skills using Pointers.
CO5: Programming Skills using Files.

SEMESTER I	COURSE CODE: CA101T					TITLE OF THE PAPER: C- PROGRAMMING								HOURS: 3	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	5	4	4	4	4	5	4	5	4	4	4	4	4.2	
CO2	5	4	4	5	5	4	4	4	4	4	4	4	5	4.3	
CO3	4	5	5	5	5	5	5	5	5	4	4	4	5	4.7	
CO4	5	4	4	5	5	5	5	5	5	4	4	4	5	4.6	
CO5	4	5	4	5	5	5	5	5	5	4	4	4	5	4.6	
Mean Overall Score														4.48	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

I B.C.A	C- PROGRAMMING	CAP101T
SEMESTER - I		HRS/WK- 3
PRACTICAL -I		CREDIT - 3

1. Write a C program to find the odd or even numbers for the range of given number.
2. Write a C program to find the sum of series
3. Write a C program to generate the Fibonacci series
4. Write a C program to check whether the given year is leap year or not.
5. Write a C program to reverse a given number.
6. Write a C program to find the given number is Armstrong or not.
7. Write a C program to display the following output

   (a) *
   * *
   ***

   (b) 1
   1 2
   1 2 3

   (c) 1
   2 2
   3 3 3

   (d) 3 3 3
   2 2
   1
8. Write a C program to find the largest number among the three numbers.
9. Write a C program to find whether the person is eligible to vote or not
10. Write a C program to display the grade of the student by using conditional statement
11. Write a C program to display the arithmetic manipulation using Switch statement
12. Write a C program to find out the Factorial with and without using recursive function.
13. Write a C program to add a 2 numbers by using all functions.
14. Write a C program to swap 2 numbers without using the temporary variables.
15. Write a C program to find the length of the string with and without using string function.
16. Write a C program to check whether the given string is Palindrome or not.
17. Write a c program for the following matrices
    (a) Addition Matrix (3X3)
    (b) Subtraction Matrix (2X2)
    (c) Multiplication Matrix (2X2)
    (d) Transpose Matrix (3X3)
18. Write a C program to generate the numbers in ascending order.
19. Write a C program to display the name, age ,mark, average and total for the 5 students By structure using array.
20. Write a C program to swap 2 numbers using pointer.

I B.C.A	OBJECT ORIENTED PROGRAMMING USING C++	CA203Q
SEMESTER - II		HRS/WK- 5
CORE -3		CREDIT - 4

Objective:
To make the students get abreast with rich object oriented features with respect to C++.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Knowledge pertaining to C++-Language Fundamentals
CO2 Knowledge pertaining to Principles of OOP
CO3: Knowledge pertaining to Fundamentals of OOP
CO4: Programming Skills using Functions, Polymorphism.
CO5: Advanced Programming techniques using files.

SEMESTER II	COURSE CODE: CA203Q					TITLE OF THE PAPER: OBJECT ORIENTED PROGRAMMING USING C++								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	4	4	3	4	4	4	4	4	2	4	4	5	4.0	
CO2	4	4	4	3	4	4	4	4	5	2	4	4	5	4.0	
CO3	4	4	4	3	4	4	4	4	5	2	5	4	4	4.0	
CO4	4	4	4	3	4	4	4	4	5	2	5	4	5	4.0	
CO5	5	5	5	3	4	4	4	5	5	2	5	4	5	4.0	
Mean Overall Score														4.0	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

I B.C.A	OBJECT ORIENTED PROGRAMMING USING C++	CA203Q
SEMESTER - II		HRS/WK- 5
CORE -3		CREDIT - 4

UNIT-I **[15 Hrs]**

C++ fundamentals: Introduction to C++: Tokens, Keywords, Identifiers, Variables, Operators, Expressions and Control Structures-Arrays in C++ - CIN-COUT.

Unit-II **[15 Hrs]**

Principles of Object Oriented Programming(OOP): Evolution of C++ - Programming Paradigms – Key Concepts of OOP – Advantages of OOP – Usage of OOP and C++.

UNIT-III **[15 Hrs]**

OOPS Fundamentals: Classes and Objects: Constructors and Destructors; and Type of Constructors – Inheritance: Single Inheritance – Multilevel inheritance – Multiple inheritance – Hierarchical Inheritance – Hybrid Inheritance.

UNIT-IV **[15 Hrs]**

Functions: Inline Functions – Friend Function-Virtual Function-**Polymorphism:** Function Overloading - Operator Overloading.

Input and Output in C++ - Streams-Stream classes- Formatted and Unformatted console I/O operations-Member functions of istream class-manipulators-manipulators with parameters

UNIT-V **[15 Hrs]**

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

TEXT BOOK:

E. Balagurusamy-Object Oriented Programming with C++.TMH-1995

REFERENCE BOOKS:

1. H. Schildt, C++: The Complete Reference,TMH-1998
2. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia Publication.
3. Ashok N. Kamthane, Object Oriented Programming with ANSI & Turbo C++, Pearson Education, 2006.

I B.C.A	FUNDAMENTALS OF DATA STRUCTURES	CA204S
SEMESTER - II		HRS/WK- 4
CORE -4		CREDIT - 4

Objective:

This subject will make the student get acquainted with different storage techniques inside the system.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Knowledge pertaining to Fundamentals of Data Structure
CO2: Stacks and Queues Implementation Techniques.
CO3: Logical Skills using Linked List.
CO4: Traversing Programming Skills using Trees.
CO5: Advanced Programming techniques using Graph.

SEMESTER II	COURSE CODE: CA204S					TITLE OF THE PAPER: FUNDAMENTALS OF DATA STRUCTURES +								HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	4	3	4	4	4	4	3	2	3	2	4	3.50	
CO2	4	4	4	3	4	4	4	4	3	2	3	2	4	3.50	
CO3	5	4	4	3	4	5	5	4	3	2	4	2	4	3.80	
CO4	5	4	4	3	4	5	5	4	3	2	4	2	4	3.80	
CO5	5	4	4	3	4	5	5	4	3	2	4	2	4	3.80	
Mean Overall Score														3.68	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

I B.C.A	FUNDAMENTALS OF DATA STRUCTURES	CA204S
SEMESTER - II		HRS/WK- 4
CORE -4		CREDIT - 4

UNIT-I **[12 Hrs]**

Introduction: Definition of a Data structure – primitive and composite Data Types, Arrays, Operations on Array, Ordered lists.

UNIT-II **[12 Hrs]**

Stacks and Queues: Stacks – Applications of Stack – Infix to Postfix Conversion, Recursion, Maze Problems – Queues – Operations on Queues-Queue Applications-Circular Queue.

UNIT-III **[12 Hrs]**

Linked List: Singly Linked List – Operations, Application – Representation of a Polynomial, Polynomial Addition; Doubly Linked List – Operations, Applications – Ordering Books in a Library (Alphabetical Ordering)

UNIT-IV: **[12 Hrs]**

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

UNIT-V: **[12Hrs]**

Graph: Definition, Types of Graphs, Representation -Graph Traversal - Shortest Path (Dijkstra's Algorithm.)

TEXT BOOK:

E. Horowitz and S. Shani, Fundamentals of Data Structures in C++, Galgotia Publications 1999.

REFERENCE BOOKS:

1. Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman, Data structures and algorithms, Pearson Education India.
2. R. Kruse and N. Dale and S. C. Lily Pascal plus Data Structures Algorithms and Advanced Programming –Tata McGraw Hill-New Delhi(1990)

I B.C.A	PROGRAMMING IN C++	CAP202T
SEMESTER – II		HRS/WK- 3
PRACTICAL - II		CREDIT – 3

Objective:
To implement all object oriented programming Concepts and Data structure Concepts.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Programming Skills using Basic OOP Concepts
CO2: Programming Skills using Advanced OOP Concepts
CO3: Application developing skills using Stack and Queue
CO4: Traversing Programming Skills using Trees.
CO5: Advanced Programming techniques like Recursive for Binary Tree Traversing.

SEMESTER II	COURSE CODE: CAP202T					TITLE OF THE PAPER: PROGRAMMING IN C++								HOURS: 3	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	4	3	4	4	4	4	3	2	3	2	4	3.50	
CO2	4	4	4	3	4	4	4	4	3	2	3	2	4	3.50	
CO3	5	4	4	3	4	5	5	4	3	2	4	2	4	3.80	
CO4	5	4	4	3	4	5	5	4	3	2	4	2	4	3.80	
CO5	5	4	4	3	4	5	5	4	3	2	4	2	4	3.80	
Mean Overall Score														3.68	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

I B.C.A	PROGRAMMING IN C++	CAP202T
SEMESTER – II		HRS/WK- 3
PRACTICAL - II		CREDIT – 3

1. Program using Classes and Objects
2. Program using Constructor and destructor
3. Program using Function overloading and Inline functions
4. Program using Operator Overloading
5. Program using Inheritance
6. Program using friend functions

Programs using Data Structure Concepts

7. Implement PUSH, POP Operations of Stack using Arrays.
8. Implement insert, delete Operations of a queue using Arrays.
9. Conversion of infix to postfix using stacks Operations.
10. Binary tree traversals using recursion

II B.C.A	PROGRAMMING IN JAVA	CA305Q
SEMESTER - III		HRS/WK-6
CORE – 5		CREDIT-4

Objective:
To understand the power of Core JAVA and its Object Oriented Features.

