University of Pune

Revised Structure & Syllabi for Three Year Degree Programme of Bachelor of Computer Applications (B.C.A.)

1. The title of the programme will be Bachelor of Computer Application (B.C.A.) under Commerce Faculty.

The revised program will be introduced for -

a)   F.Y.B.C.A. from the academic year 2013-14
b)   S.Y.B.C.A. from the academic year 2014-15
c)   T.Y.B.C.A. from the academic year 2015-16

2. Objectives : The objectives of the Programme shall be to provide sound academic base from which an advanced career in Computer Application can be developed. Conceptual grounding in computer usage as well as its practical business application will be provided.

3. Eligibility for admission : In order to be eligible for admission to Bachelor of Computer Applications a candidate must have passed.

a.   HSC (10+2) from any stream with English as passing Subject with minimum 40% marks in aggregate.

b.   Two years Diploma in Pharmacy Course of Board of Technical Education, conducted by Government of Maharashtra or its equivalent.

c.   Three Year Diploma Course (after S.S.C. i.e. 10th Standard), of Board of Technical Education conducted by Government of Maharashtra or its equivalent.

d.   MCVC

e.   Every eligible candidate has to pass Common Entrance Test to be conducted by the respective Institute/College.

4. Duration : The duration of the B.C.A. Degree Program shall be three years divided into six semesters.

5. The scheme of Examinations :

The BCA Examination will be of 3600 marks as given Below

I)
a)   F.Y.B.C.A. (Sem I + Sem II) : 1200 marks
b)   S.Y.B.C.A. (Sem III + Sem IV) : 1200 marks
c)   T.Y.B.C.A. (Sem V + Sem VI) : 1200 marks

   II)   For Theory Paper There Will Be 80:20 Pattern 80 Marks : University Exam
             20 Marks : Internal Exam

For Practical And Project Examination Sem I to VI   : 100 marks

Sem I , II, III , IV ,V ,VI : External Assessment

6.   The Standard of Passing and Award of Class

In order to pass in the examination the candidate has to obtain 40 marks out of 100. (Min 32 marks must be obtained in University Examination .

The class will be awarded on the basis of aggregate marks obtained by the candidate for all three years examinations .

The award of class will be as follows :

Aggregate Percentage of Marks   Class

(i)	Aggregate 70% and above	....	First Class with Distinction.
(ii)	Aggregate 60% and above but less than 70%	....	First Class
(iii)	Aggregate 55% and more but less than 60%	....	Higher Second Class
(iv)	Aggregate 50% and more but less than 55%.	....	Second Class.
(v)	Aggregate 40% and more but less than 50%	....	Pass Class.
(vi)	Below 40%	....	Fail.

7.   RULES OF A.T.K.T.

a)   A student shall be allowed to keep term for the Second Year, if he/she has a backlog of not more than three theory & one practical or four theory heads of total number of subjects of the First year examination, which consist of First & Second Semester.

b)   A student shall be allowed to keep term for the Third year, if he/she has no backlog of first Year & if he/she has a backlog of not more than three theory & one practical or four theory heads of total number of subject of the Second Year examination which consist of Third & Fourth Semester.

8.   The Medium of Instruction and Examination (Written and Viva) shall be English.

9.   The Semester wise Structure of the programme shall be as follows :

Syllabus structure for the course of
Bachelor of Computer Application [BCA]
[Under the Faculty of Commerce]
Course Structure

Semester – I (w.e.f A.Y. 2013-14)

Paper No.	Name of the subject	Marks			No. of sessions per week	
		Int.	Uni.	Total	Th.	Pract.
101	Modern Operating Environment & MS Office	20	80	100	4	-
102	Financial Accounting	20	80	100	4	
103	Programming Principal & Algorithms	20	80	100	4	
104	Business Communication	20	80	100	4	
105	Principles of Management	20	80	100	4	
106	Laboratory Course – I [Based on Paper No. 101 & 102]	-	100	100	-	4
Total		**100**	**500**	**600**	**20**	**4**

Semester – II (w.e.f A.Y. 2013-14)