Course Outcomes:

At the end of the Course the students should be able to implement

CO1: Programs using Java Control Statements.
CO2: Programs using OOP Concepts in Java.
CO3: An Application using Packages and Interfaces
CO4: Programs using Threads and Streams.
CO5: Programs using String and Predefined Classes.

SEMESTER III	COURSE CODE: CA305Q					TITLE OF THE PAPER: PROGRAMMING IN JAVA								HOURS: 6	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	3	4	4	4	4	4	2	3	2	4	3.60	
CO2	5	4	4	3	4	4	4	4	5	2	3	2	4	3.70	
CO3	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO4	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO5	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
Mean Overall Score														3.91	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

II B.C.A	PROGRAMMING IN JAVA	CA305Q
SEMESTER - III		HRS/WK-6
CORE – 5		CREDIT-4

UNIT – I **[18Hrs]**

Introduction to Java: Features of Java – Data Types – Variables – Arrays – Operators - Control Statements.

UNIT – II **[18Hrs]**

Classes and Objects: Constructors –Inheritance- Overloading method– Overriding methods – Using super – Abstract class.

UNIT – III **[18Hrs]**

Packages and Interfaces: Packages-Creating Packages –Importing Packages– Interfaces**. Exception Handling:** Try, Catch, Throws, Throw and Finally.

UNIT –IV **[18Hrs]**

Thread: Introduction to Thread-Multithread-implementation of multithread application using synchronization.

Streams: Simple Input Streams-Simple Output Streams – File Streams-

UNIT – V **[18Hrs]**

Strings: String classes-String Buffer classes.

Predefined Classes: Vector class, Random class, Calendar class, Date Class.

TEXT BOOK:

E. Balagurusamy, Programming with JAVA, TMH.

REFERENCE BOOKS:

1. Cray S. Horstman, Gray Cornell – Core Java 2 Vol. I and Vol. II – 7th Ed. PHI, 2000.
2. H. Schildt – Java 2 (The Complete Reference) – Fourth Edition, TMH 1999.
3. Wesley, K. Arnold and J. Gosling – The Java Programming Language – Third Edition Addison – Wesley, 2000.

II B.C.A	COMPUTER ALGORITHMS	19CA306
SEMESTER - III		HRS/WK-6
CORE–6		CREDIT-4

Objective:

To make the student to understand Time and Space Complexity of different algorithms.

Course Outcomes:

At the end of the Course the students should be able to implement

CO1: Algorithm based on time and space Complexity.
CO2: Algorithm based on Divide and Conquer method.
CO3: Algorithm based on Dynamic Programming
CO4: Algorithm based on Greedy Method
CO5: Algorithm based on Graph Techniques.

SEMESTER III	COURSE CODE: CA306T					TITLE OF THE PAPER: COMPUTER ALGORITHMS								HOURS: 6	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	3	4	4	4	4	3	2	3	2	4	3.50	
CO2	5	5	5	3	4	4	4	4	3	2	3	2	4	3.70	
CO3	5	5	5	3	4	5	5	4	3	2	4	2	4	3.90	
CO4	5	5	5	4	4	5	5	4	3	2	4	2	4	4.0	
CO5	5	5	5	4	4	5	5	4	3	2	4	2	4	4.0	
Mean Overall Score														3.83	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

II B.C.A	COMPUTER ALGORITHMS	19CA306
SEMESTER - III		HRS/WK-6
CORE–6		CREDIT-4

UNIT-I: **[18 Hrs]**

Introduction: Algorithm-Pseudocode-Time complexity - Space complexity-best case,worst case and average case analysis- asymptotic notations: Big Oh,Big Omega,theta,small Oh,small Omega.

UNIT-II : **[18 Hrs]**

Divide and Conquer: General method- Complexity analysis-Binary search algorthim-Strassen's Matrix Multiplication-Merge sort.

UNIT-III: **[18 Hrs]**

Dynamic Programming: General method-definition: principle of optimality-applications of dynamic programming -multistage graph: forward approach, backward approach-Traveling salesman problem .

UNIT-IV : **[18 Hrs]**

Greedy method: General method-applications of Greedy method- single source shortest path algorithm- Knapsack problem.

UNIT-V : **[18 Hrs]**

Graph algorthims:-Depth first search- Breadth first search-applications of graph traversals-comparison between DFS and BFS-Connected components .

TEXT BOOKS:

1. E. Horowitz, S. Sahni and S. Rajasekaran, Computer Algorithms Galgotia-1999.

2. Anuradha and A.Puntambekar,Analysis and Design of Algorthims-Technical Publications(page no-1-3 to1-10, 2-1 to2-8, 5-1to5-23)

3. A. Puntambekar, Design and Analysis of Algorthims-Technical Publications Pune(page no:4-1 to4-5, 4-34 to4-36, 6-6 to6-38)

REFERENCE BOOKS:

1. G. Brassard and Brately- Fundamentals of Algorithmics, PHI 1996.
2. 2. Goodman S.E. and Hedetniemi S.T. - Introduction to the Design and Analysis of Algorithms - Tata McGraw Hill publication

II B.C.A	**ENTREPRENEURIAL DEVELOPMENT**	19GCA31A
SEMESTER III	(OFFERED *BY* COMMERCE DEPARTMENT TO BCA DEPARTMENT)	HRS/WK – 5
GE – I (1)		CREDIT - 4

Objectives

To make and create interest among the students to become an Entrepreneur and Facilitates the students to avail the incentives and schemes available for MSMEs

Course Outcomes:

At the end of the Course the students should Exhibit

CO1: The Qualities of an Entrepreneur
CO2: Explore Rural Entrepreneurship and Agri-Preneurship
CO3: Effective functioning of Family Business
CO4: Explore MSME
CO5: Knowledge on Institutional Support and Subsidies.

SEMESTER V	COURSE CODE: NEW CODE					TITLE OF THE PAPER: ENTREPRENEURIAL DEVELOPMENT								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	5	4	4	4	3	2	2	3	3	4	3.60	
CO2	4	4	5	5	4	4	4	3	2	2	3	3	4	3.60	
CO3	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
CO4	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
CO5	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
Mean Overall Score														3.8	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

II B.C.A	ENTREPRENEURIAL DEVELOPMENT (OFFERED *BY* COMMERCE DEPARTMENT TO BCA DEPARTMENT)	19GCA31A
SEMESTER III		HRS/WK – 5
GE – I (1)		CREDIT - 4

UNIT-I Introduction: Entrepreneurship: Meaning- Nature-Importance-Theories-Entrepreneur: Meaning-Definition-Characteristics-Qualities-Types and roles of Entrepreneur-Entrepreneur vsIntrapreneur - Factors promoting an Entrepreneur-Role of Entrepreneurs in India's Economic Development.

UNIT-II :

Rural Entrepreneurship and Agri-Preneurship: Rural Entrepreneurship**:** Meaning - Need - Problems of Rural Entrepreneurship- Developing Rural Entrepreneurship-NGOs and Rural Entrepreneurship.

Agri-Preneurship**:** Introduction-Need for Developing Agri-preneurship in India-Opportunities and Challenges Involved in Developing Agri-preneurship-Suggestions for Developing Agri-preneurship

UNIT-III :

Family Business: Meaning – Characteristics -Types - Advantages of Family Business-Disadvantages of Family Business-Major Challenges Faced by Family Business in India-Business Succession Planning-Making Family Business More Effective

UNIT-IV :

New Venture and MSME- An Introduction: New venture-meaning-Promoting New Venture-Sources of business Ideas-Idea Generation Techniques-Project Identification-Project selection-Procedures to start a New Venture-Project: Meaning-Types-Formulation of Project Report-Project Appraisal-MSME: Introduction-Classification of Enterprises-Memorandum of MSME's-Registration of MSME's.

UNIT- V

Institutional Support and Subsidies: Sources of raising funds-need for institutional finance-various Institutions Supporting entrepreneurship. Incentives and Subsidies: Meaning, needs, incentives and subsidies is available for entrepreneur- District Industries Centre (DIC) - Industrial Estates.

TEXT BOOK:

Entrepreneurial Development, Dr .S.S. Khanka, S. Chand Publications-2018.

REFERENCE BOOKS:

1. Vasant Desai, Small-Scale Industries and Entrepreneurship, Himalaya Publishing House, 2017

2. C B Gupta &Srinivasan : Entrepreneurship Development in India, Sultan Chand.
A Gupta : Indian Entrepreneurial Culture, New Age International.

QUESTION PAPER PATTERN (UG)

Time: 3 Hours **Marks: 75**

1. **Part - A = 10x2 =20 Marks – All the Questions are to be Answered.**
2. **Part – B = 5x5 = 25 Marks – Five Questions with Internal Choice.**
3. **Part – C = 3x10 = 30 Marks – Three Out of Five – Open Choice.**

Note: Questions should be asked from all the units with equal weightage.

II B.C.A	MANAGEMENT AND PROFESSIONAL LEADERSHIP (OFFERED *BY* COMMERCE DEPARTMENT TO BCA DEPARTMENT)	19GCA31B
SEMESTER III		HRS/WK – 5
GE - I (2)		CREDIT - 4

OBJECTIVES:

1. To provide knowledge and understanding of the basics of management and leadership styles.
2. To identity value of group involvement and team building.
3. To make them understand the role of communication to lead the organization.

Course Outcomes:

At the end of the Course the students should possess

CO1: The Managerial Skills and roles.
CO2: The Planning, Organizing and Decision Making Capabilities.
CO3: Effective Communication
CO4: The Leadership character.
CO5: The Motivation to achieve a Goal.

SEMESTER V	COURSE CODE: NEW CODE					TITLE OF THE PAPER: MANAGEMENT AND PROFESSIONAL LEADERSHIP								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	5	4	4	4	3	2	2	3	3	4	3.60	
CO2	4	4	5	5	4	4	4	3	2	2	3	3	4	3.60	
CO3	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
CO4	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
CO5	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
Mean Overall Score														3.8	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

II B.C.A	MANAGEMENT AND PROFESSIONAL LEADERSHIP (OFFERED *BY* COMMERCE DEPARTMENT TO BCA DEPARTMENT)	19GCA31B
SEMESTER III		HRS/WK – 5
GE - I (2)		CREDIT - 4

Unit 1:

Management–Introduction: Nature and functions of management, principles of management, levels of management, management as an art, management as science and profession, management process, managerial skills and roles; Evolution of Management Thoughts; Managerial competencies.

Unit II:

Planning, Organizing and Decision making: Planning- process of planning, elements of planning; steps in Organizing , authority and responsibility , delegation, centralization vs. decentralization; decision making, rationality in decision making.

UNIT-III:

Communication: Meaning- Definition- Nature- elements – Types of communication - Communication process, importance of communication, communication channels, Roles and barriers to communication.

Unit IV:

Basic Concepts of Leadership: Leadership: Meaning- Definition– Nature and Characteristics of Leadership- qualities of leadership - Functions of leaders, styles of leadership,.

Unit V:

Motivation : Meaning- Definition-Nature and Characteristics -Process of motivation theories of motivation- Maslow's theory- McGregor's X and Y Theory- Herzberg's Two factor theory.

TEXT BOOKS :

1. Fundamentals of Management by Robbins, S.P. and Decenzo, D.A. Pearson Education Asia, New Delhi
2. Principles of Management. J.Jayasankar.Margam Publication

REFERENCEBOOKS :

1. Organizational Behaviour by S P Robbins, Prentice Hall of India, NewDelhi
2. Essentials of management by Chhabra T.N. , Sun India publications

QUESTION PAPER PATTERN (UG)

Time: 3 Hours **Marks: 75**

1. **Part - A = 10x2 =20 Marks – All the Questions are to be Answered.**
2. **Part – B = 5x5 = 25 Marks – Five Questions with Internal Choice.**
3. **Part – C = 3x10 = 30 Marks – Three Out of Five – Open Choice.**

Note: Questions should be asked from all the units with equal weightage.

II B.C.A	JAVA PROGRAMMING	CAP303Q
SEMESTER - III		HRS/WK-5
PRACTICAL - III		CREDIT-3

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

Course Outcomes:

At the end of the Course the students should be able to implement

CO1: Programs using Java Control Statements.
CO2: Programs using OOP Concepts in Java.
CO3: An Application using Packages and Interfaces
CO4: Programs using Threads and Streams.
CO5: Programs using String And Predefined Classes.

SEMESTER III	COURSE CODE: CAP303T					TITLE OF THE PAPER: JAVA PROGRAMMING								HOURS: 5	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	3	4	4	4	4	4	2	3	2	4	3.60	
CO2	5	4	4	3	4	4	4	4	5	2	3	2	4	3.70	
CO3	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO4	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO5	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
Mean Overall Score														3.91	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

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. Application using File streams(Sequential File)
10. Application using File streams(Random File)

II B.C.A	INTERNET TECHNOLOGIES	CA407T
SEMESTER – IV		HRS/WK-6
CORE -7		CREDIT-4

Objective:
To give an introduction to Internet, HTML and to learn Java Script and how to add Java Script code to HTML page.

Course Outcomes:

At the end of the Course the students should be able to Exhibit

CO1: Knowledge in Internet Connection Technologies.
CO2: Knowledge in World Wide Web Concepts
CO3: Programming Skills using HTML Tags
CO4: Programming Skills using Style Sheets
CO5: Programming Skills using JavaScript.

SEMESTER IV	COURSE CODE: CA407T					TITLE OF THE PAPER: INTERNET TECHNOLOGIES								HOURS: 6	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	3	4	4	4	4	4	2	3	2	4	3.60	
CO2	5	4	4	3	4	4	4	4	5	2	3	2	4	3.70	
CO3	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO4	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO5	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
Mean Overall Score														3.91	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

II B.C.A	INTERNET TECHNOLOGIES	CA407T
SEMESTER – IV		HRS/WK-6
CORE -7		CREDIT-4

UNIT – I **[18 Hrs]**

Internet Connection Concepts : Internet Communication Protocols – Internet Hosts – Internet Protocol(IP) Addresses – Domain and Host Name - Servers and Clients – Ports and Port Numbers – Types of Internet Connections – Internet Service Providers(ISPs)

UNIT – II **[18 Hrs]**

World Wide Web Concepts : URLs and Transfer Protocols – HTML – Java and JavaScript – VBScript – Plug-ins – XML – Cascading Style Sheets(CSS) – Websites – Portals – Web Directories and Search Engines – Home Pages.

UNIT – III **[18 Hrs]**

HTML tags : History of HTML – Structure of HTML – Basic Tags of HTML - List – Linking Document – Frames – Graphics to HTML Documents.

UNIT – IV **[18 Hrs]**

Style Sheet Basics : Introduction to CSS – Add Style to document – Creating Style Sheet rules – Style sheet Properties – Font – text – Color and Background Color – Box Properties.

UNIT – V **[18 Hrs]**

JavaScript : Introduction – Advantage of JavaScript – JavaScript Syntax – data type – Variable – Array – Operator & Expressions – Looping Constructors – Function – Dialog Box .

TEXT BOOK:

Ivan Bayross, Web Enable Commercial Application Development using HTML, DHTML, Javascript, PERL CGI, BPB Publications, 2000.

REFERENCE BOOKS:

1. Thomas A. Powell – HTML and XHTML: The Complete Reference, Tata McGrawHill, 4th Edition 2003.
2. E. Stephen Mack and Janan Platt, HTML 4.0: No Experience Required, Sybex Inc.
3. H. M. Deitel, P.J. Deitel, A.B. GoldBerg, Internet & World Wide Web: How to Programme, Prentice Hall, Third Edition

II B.C.A	ADVANCED JAVA PROGRAMMING	CA408T
SEMESTER - IV		HRS/WK-6
CORE – 8		CREDIT-4

Objective:
To learn advanced concept of Java and make them to develop distributed application.

Course Outcomes:

At the end of the Course the students should be able to Exhibit

CO1 Programming Skills using AWT.
CO2: Network Programming Skills using Java.
CO3: An Application developing skills using JDBC
CO4: An Application developing skills using RMI
CO5: An Application developing skills using Servlet

SEMESTER IV	COURSE CODE: CA408T					TITLE OF THE PAPER: ADVANCED JAVA PROGRAMMING								HOURS: 6	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	3	4	4	4	4	4	2	3	2	4	3.60	
CO2	5	4	4	3	4	4	4	4	5	2	3	2	4	3.70	
CO3	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO4	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO5	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
Mean Overall Score														3.91	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

II B.C.A	ADVANCED JAVA PROGRAMMING	CA408T
SEMESTER - IV		HRS/WK-6
CORE – 8		CREDIT-4

UNIT - I **[18Hrs]**

AWT Overview: Components, Container-AWT classes: Button, TextField, Checkbox-Layouts-Simple example using AWT. **Applet**: Introduction to Applet-Life Cycle of Applet.-Simple example using applet.

UNIT - II **[18Hrs]**

Networks: Network Basics-socket overview-Internet Addressing-DNS-TCP/IP-URL-Example using network concepts.

UNIT - III **[18Hrs]**

DataBase: JDBC-ODBC Driver-Connection class-Statement class-ResultSet class-Example using database (MS Access).

UNIT - IV **[18Hrs]**

RMI: Introduction to RMI-Architecture of RMI-A complete example using RMI.

UNIT - V **[18Hrs]**

Servlet: Servlet overview – your first servlet – servlet chaining – session management in servlet: Session Tracking-simple database program using Servlet.

TEXT BOOK:

H. Schildt – Java 2 (The Complete Reference] – Fourth Edition, TMH 1999.

REFERENCE BOOKS:

1. Cray S. Horstman, Gray Cornell – Core Java 2 Vol. I and Vol. II – 7th Ed. PHI, 2000.
2. Wesley, K. Arnold and J. Gosling – The Java Programming Language – Third Edition Addison – Wesley, 2000.

II B.C.A	SOFT SKILL	AOSS401S
SEMESTER - IV		HRS/WK-3
SEC		CREDIT-2

Objective:

To make the students to develop their aptitude, logical, reasoning and other skills needed to attend interviews.