Paper No.	Name of the subject	Marks			No. of sessions per week	
		Int.	Uni.	Total	Th.	Pract.
201	Procedure Oriented Programming using C	20	80	100	4	-
202	Data Base Management System	20	80	100	4	
203	Organizational Behavior	20	80	100	4	
204	Computer Applications in Statistics	20	80	100	4	
205	E-Commerce Concepts	20	80	100	4	
206	Laboratory Course – II [Based on Paper No. 201 & 202]	-	100	100	-	4
Total		**100**	**500**	**600**	**20**	**4**

Semester – III (w.e.f A.Y. 2014-15)

Paper No.	Name of the subject	Marks			No. of sessions per week	
		Int.	Uni.	Total	Th.	Pract.
301	Relational Database Management Systems	20	80	100	4	-
302	Data Structures using C	20	80	100	4	
303	Operating System Concepts	20	80	100	4	
304	Business Mathematics	20	80	100	4	
305	Software Engineering	20	80	100	4	
306	Laboratory Course – III [Based on Paper No. 301 and 302]	-	100	100	-	4
Total		**100**	**500**	**600**	**20**	**4**

Semester – IV (w.e.f A.Y. 2014-15)

Paper No.	Name of the subject	Marks			No. of sessions per week	
		Int.	Uni.	Total	Th.	Pract.
401	OOP's using C++	20	80	100	4	-
402	Programming in Visual Basic	20	80	100	4	-
403	Computer Networking	20	80	100	4	-
404	Enterprise Resource Planning	20	80	100	4	-
405	Human Resource Management	20	80	100	4	-
406	Laboratory Course – IV [Based on Paper No. 401 & 402]	-	100	100	-	4
Total		**100**	**500**	**600**	**20**	**4**

Semester - V(w.e.f A.Y. 2015-16)

Paper No.	Name of the subject	Marks			No. of sessions per week	
		Int.	Uni.	Total	Th.	Pract.
501	Java Programming	20	80	100	4	-
502	Web Technologies	20	80	100	4	
503	Dot Net Programming	20	80	100	4	
504	Object Oriented Software Engg.	20	80	100	4	
505	Software Project – I [Based on C++ / VB Technology]	-	100	100	-	4
506	Laboratory Course – V [Based on Paper No. 501 & 502]	-	100	100	-	4
	Total	**80**	**520**	**600**	**16**	**8**

Semester – VI (w.e.f A.Y. 2015-16)

Paper No.	Name of the subject	Marks			No. of sessions per week	
		Int.	Uni.	Total	Th.	Pract.
601	Advanced Web Technologies	20	80	100	4	-
602	Advanced Java	20	80	100	4	
603	Recent Trends in IT	20	80	100	4	
604	Software Testing	20	80	100	4	
605	Software Project – II [Java / Dot net Technology]	-	100	100	-	4
606	Laboratory Course – VI [Based on Paper No. 601 & 602]	-	100	100	-	4
	Total	**80**	**520**	**600**	**16**	**8**

Equivalence Scheme

Sr.No	Old Course		New Course	
	Sub Code	Title of Subject	Sub Code	Title of Subject
01	101	Business Communication	104	Business Communication
02	102	Principles of Management	105	Principles of Management
03	103	Programming Principles and Algorithms	103	Programming Principles & Algorithms
04	104	Computer Fundamental and Office Automation	101	Modern Operating Environment & MS Office
05	105	Business Accounting	102	Financial Accounting
06	106	Computer Laboratory and Practical Work (OA+PPA)	106	Laboratory Course – I [Based on Paper No.101 & 102]
07	201	Organizational Behavior	203	Organizational Behavior
08	202	Elements of Statistics	204	Computer Application in Statistics
09	203	'C' Programming	201	Procedure Oriented Programming Using C
10	204	File Structure and Database Concepts	202	Database Management System
11	205	Cost Accounting	205	E-Commerce Concepts
12	206	Computer Laboratory and Practical Work (c programming + DBMS)	206	Laboratory Course - II [Based on Paper No.201 & 202]
13	301	Numerical Methods	304	Business Mathematics
14	302	Data Structure using C	302	Data Structure using C
15	303	Software Engineering	305	Software Engineering
16	304	Management Accounting	303	Operating System Concepts
17	305	RDBMS	301	Relational Database Management System
18	306	Computer Laboratory and RDBMS)	306	Laboratory Course – III [Based on Paper No.301 and 302]
19	401	Networking	403	Computer Networking
20	402	Visual Basic	402	Programming in Visual Basic
21	403	Inventory Management (SAD)	404	Enterprise Resource Planning
22	404	Human Resource Management	405	Human Resource Management
23	405	Object Oriented Programming using C++	401	Object Oriented Programming using C++
24	406	Computer Laboratory and Practical Work (VB + C++)	406	Laboratory Course – IV [Based on Paper No. 401 & 402]
25	501	.NET Frameworks	503	Dot Net Programming
26	502	Internet Programming and Cyber Law	502	Web Technologies
27	503	Principals of Marketing	504	Object Oriented Software