Course Outcomes:

At the end of the Course the students should be able to Exhibit

CO1: Talent in Group Discussion
CO2: Apt Body Language during Interviews
CO3: Impeccable Mind set in solving Quantitative Aptitude Problems.
CO4: Impeccable Mind set in solving Logical Reasoning Problems
CO5:Talent in clearing all Phases of a Selection Process.

SEMESTER IV	COURSE CODE: AOSS401S					TITLE OF THE PAPER: SOFT SKILL								HOURS: 3	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	5	4	4	4	4	4	3	2	3	4	4	4	3.45	
CO2	5	5	4	4	4	4	4	3	2	3	4	4	4	3.50	
CO3	5	5	4	5	4	5	5	3	2	3	5	5	5	4	
CO4	5	5	4	5	4	5	5	3	2	3	5	5	5	4	
CO5	5	5	4	5	4	5	5	3	2	3	5	5	5	4	
Mean Overall Score														3.8	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

II B.C.A	SOFT SKILL	AOSS401S
SEMESTER - IV		HRS/WK-3
SEC		CREDIT-2

UNIT - I

Group Discussion: Why Group Discussion is important – Types of Group Discussion – KTechniques in Group Discussion – Tips for Group Discussion.

UNIT – II

Interview Preparation: Common Interview Questions – Questions to Ask Your Employer – What Emplopyers 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 letter of Alphabets – 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 Douglass 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. Aggaewal, Objective Arithmetic, S. Chand & company, New Delhi , 2005.
4. Govind Prasad Singh and Rakesh Kumar, Text Book of Quickest Mathematics (for all Competitive Examinations),KiranPrakashan, 2012.
5. R.S. Aggarwal, Quantitative Aptitude, S. chand& Company, New Delhi, 2012.

II B.C.A	ADVANCED JAVA PROGAMMING	CAP404T
SEMESTER - IV		HRS/WK-5
PRACTICAL-IV		CREDIT-3

Objective:
To enable the students to learn advanced level of JAVA programming and to make the students to develop web oriented and distributed concepts.

Course Outcomes:

At the end of the Course the students should be able to Exhibit

CO1 Programming Skills using AWT.
CO2: Network Programming Skills using Java.
CO3: An Application developing skills using JDBC
CO4: An Application developing skills using RMI
CO5: An Application developing skills using Servlet

SEMESTER IV	COURSE CODE: CAP404T					TITLE OF THE PAPER: ADVANCED JAVA PROGRAMMING								HOURS: 5	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	3	4	4	4	4	4	2	3	2	4	3.60	
CO2	5	4	4	3	4	4	4	4	5	2	3	2	4	3.70	
CO3	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO4	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
CO5	5	5	5	3	4	5	5	4	5	2	4	2	4	4.0	
Mean Overall Score														3.91	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

1. To implement Bio-Data Information using Frame class with various controls.
2. Display different graphical symbols using Applet class.
3. To implement for sending a string from one system to another using TCP/IP.
4. Chatting Application using TCP/IP.
5. To develop an application for telephone directory using data base (MS access).
6. To implement student mark list using AWT classes with data base (MS access).
7. To develop a program for prime number using RMI.
8. To develop a program for Arithmetic Operation using Servlets.
9. To develop an application for simple EB Bill using Servlets with database.

III B.C.A	RELATIONAL DATABASE MANAGEMENT SYSTEMS	19CA509
SEMESTER - V		HRS/WK-5
CORE – 9		CREDIT - 4

Objective:

To make the students aware of database management concepts and basic SQL Commands.

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge in Basic Database Concepts.
CO2: Knowledge in Entity Relationship Model.
CO3: Knowledge in Normalization Techniques.
CO4: Programming Skill set in SQL
CO5: Programming Skill set in PL/SQL

SEMESTER V	COURSE CODE: NEWCODE					TITLE OF THE PAPER: RELATIONAL DATABASE MANAGEMENT SYSTEMS								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	5	4	4	4	4	4	2	3	2	4	3.75	
CO2	5	4	4	5	4	4	4	4	5	2	3	2	4	3.85	
CO3	5	5	5	5	4	5	5	4	5	2	4	2	4	4	
CO4	5	5	5	5	4	5	5	4	5	2	4	2	4	4	
CO5	5	5	5	5	4	5	5	4	5	2	4	2	4	4	
Mean Overall Score														4.1	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	RELATIONAL DATABASE MANAGEMENT SYSTEMS	19CA509
SEMESTER - V		HRS/WK-5
CORE – 9		CREDIT - 4

UNIT-I : **[15 Hrs]**

Introduction : Database system applications – Purpose of database systems – View of data : Data Abstraction – Instances and Schemas – Data Models – Database Languages: Data Manipulation Language – Data Definition Language - Data storage and querying: Storage Manager – The query processor – Database architecture- Database users and administrators: Database Users and User Interfaces – Database Administrator.

UNIT-II: **[15 Hrs]**

The Entity-Relationship Model: Entity sets – Relationship sets – Attributes – Constraints : Mapping Cardinalities - Keys – Entity Relationship Diagrams : Basic Structure of E-R Diagram – Mapping Cardinality in E-R diagram – Complex Attributes – Roles – Non Binary Relationship sets – Weak Entity sets.

UNIT-III: **[15 Hrs]**

Relational database design: First normal form – Decomposition using functional dependencies: Keys and functional dependencies – Boyce Codd normal form – Third normal form – Decomposition using Multivalued dependencies: Multivalued dependencies – Fourth normal form.

UNIT-IV: **[15 Hrs]**

Introduction to Oracle SQL: DDL,DML,DCL,TCL-Integrity Constraints-Built-in-functions: Character functions – number functions – Date functions- Conversion functions - Aggregate functions – SET operations – Grouping and ordering data – Joins - Subqueries – Views.

UNIT -V: **[15Hrs]**

Introduction to PL/SQL: PL/SQL blocks – Explicit Cursors – Exception handling section – Procedures – Functions – Packages – Triggers.

TEXT BOOKS:

1. "Database System Concepts", Abraham Silberschatz, Henry F.Korth, S.Sudarshan , International Edition , McGrawHill Publications , Sixth edition, 2002.

2. “SQL, PL/SQL, The Programming Language of ORACLE” (fourth Revised Edition) – Ivan BayRoss , BPB Publications, 2009.

REFERENCE BOOKS:

1. “An Introduction to Database Systems”, C.J.Date, A.Kannan, S.Swamynathan, Eighth Edition, Pearson Education , 2007.
2. “Oracle Database 10g, The Complete Reference” , Kevin Loney , Tata McGraw Hill Publishing Company Limited , 2004.

III B.C.A	PROGRAMMING USING ASP.NET AND C#	CA510T
SEMESTER - V		HRS/WK-5
CORE – 10		CREDIT – 4

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

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge in Dot Net Framework.
CO2: Programming Skill set in C#.Net
CO3: Programming Skill set in Asp.Net
CO4: Programming Skill set in C# Controls
CO5: Programming Skill set in ADO.Net

SEMESTER V	COURSE CODE: CA510T					TITLE OF THE PAPER: PROGRAMMING USING ASP.NET AND C#								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	5	5	4	4	4	4	4	2	3	2	4	3.85	
CO2	5	4	5	5	4	4	4	4	5	2	3	2	4	3.90	
CO3	5	5	5	5	5	5	5	4	5	2	4	2	4	4.30	
CO4	5	5	5	5	5	5	5	4	5	2	4	2	4	4.30	
CO5	5	5	5	5	5	5	5	4	5	2	4	2	4	4.30	
Mean Overall Score														4.14	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	PROGRAMMING USING ASP.NET AND C#	CA510T
SEMESTER - V		HRS/WK-5
CORE – 10		CREDIT – 4

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. E. Balaguruswamy, Programming with C#, First Edition, Tata McGraw Hill Publication.
2. Matthew Macdonald, ASP.NET: The Complete Reference, McGraw Hill Publication.

REFERENCE BOOKS

1. Harvey M. Deitel& Paul J. Deitel- C# Programmers- Second Edition-Pearson Edition.
2. YashavantKanetkar, 2004 C# .Net, Motilal Books of India.
3. Peter Drayton , Ben Albahari, Ted Neward. C# in an nutshell, O'Reilley Publication.
4. Herbert Schlit. 2002 C# - A Beginner's Guide. Osborne, Tata McGraw Hill Publication.
5. Burton Harvey, Simon Robinson, Julian Templeman and KarliWaston, 'C# Programming with the Public Bata', Shroff Publishers & Distributors Pvt. Ltd (SPD) Mumbai, April 2001.
6. Ben Albahart, Peter Drayton and Brad Merrill, 'C# Essentials', SPD, Mumbai March 2001.
7. ThamariSelvei, AText Book on C#: A Systematic Approach to OOP, Pearson Ed.

III B.C.A	MULTIMEDIA AND VIRTUAL REALITY	ECA512S
SEMESTER - V		HRS/WK – 5
DSE – I (1)		CREDIT – 4

Objective:

To enable the students to learn the basic functions, principles and concepts of Multimedia and Virtual Reality.

Course Outcomes:

At the end of the Course the students should be able to

CO1: Inhibit basic Knowledge about Multimedia.
CO2: Explore Sound and Images Features
CO3: Explore Video and Animation features.
CO4: Co-ordinate a Multimedia Project
CO5: Incorporate Virtual Reality wherever needed.

SEMESTER V	COURSE CODE: ECA512S					TITLE OF THE PAPER: MULTIMEDIA AND VIRTUAL REALITY						HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)							MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	4	5	5	4	4	4	4	4	2	3	2	4	3.75
CO2	4	4	5	5	4	4	4	4	5	2	3	2	4	3.85
CO3	4	5	5	5	4	5	5	4	5	2	3	2	4	4
CO4	4	5	5	5	4	5	5	4	5	2	3	2	4	4
CO5	4	5	5	5	4	5	5	4	5	2	3	2	4	4
Mean Overall Score														3.9

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	MULTIMEDIA AND VIRTUAL REALITY	ECA512S
SEMESTER - V		HRS/WK – 5
DSE – I (1)		CREDIT – 4

UNIT-I **[15 Hrs]**

Introduction: 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 **[15 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 – Toward Professional sound: The Red Book standard – Production tips.

Images: Making still Images – Color – Image file formats. Animation: The Power of Motion – Principles of Animation – Making animations that works.

UNIT-III **[15 Hrs]**

Video: Using Video – How Video works – Broadcast video standards – Integrating computers and television – Shooting and Editing Video – Video tips – Recording formats – Digital Video. Planning and Costing: Project planning – Estimating – RFPs and Bid Proposals – Designing and producing: Designing – Producing

UNIT-IV **[15 Hrs]**

Introduction to virtual reality –goals of virtual reality, the human side of things, and the basic concepts of virtual reality, Evaluation of virtual reality: Improvement of communication with computers. Early vision of virtual reality. State of virtual reality: sense of sound, touch, other senses, world creating tools. Virtual reality issues: display issues, tracking issues, manipulation issues, application issues, and navigation issues.

UNIT-V **[15 Hrs]**

Application to virtual reality: 3D modeling, 3D architecture, 3D training, 3D science, 3D education, 3D shopping, 3D sports, Distributed interactive simulation, the responsive work bench, VR training programme for disable children, medicine and surgery. Introduction to Virtual Reality Modeling languages.

TEXT BOOK:

Tay Vaughan, Multimedia Making it Work, India Professional, Fifth Edition.

REFERENCE BOOKS :

1. John Hayward – Adventures in Virtual Reality, One publications.
2. John F. Koegel Buford, Multimedia Systems, Pearson Education.

III B.C.A	COMPUTER GRAPHICS	ECA512A
SEMESTER - V		HRS/WK-5
DSE – I (2)		CREDIT - 4

Objective:

To enable the students to learn about the working of input/output devices. And to make the student to learn the concepts of 2D and 3D Object transformation models and generation algorithms.

Course Outcomes:

At the end of the Course the students should be able to

CO1: Inhibit basic Knowledge about Computer Graphics
CO2: Explore Output Primitive Features
CO3: Explore 2D Concepts.
CO4: Explore 3D Concepts.
CO5: Perform Transformation based Animation.

SEMESTER V	COURSE CODE: ECA512A					TITLE OF THE PAPER: COMPUTER GRAPHICS								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	5	4	4	4	4	4	2	3	2	4	3.75	
CO2	4	4	5	5	4	4	4	4	5	2	3	2	4	3.85	
CO3	4	5	5	5	4	5	5	4	5	2	3	2	4	4	
CO4	4	5	5	5	4	5	5	4	5	2	3	2	4	4	
CO5	4	5	5	5	4	5	5	4	5	2	3	2	4	4	
Mean Overall Score														3.9	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	COMPUTER GRAPHICS	ECA512A
SEMESTER - V		HRS/WK-5
DSE – I (2)		CREDIT - 4

UNIT – I **[15Hrs]**

Introduction to computer Graphics: Video display devices – Raster scan system – Random Scan System – Interactive input Devices – Hard copy devices – Graphics software – Output primitives – line drawing algorithms – initializing lines – Line function – circle Generating algorithms.

UNIT – II **[15Hrs]**

Output Primitives: Attributes of output Primitives – line attributes – Color and Grayscale style – Area filing algorithms – Character attributes Inquiry functions – Two dimensional transformations – Basic transformation – composite transformation – Matrix representation –Other transformations.

UNIT – III **[15Hrs]**

2D Concepts: Two – dimensional viewing – window – to view port co-ordinate transformation – clipping algorithms – interactive input methods – Physical Input devices – logical classification of input devices – interactive picture construction methods.

UNIT- IV **[15Hrs]**

3D Concepts: Three – dimensional concepts – Three dimensional display methods – parallel Projection –Perspective projection – Depth Cueing – Visible line and surface identification.

UNIT – V **[15Hrs]**

Transformations: Three dimensional transformations -Three dimensional viewing – Projection – Viewing transformation – implementation of viewing operations.

TEXT BOOK:

Hearn and M.P. Baker – Computer Graphics [C Version] – Person Education.

REFERENCE BOOK:

W.M. Newman and RF. Sproull – Principle of Interactive Computer Graphics – McGraw Hill International Edition -1979.

III B.C.A	DATA COMMUNICATION AND NETWORKS	ECA511
SEMESTER - V		HRS/WK-5
DSE - I (3)		CREDIT - 4

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.

Course Outcomes:

At the end of the Course the students should be able to

CO1: Inhibit basic Knowledge about Networks
CO2: Explore OSI Model
CO3: Explore Transmission Media
CO4: Explore Switching Techniques
CO5: Implement different Routing Algorithms.

SEMESTER V	COURSE CODE: ECA511					TITLE OF THE PAPER: DATA COMMUNICATION AND NETWORKS								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	5	4	4	4	4	4	2	3	2	4	3.75	
CO2	4	4	5	5	4	4	4	4	5	2	3	2	4	3.85	
CO3	4	5	5	5	4	5	5	4	5	2	3	2	4	4	
CO4	4	5	5	5	4	5	5	4	5	2	3	2	4	4	
CO5	4	5	5	5	4	5	5	4	5	2	3	2	4	4	
Mean Overall Score														3.9	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	DATA COMMUNICATION AND NETWORKS	ECA511
SEMESTER - V		HRS/WK-5
DSE - I (3)		CREDIT - 4

UNIT -I **[15 hrs]**

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

UNIT -II **[15 hrs]**

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 **[15 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 **[15 hrs]**

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

UNIT -V **[15 hrs]**

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

TEXT BOOK:

Behrouz A Forouzan, Data Communications and Networks, Second Edition, McGraw Hill, 2002.

REFERENCE BOOKS:

1. William Stallings, Data & Computer Communications, Sixth Edition, Pearson Education, 2001.
2. Andrew S. Tanenbaum, Computer Networks, Pearson Education, 3rd Edition.
3. Fred Halsall, Data Communications, Computer Networks and Open Systems, Addison Wessley, 1995.

III B.C.A	ORGANIZATIONAL BEHAVIOUR	19ACA501
SEMESTER - V		HRS/WK-5
ALLIED-6		CREDIT-4

Course Outcomes:

At the end of the Course the students should be able to

CO1: Deliver proper behavior inside an organization.
CO2: Deliver proper Individual Behavior
CO3: Deliver proper Group Behavior
CO4: Communicate and Exhibit Leadership Qualities.
CO5: Adjust to Organizational Climate and Culture.

SEMESTER III	COURSE CODE: NEW CODE					TITLE OF THE PAPER: ORGANIZATIONAL BEHAVIOUR								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	4	3	4	4	4	4	2	3	4	5	4	3.75	
CO2	5	5	5	3	4	4	4	4	2	3	5	5	4	4	
CO3	5	5	5	3	4	5	5	5	2	3	5	5	4	4	
CO4	5	5	5	4	4	5	5	5	2	5	5	5	4	4.5	
CO5	5	5	5	4	4	5	5	5	2	5	5	5	4	4.5	
Mean Overall Score														4.2	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	ORGANIZATIONAL BEHAVIOUR	19ACA501
SEMESTER - V		HRS/WK-5
ALLIED-6		CREDIT-4

UNIT I:

INTRODUCTION TO ORGANIZATIONAL BEHAVIOR : Definition-Key Elements of OB-Need for studying OB-Contributing Disciplines to OB-Challenges faced by the Management-OB Frame work – OB models.

UNIT II:

INDIVIDUAL BEHAVIOUR: Introduction to Personality –Determinants of Personality-Personality Types –Theories of Personality-Perceptual Process-Factors affecting Perception- Job Satisfaction-Determinants of Job Satisfaction-MotivationProcess -Need for Motivation-Maslow's Need Hierarchy Theory of Motivation.

UNIT III:

GROUP BEHAVIOUR: Definition andCharacteristics of Group-Need for people to form and join Group-Types of Group-Stages of Group Development-Team Building-Types of Team-Team Building Process.

UNIT IV:

COMMUNICATION: Introduction-Nature and Need for Communication-Process of Communication-Channels of Communication-Barriers to Communication

LEADERSHIP: Meaning-Functions of Leadership-Leadership Styles-Factors determining Effective Leadership-Leadership Theories - Transactional and Transformational Leadership.