				Engineering
28	504	Core Java	501	Java Programming
29	505	Project work（VB）	505	Software Project- [Based on C++/VB Technology]
30	506	Computer Laboratory and Practical Work (.NET + Core Java)	506	Laboratory Course – V [Based on Paper No. 501 & 502]
31	601	E-Commerce	604	Software Testing
32	602	Multimedia Systems	603	Recent Trends in IT
33	603	Introduction to SysPro And Operating Systems	601	Advanced Web Technology
34	604	Advance Java	602	Advance Java
35	605	Project Work (Banking & Finance , Cost Analysis , Financial Analysis ,Payroll , EDP ,ERP etc.)	605	Software Project – II [Java/ Dot net Technology]
36	606	Computer Laboratory and Practical Work (Multimedia + Advanced Java)	606	Laboratory Course – VI [Based on Paper No. 601 & 602]

B.C.A. Semester I
Subject Name -: Modern Operating Environment And MS Office
Course Code -: 101

Chapter No.	Topic Name	No. Of Lectures
1	**Introduction to computer :** Computer Characteristics, Concept of Hardware, Software , Evolution of computer and Generations, Types of computer – Analog & Digital computers, Hybrid computers, General purpose & Special Purpose Computer, Limitations of Computer Applications of Computer in Various fields.	6
2	**Structure and Working of Computer** : Functional Block diagram of computer. CPU, ALU, Memory Unit, Bus structure of Digital Computer - Address, data and control bus.	4
3	**Input /Output Devices** : Input device – Keyboard, Mouse, Scanner, MICR, OMR. Output devices – VDU, Printers – Dot Matrix, Daisy- wheel, Inkjet, Laser, Line printers and Plotters.	5
4	**Computer Memory** : Memory Concept , Memory cell, memory organization, Semiconductor memory- RAM, ROM, PROM, EPROM, Secondary Storage devices - Magnetic tape, Magnetic Disk (floppy disk & Hard disk.), Compact Disk.	6
5	**Computer Language and Software** :Algorithm, flowcharts, Machine language, Assembly language, High Level language, Assembler, Compiler, Interpreter. Characteristics of good Language. Software **-** System and application software.	5
6	**Operating System :**Operating system, Evolution of operating system. Function of operating system. Types of operating systems. Detailed study of Windows Operating System. Introduction and features of LINUX OS.	6
7	**Networking :** Concept, Basic elements of a Communication System, Data transmission media, Topologies, LAN, MAN, WAN, Internet	3
8	**MS-OFFICE :** Introduction to Ms-office, Components and features. **MS-Word** – Creating letter, table , fonts , page layout document formatting spell check, print preview, template, colour, mail merge, auto text, inserting picture , word art. **MS-EXCEL** – Introduction to Excel , Sorting , Queries, Graphs , Scientific functions. **Power Point** :- Introduction to Power Point Creation of Slides , Inserting pictures , Preparing slide show with animation. **MS-ACCESS** - Creation and Manipulation of Files.	12

Books Recommended:-

1)Computer Fundamentals by P.K. Sinha & Priti Sinha, 3rd edition, BPB pub.