UNIT V:

CONFLICTS: Introduction - Sources of Conflicts – Types of Conflicts – Conflict Management
STRESS: Introduction - Sources of Stress – Consequences of Stress.

ORGANIZATIONAL CLIMATE: Definition-Dimensions of Organizational Climate - Determinants of Organizational Climate

ORGANIZATIONAL CULTURE: Organizational Culture: Definition and Characteristics - Types of Culture.

TEXT BOOK:

Dr. S.S. Khanka, Organizational Behaviour, S.Chand Publication, 4th Revised Edition

REFERENCE BOOKS:

1. Stephen P. Robins, Organisational Behavior, PHI Learning / Pearson Education, 11th edition, 2008.
2. Fred Luthans, Organisational Behavior, McGraw Hill, 11th Edition, 2001.

III B.C.A	RDBMS PACKAGE – ORACLE	CAP505T
SEMESTER - V		HRS/WK-5
PRACTICAL-V		CREDIT - 3

Objective:
To make the student abreast with the Database Management concepts.

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge in Basic Database Concepts.
CO2: Knowledge in Entity Relationship Model.
CO3: Knowledge in Normalization Techniques.
CO4: Programming Skill set in SQL
CO5: Programming Skill set in PL/SQL

SEMESTER V	COURSE CODE: CAP505T					TITLE OF THE PAPER: RDBMS PACKAGE – ORACLE								HOURS: 5	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	5	4	4	4	4	4	2	3	2	4	3.75	
CO2	5	4	4	5	4	4	4	4	5	2	3	2	4	3.85	
CO3	5	5	5	5	4	5	5	4	5	2	4	2	4	4	
CO4	5	5	5	5	4	5	5	4	5	2	4	2	4	4	
CO5	5	5	5	5	4	5	5	4	5	2	4	2	4	4	
Mean Overall Score														4.1	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

SQL

1. Simple Queries using DDL,DML and DCL
2. SQL In-Built Functions
3. SET Operations
4. Views
5. Joins
6. Sub Queries

PL/SQL

7. PL/SQL Block
8. Procedures
9. Functions
10. Packages
11. Triggers
12. Cursors

III B.C.A	PROGRAMMING IN ASP.NET USING C#	CAP506T
SEMESTER - V		HRS/WK-5
PRACTICAL-VI		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.

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge in Dot Net Framework.
CO2: Programming Skill set in C#.Net
CO3: Programming Skill set in Asp.Net
CO4: Programming Skill set in C# Controls
CO5: Programming Skill set in ADO.Net

SEMESTER V	COURSE CODE: CAP506T					TITLE OF THE PAPER: PROGRAMMING IN ASP.NET USING C#								HOURS: 5	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	5	5	4	4	4	4	4	2	3	2	4	3.85	
CO2	5	4	5	5	4	4	4	4	5	2	3	2	4	3.90	
CO3	5	5	5	5	5	5	5	4	5	2	4	2	4	4.30	
CO4	5	5	5	5	5	5	5	4	5	2	4	2	4	4.30	
CO5	5	5	5	5	5	5	5	4	5	2	4	2	4	4.30	
Mean Overall Score														4.14	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	PROGRAMMING IN ASP.NET USING C#	CAP506T
SEMESTER - V		HRS/WK-5
PRACTICAL-VI		CREDIT - 3

WINDOWS APPLICATION:

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

WEB APPLICATION:

1. Create an application to sending a request from one page to another using session.
2. Create a simple website for an organization using Master Page.
3. To develop database application for student mark list processing using validation control (Oracle)
4. 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.C.A	OPEN SOURCE TECHNOLOGIES-PHP	CA614Q
SEMESTER - VI		HRS/WK- 5
CORE -11		CREDIT - 4

Objective:

To impart basic knowledge of PHP and MySQL.

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge in Basics of PHP.
CO2: Programming Skill set in OOP using PHP
CO3: Programming Skill set in Files Concept using PHP
CO4: Programming Skill set in developing Web Pages
CO5: Programming Skill set in developing Database Application using PHP.

SEMESTER VI	COURSE CODE: CA614Q					TITLE OF THE PAPER: OPEN SOURCE TECHNOLOGIES-PHP								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	5	5	4	4	4	4	4	3	4	2	4	4	
CO2	5	4	5	5	4	4	4	4	5	3	4	2	4	4.10	
CO3	5	5	5	5	5	5	5	4	5	3	4	2	4	4.40	
CO4	5	5	5	5	5	5	5	4	5	3	4	2	4	4.40	
CO5	5	5	5	5	5	5	5	4	5	3	4	2	4	4.40	
Mean Overall Score														4.2	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	OPEN SOURCE TECHNOLOGIES-PHP	CA614Q
SEMESTER - VI		HRS/WK- 5
CORE -11		CREDIT - 4

OBJECTIVE:

UNIT-I **[15 Hrs]**

BASICS OF PHP:-History of PHP-Language basics:-Lexical structure-Data types-variables-Expressions and operators-flow control statements:if,if-else,while,do-while,switch,for,foreach-Functions:defining functions-variable scope(global and local variables)-function parameters: call by reference-call by value-return values: return single value, multiple value-handling missing parameters-default parameters.

UNIT-II **[15 Hrs]**

STRING: String constants-printing string functions: print, print_r, printf, echo, var_dump-string manipulation functions: trim, ltrim, rtrim, strtolower, strtoupper, ucfirst, ucwords, strpos, substr,chartocode, strlen, strrev,str_word_count, strcmp, strcasecmp

ARRAY: Indexed – Associative-multidimensional arrays-Array Sorting: sort, asort, ksort, rsort, arsort, krsort, usort, uasort, uksort, ord functions.

OOPS IN PHP: Class, Object, Inheritance, Creating a class-creating object-accessing properties and methods-this variable –inheritance-use of extend keyword-constructor.

UNIT-III **[15 Hrs]**

BUILT IN FUNCTIONS IN PHP:

Mathematical functions: floor, fmod, pow, round, rand, sqrt, max, min, log, hexdec.

Date and Time Functions: data, data_default_timezone_set, strtotime, mktime.

Handling Files: create- fopen - fread - fwrite – include – fclose – unlink – fgets – fgetc – feof - require-require_once.

UNIT-IV **[15 Hrs]**

Handling Web Pages: HTML – HTML tags-tables-frames-images-textfiled-textarea-listbox-checkbox-select-radiobutton-button-fileupload button-file download. Javascript –Javascript basics –validating forms.

Handling Session and Cookies: Global variables:-$_Globals, $_Server, $_request, $_Post, $_files, $_Cookies, $_Session.

UNIT-V **[15 Hrs]**

Working with Databases: Creating a MYSQL database-Creating a new Table-Inserting data into the database-Updating databases-Deleting records- Accessing the database records from PHP.

TEXT BOOK:

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

REFERENCE BOOK:

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

III B.C.A	OPERATING SYSTEMS	CA615S
SEMESTER - VI		HRS/WK-5
CORE -12		CREDIT - 4

Objective:

To make the student aware of all concepts related to operating system functions and features.

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge in Basics of Operating System.
CO2: Knowledge pertaining to process and deadlock.
CO3: Knowledge pertaining to memory management.
CO4: Knowledge pertaining to GUI and Security.
CO5: Knowledge pertaining to Unix OS.

SEMESTER VI	COURSE CODE: CA615S					TITLE OF THE PAPER: OPERATING SYSTEMS								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	5	5	4	4	4	4	3	3	3	2	4	3.80	
CO2	5	4	5	5	4	4	4	4	3	3	3	2	4	3.80	
CO3	5	5	5	5	5	5	5	4	3	3	3	2	4	4.10	
CO4	5	5	5	5	5	5	5	4	3	3	3	2	4	4.10	
CO5	5	5	5	5	5	5	5	4	3	3	3	2	4	4.10	
Mean Overall Score														4.0	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	OPERATING SYSTEMS	CA615S
SEMESTER - VI		HRS/WK-5
CORE -12		CREDIT - 4

UNIT-I **[15 hrs]**

Introduction: History of Operating system - Operating system functions – File system.

UNIT-II **[15 hrs]**

Process Management: Inter-process communication - Dead Lock - Dead Lock prerequisites - Dead Lock Strategies

UNIT-III **[15 hrs]**

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

UNIT-IV **[15 hrs]**

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

UNIT-V **[15 hrs]**

Unix OS: Overview of Unix-Unix File System: Users View of File System-Types of Files-Internals of File System: Logical Layout of the File-The Super Block-Structure of inode-Address Translation-run-Time Data Structure for File system: UFDT-File Table-Inode Table-System Calls: Open-Read-Write-Random Seek-Close-Create a File-Unlink a File-Change Directory. Basic Commands in Unix.

TEXT BOOK:

A. S. Godbole, Operating Systems, Tata McGraw Hill, 1999.

REFERENCE BOOK:

1. A. Silberschatz and P. B. Galvin- Operating system concepts, Addision-Wesley Publishing company, Fifth Edition, 1998.
2. William Stallings, Operating Systems: Internals and Design Principles, Pearson Education India.

III B.C.A	SOFTWARE ENGINEERING	ECA616T
SEMESTER - VI		HRS/WK-5
DSE - II (1)		CREDIT - 4

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

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge on different process models
CO2: Knowledge on how requirements can be collected.
CO3: Knowledge pertaining to building an Analysis Model.
CO4: Knowledge to test Software.
CO5: Managerial Capabilities to Deploy a Project.

SEMESTER VI	COURSE CODE: ECA616T					TITLE OF THE PAPER: SOFTWARE ENGINEERING								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	4	3	4	4	4	4	2	3	4	5	4	3.75	
CO2	5	5	5	3	4	4	4	4	2	3	5	5	4	4	
CO3	5	5	5	3	4	5	5	5	2	3	5	5	4	4	
CO4	5	5	5	4	4	5	5	5	2	5	5	5	4	4.5	
CO5	5	5	5	4	4	5	5	5	2	5	5	5	4	4.5	
Mean Overall Score														4.2	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	SOFTWARE ENGINEERING	ECA616T
SEMESTER - VI		HRS/WK-5
DSE - II (1)		CREDIT - 4

UNIT - I **[15 hrs]**

Introduction: Evolving Role of Software-Characteristics of Software-Software Myths-Process Models: Waterfall Model- Evolutionary Process Models.

UNIT –II **[15 hrs]**

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

UNIT III **[15 hrs]**

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

UNIT –IV **[15 hrs]**

Testing: Software Testing Methods - Software Testing strategies –White Box Testing – Basic Path- Control Structure – Black Box Testing.

UNIT –V **[15 hrs]**

Project Management: Management Spectrum - Formal Technical Reviews – Software Change Management Process – Clean Room S/W Engineering Specification-Design and Testing.

TEXT BOOK:

R. S. Pressman, Software Engineering, Sixth Edition, Tata McGraw Hill International Edition – 1997.

REFERENCE BOOKS:

1. Richard Fairley, Software Engineering (Design, Reliability and Management), Tata McGraw Hill edition, 1983.
2. Carlo Ghezzi, Mehdi Jazayasi, Dino Mandrioloi, Fundamentals of Software Engineering, PHI Pvt. Ltd., 1991.

III B.C.A	MANAGEMENT INFORMATION SYSTEM	ECA616A
SEMESTER - VI		HRS/WK-5
DSE – II (2)		CREDIT - 4

Objective:
To enlighten the students with knowledge related to Management Information Systems.

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge on information systems.
CO2: Knowledge on information systems for business operations.
CO3: Capability to manage information Technology.
CO4: Knowledge in ERP
CO5: Capability to implement ERP.

SEMESTER VI	COURSE CODE: ECA616A					TITLE OF THE PAPER: MANAGEMENT INFORMATION SYSTEM								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	5	4	4	4	3	2	2	3	3	4	3.60	
CO2	4	4	5	5	4	4	4	3	2	2	3	3	4	3.60	
CO3	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
CO4	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
CO5	4	5	5	5	4	5	5	3	2	2	3	4	4	3.90	
Mean Overall Score														3.8	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	MANAGEMENT INFORMATION SYSTEM	ECA616A
SEMESTER - VI		HRS/WK-5
DSE – II (2)		CREDIT - 4

UNIT - I **[15 Hrs]**

Introduction to information systems (IS): why study IS- why business need information technology (IT) – fundamentals of IS concepts – overview of IS – solving business problems with IS – developing IS solutions.

UNIT - II **[15 Hrs]**

Information systems for business operations: Business IS – marketing, manufacturing, human resource, accounting and financial information systems – transaction processing system – management information and decision support systems.

UNIT- III **[15 Hrs]**

Managing information technology: Managing information resource and technologies – global IT management – planning and implementing business change with IT.

UNIT -IV **[15 Hrs]**

Enterprise Resource Planning (ERP): an overview – benefits of ERP – ERP and related technologies – business process reengineering – data warehousing – data mining – online analytical processing – supply chain management.

UNIT -V **[15 Hrs]**

ERP implementation: ERP implementation life cycle – implementation methodology – hidden cost – organizing the implementation – vendors, consultants and users contracts with vendors, consultants and employees project management and monitoring – ERP present and future – turbo change the ERP systems – enterprise integration applications – ERP and E-commerce – ERP and Internet.

TEXT BOOK:

James A O'Brien – Management Information Systems for managing IT in the internetworked Enterprise – 4th Edition, Tata McGraw Hill, New Delhi, 1999.

REFERENCE BOOKS:

1. Alexis Leon, ERP Demystified, Tata McGraw Hill, New Delhi, 2000.
2. W.S. Jaswadekar, Management Information Systems, Tata McGraw Hill, New Delhi, 1998.

REFERENCE BOOKS:

1. S. Sadagopan, Management Information Systems, Prentice Hall of India, Eastern Economy Edition.
2. Robert G. Murdick, Joel E. Ross, Introduction to Management Information Systems, Prentice-Hall of India.
3. S. P. Rajagopalan, Management Information System, Margham Publications.
4. Gordon B. Davis , Computer Data Processing, McGraw Hill.
5. Kenneth C. Laudon, Jane P. Laudon, Management Information Systems: Managing the Digital Firm, Pearson Education.

III B.C.A	COMPUTER ARCHITECTURE	ECA613T
SEMESTER - VI		HRS/WK-5
DSE - II (3)		CREDIT - 4

Objective:
To enable the students to learn the principles of working of a Computer and its entire Internal Hardware.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Knowledge pertaining to Central Processing Unit.
CO2: Knowledge pertaining to Arithmetic Pipeline.
CO3: Knowledge pertaining to Computer Arithmetic.
CO4: Knowledge pertaining to Input and Output Organization.
CO5: Knowledge pertaining to Advanced Memory Organization

SEMESTER VI	COURSE CODE: ECA613T					TITLE OF THE PAPER: COMPUTER ARCHITECTURE								HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	3	3	4	4	5	4	4	4	2	3	2	4	3.15	
CO2	4	4	4	4	4	5	5	5	4	2	2	2	5	3.50	
CO3	4	4	4	4	4	5	5	4	5	3	3	2	5	3.70	
CO4	4	4	4	4	4	5	4	5	5	3	3	2	5	3.70	
CO5	4	4	4	4	4	5	4	4	4	3	3	2	5	3.50	
Mean Overall Score														3.51	

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	COMPUTER ARCHITECTURE	ECA613T
SEMESTER - VI		HRS/WK-5
DSE - II (3)		CREDIT - 4

UNIT- I **[15 Hrs]**

Central Processing Unit: General register and stack organization - Instruction formats - Addressing modes – Data Transfer and Manipulation.

UNIT- II **[15Hrs]**

Pipelining: Arithmetic, instruction and RISC pipelining.

UNIT- III **[15Hrs]**

Computer Arithmetic : Addition and subtraction - Multiplication and Division Algorithms - Floating point Addition and Subtraction.

UNIT – IV **[15Hrs]**

Input-Output organization : Peripheral Devices - I/O Interface - Asynchronous data transfer - Modes of transfer - Priority interrupt - Direct memory access .

UNIT- V **[15Hrs]**

Memory Organization : Memory hierarchy - Main memory - Auxiliary memory - Associative, Cache and Virtual memory .

TEXT BOOK:

M. Morris Mano, Computer System Architecture, Pearson Education.

REFERENCE BOOKS:

1. V. Carl Hamacher, Zvonko G. Vranesic, Safwat G. Zaky, Computer Organization, McGraw Hill Higher Education.
2. John P. Hayes, Computer System Architecture, McGraw Hill Higher Education.

III B.C.A	Tech-Empowerment English Training	19GCA64A
SEMESTER VI	(OFFERED *BY* ENGLISH DEPARTMENT TO BCA DEPARTMENT)	HRS/WK – 5
GE - II (1)		CREDIT - 4

Objective:

1. **To enrich the students in English Competitive Examinations.**
2. **To create an awareness on TOEFL/IELTS Examinations.**
3. **To stabilize the career with Computer-English skills.**

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Knowledge pertaining to Phonetics.
CO2: Understanding Communication and Situational Writing.
CO3: Practical Knowledge pertaining to Comprehension.
CO4: Extempore speaking skill and Interacting Efficiently in GD.
CO5: Interview Clearing Skills.

SEMESTER VI	COURSE CODE: NEW CODE			TITLE OF THE PAPER: Tech-Empowerment English Training					HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)			PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PSO1	PSO2	PSO6	PSO7	PSO10		
CO1	4	4	5	4	4	4	4	4	4.10	
CO2	4	4	5	4	4	4	4	4	4.10	
CO3	4	5	5	5	5	4	4	4	4.50	
CO4	4	5	5	5	5	4	4	4	4.50	
CO5	4	5	5	5	5	4	4	4	4.50	
Mean Overall Score									4.35	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	Tech-Empowerment English Training	19GCA64A
SEMESTER VI	(OFFERED *BY* ENGLISH DEPARTMENT TO BCA DEPARTMENT)	HRS/WK – 5
GE - II (1)		CREDIT - 4

UNIT – I:

Practical Knowledge:

1. Building Vocabulary
2. Parts of Speech
3. Sentence Formation
4. Phonetic Sounds

UNIT– II:

Understanding:

1. Listen and Repeat
2. Situational Writing
3. British / American English
   - -Introduction
   - -Its Use
   - -Difference

UNIT– III:

Developing Ability (Practical-Lab)

1. Reading Comprehension
2. Listening Comprehension
3. American English & British English Conversation

UNIT – IV:

Practical Development

1. Situational Speaking
2. Public Speaking
3. Debate
4. Group Discussion

UNIT – V:

Career Skill :

1. Book Review
2. Interview Skills
3. Mock Interview

Note: **Units I, II, IV & V are practiced in class.**

Unit III is engaged in Lab.

TEXT BOOK:

Green, David. *Contemporary English Grammar: Structures and Composition.* Chennai: Macmillan Publishers India Pvt. Ltd., 2010.

REFERENCE BOOK:

Balasubramanian, T. : A Text book of English Phonetics for Indian Students (Macmillan)

Question Pattern

Total Marks 100

Practical - 60

Internal - 40

Units III, IV and V for Practical Exam (Each unit carries 20 Marks) 20X3=60

Units I & II for Internal Exam (Each unit carries 20 Marks) 20X2=40

Total Marks 100

III B.C.A	Communication Skills and Media Awareness (OFFERED *BY* ENGLISH DEPARTMENT TO BCA DEPARTMENT)	19GCA64B
SEMESTER VI		HRS/WK – 5
GE - II (2)		CREDIT- 4

Course Outcomes:

At the end of the Course the students should be able to possess

CO1: High presentation and Soft Skills.
CO2: Knowledge pertaining to Media.
CO3: Knowledge pertaining to Film Medium.
CO4: Knowledge pertaining to Traditional Media
CO5: Knowledge pertaining to Emerging Media.

SEMESTER VI	COURSE CODE: NEW CODE			TITLE OF THE PAPER: Communication Skills and Media Awareness					HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)			PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PSO1	PSO2	PSO6	PSO7	PSO10		
CO1	4	4	5	4	4	4	4	4	4.10	
CO2	4	4	5	4	4	4	4	4	4.10	
CO3	4	5	5	5	5	4	4	4	4.50	
CO4	4	5	5	5	5	4	4	4	4.50	
CO5	4	5	5	5	5	4	4	4	4.50	
Mean Overall Score									4.35	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	Communication Skills and Media Awareness (OFFERED *BY* ENGLISH DEPARTMENT TO BCA DEPARTMENT)	19GCA64B
SEMESTER VI		HRS/WK – 5
GE - II (2)		CREDIT- 4

UNIT – I:

Practical Communication Skills:

1. E-Mail
2. Presentation Skills
3. Curriculum Vitae and Cover Letters
4. Facing an Interview
5. Report Writing
6. Persuasion Skills
7. Idioms in Use

UNIT – II:

Media Awareness:

1. Kinds of News
2. Who and Which News get Prominence?
3. Who Controls the News?
4. Types of Radio Programmes
5. Types of Television Programmes
6. Elements of Advertising
7. New Media – The Internet

UNIT– III :

The Film Medium:

1. Birth of Cinema
2. Evolution of Cinema silent to sound Era
3. Techniques and trends in film making across the over 100 year existence

UNIT-IV :

The Traditional Media: Introduction to the Traditional means of communication and their influence on our cultural consumption patterns.

1. Oral and folk traditions media forms with reference to India and Tamilnadu.

UNIT- V: The New Media: The Emergence of newer media of communication in the global village and the internet.

1. E-Mail and mobile telephony as media of cultural and socio political communication.
2. Cross cultural communication with technology.

METHODOLOGY:

Theoretical inputs through classroom lectures, visits to media organizations, seminars and interaction with practicing media persons.

TEXT BOOK:

Prakash.C.L.N.An Advanced course in communication skills and Media Awareness, Cambridge University Press India Pvt.Ltd, New Delhi, 2007.

REFERENCE BOOK:

1. George Gerbner et al. The Global media Debate: Its Rise, Fall and Renewal. Norwood, Nj:Ablex 1991.
2. Richard Vincent et al. Towards Global equity in communication: MacBride Update Cresskill, NJ, Hampton Press,1999.
3. Stephens, Mitchell, A History of the news. NEWYORK, Viking Press,1988.
4. Fidler Roger, Mediamophosis, Understanding New Media. Thousand Oaks, Pine Forge Press,1977.

III B.C.A	PROGRAMMING IN PHP	CAP607T
SEMESER - VI		HRS/WK- 5
PRACTICAL-VII		CREDIT -3

Objective:

To enable the student to build software applications in PHP.

Course Outcomes:

At the end of the Course the students should possess

CO1: Knowledge in Basics of PHP.
CO2: Programming Skill set in OOP using PHP
CO3: Programming Skill set in Files Concept using PHP
CO4: Programming Skill set in developing Web Pages
CO5: Programming Skill set in developing Database Application using PHP.

SEMESTER VI	COURSE CODE: CA607Q					TITLE OF THE PAPER: PROGRAMMING IN PHP								HOURS : 5	CREDITS : 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8		
CO1	5	4	5	5	4	4	4	4	4	3	4	2	4	4	
CO2	5	4	5	5	4	4	4	4	5	3	4	2	4	4.10	
CO3	5	5	5	5	5	5	5	4	5	3	4	2	4	4.40	
CO4	5	5	5	5	5	5	5	4	5	3	4	2	4	4.40	
CO5	5	5	5	5	5	5	5	4	5	3	4	2	4	4.40	
Mean Overall Score														4.2	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	PROGRAMMING IN PHP	CAP607T
SEMESTER - VI		HRS/WK- 5
PRACTICAL-VII		CREDIT -3

1. Simple Programs (Factorial , prime number, Fibonacci series)

2. String Functions:
(trim,ltrim,rtrim,strtolower,strtoupper,ucfirst,ucwords,strops,substr,chartocode, strlen,strrev,str_word_count,strcmp,strcasecmp)

3. Arrays

4. Functions-Math function:-floor,pow,round,rand,sqrt,max,min,hexdec.
Date and Time functions:-strtotime,mktime,data_default_timezone_set.

5. Create a Home Page using PHP and validating the form using javascript.

6. Form creation using POST method

7. Database Operations

8. Login form

9. Student mark list creation

10. Electricity bill preparation.

III B.C.A	MINI-PROJECT	JCA601
SEMESTER - VI		HRS/WK-5
MINI PROJECT		CREDIT - 5

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

Course Outcomes:
At the end of the Course the students should possess

CO1: Project Analysis Technical Skill.
CO2: Project Designing Technical Skill.
CO3: Project Coding Technical Skill.
CO4: Project Testing Technical Skill.
CO5: Project Implementation Technical Skill.

SEMESTER VI	COURSE CODE: JCA601					TITLE OF THE PAPER: MINI-PROJECT								HOURS : 5	CREDITS : 5
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8		
CO1	5	4	5	5	4	4	4	4	4	3	4	4	4	4.10	
CO2	5	4	5	5	4	4	4	4	5	3	4	4	4	4.20	
CO3	5	5	5	5	5	5	5	4	5	3	4	4	4	4.50	
CO4	5	5	5	5	5	5	5	4	5	3	4	4	4	4.50	
CO5	5	5	5	5	5	5	5	4	5	3	4	4	4	4.50	
Mean Overall Score														4.4	

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

III B.C.A	MINI-PROJECT	JCA601
SEMESTER - VI		HRS/WK-5
MINI PROJECT		CREDIT - 5

Mini-Project on Multimedia/ Web design/Mobile Applications.

FORMAT FOR PREPARING MINI 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 found using flexible cover of thick white art paper.
- The Spine for the bound volume should be 2cms width.
- The Cover should be printed in block letters.

MARGIN SPECIFICATION

Top : 4 cms
Bottom : 3 cms
Left : 4.5 cms
Top : 2.5 cms

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. Papers of main text, starting with chapter-1, Should be consecutively numbered using Arabic numerals.

FRONT PAGE

TITLE OF THE PROJECT

A project report
submitted for the partial fulfillment for
the award of degree of

BACHELOR OF COMPUTER APPLICATIONS (B.C.A.)

by
STUDENT'S NAME
(Register Number)

under the Guidance of

GUIDE'S NAME
Designation, Department

College Logo

DEPARTMENT OF COMPUTER APPLICATIONS
ST. JOSEPH'S COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), CUDDALORE-1

Month and Year

CERTIFICATE PAGE

CERTIFICATE

This is to certify that the mini project report entitled

TITLE OF THE PROJECT

being submitted to

St. Joseph's College of Arts and Science (Autonomous), Cuddalore– 1

Affiliated to Thiruvalluvar University, Vellore.

By

Mr./Ms. STUDENT'S NAME

for the partial Fulfillment for the award of degree of

BACHELOR OF COMPUTER APPLICATIONS (B.C.A.)

is a bonafide record of work carried out by him/her, under

my guidance and supervision.

Internal Guide Head of the Department

Submitted for the Viva-Voce examination held on _____

Examiners:

1.

2.

Question Paper pattern

THEORY EXAMINATION (B.C.A.)

Continuous Internal Assessment (CIA) 25 Marks

Two Internal Examinations	15 Marks
Assignment / Seminar	5 Marks
Attendance	5 Marks
Total	**25 Marks**

External Examination (75 Marks)

Question Pattern

B.C.A.

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