2) Computers Today by S. Basandra Galgotia Pub.

3) Microsoft Office 2000 by Vipra Computers, Vipra Printers Pvt. Ltd.

4) Advanced Microsoft Office 2000 by Meredith Flynin, Nita Rutkosky, BPB Pub

5) using Microsoft office 2007 by Ed Bott ,Woody Leonhard , Pearson publication

6) using Microsoft office 2010 by , Pearson publication

B.C.A. Semester I
Subject Name -: Financial Accounting
Course Code -: 102

Objectives:
1. To enable the students to acquire sound knowledge of basic concepts of accounting
2. To impart basic accounting knowledge
3. To impart the knowledge about recording of transactions and preparation of final accounts
4. To acquaint the students about accounting software packages

	Contents	**No. of lectures**
Unit 1	**Introduction:** Financial Accounting- Definition, Scope, Objectives & Limitations Distinction between Accounting & Book Keeping, Branches of Accounting	06
Unit 2	**Conceptual Frame work:** Accounting Concepts, Principles & Conventions Accounting Standards - Concept, objectives, benefits, Overview of Accounting Standards in India. Accounting Policies, Accounting as a measurement Discipline, Valuation Principles, Accounting Estimates	06
Unit 3	**Recording of Transactions:** Voucher system; Accounting Process, Journals, Ledger, Cash Book , subsidiary books ,Trial Balance. Depreciation: Meaning , Need, Importance & Methods (WDV & SLM)	16
Unit 4	**Preparation of Final Accounts:** Preparation of Trading Account, Profit & Loss Account & Balance Sheet of Sole Proprietary Business.	10
Unit 5	**Introduction to Company Final Accounts:** Important provisions of Companies Act 1956 in respect of preparation of final Accounts. Understanding the final accounts of a Company	04
Unit 6	**Accounting in Computerized Environment:** Computers and Financial Application Introduction to Accounting Software Package - Tally 9.0 An overview of Computerized Accounting systems - Salient Features and significance , Generating Accounting Reports,	06
Total		48

Recommended Books :

1. Fundamentals of Accounting & Financial Analysis: By Anil Chowdhry (Pearson Education)
2. Financial accounting: By Jane Reimers (Pearson Education)
3. Accounting Made Easy By Rajesh Agarwal & R Srinivasan (Tata McGraw –Hill)
4. Financial Accounting For Management: By Amrish Gupta (Pearson Education)
5. Financial Accounting For Management: By Dr. S. N. Maheshwari (Vikas Publishing)
6. Advanced Accounts – M.C. Shukla and S P Grewal (S.Chand & Co., New Delhi)

B.C.A. Semester I

Subject Name -: Principles of Programming and Algorithms

Course Code -: 103

Pre requisite**:** Basic Mathematics

Objectives**:** To develop Analytical / Logical Thinking and Problem Solving capabilities

Ch.1 Introduction   [5]
1.1 Concept: problem solving, algorithm
1.2 Program development cycle
1.3 Characteristics of an algorithm
1.4 Time complexity: Big-Oh notation
1.5 Flowcharts
1.6 Simple Examples: Algorithms and flowcharts

Ch. 2 Simple Arithmetic Problems   [13]
2.1 Addition / Multiplication of integers
2.2 Determining if a number is +ve / -ve / even / odd
2.3 Maximum of 2 numbers, 3 numbers
2.4 Sum of first n numbers, given n numbers
2.5 Integer division, Digit reversing, Table generation for n,
ab
2.6 Factorial, sine series, cosine series, nCr , Pascal Triangle
2.7 Prime number, Factors of a number
2.8 Other problems such as Perfect number, GCD of 2 numbers etc
(Write algorithms and draw flowcharts)

Ch. 3 Recursion   [8]
3.1 Concept
3.2 Multiplication
3.3 Factorial
3.4 Ackerman function
3.5 Fibonacci series
3.6 Permutation Generation

Ch. 4 Algorithms using arrays   [8]
4.1 Maximum and minimum of array, reversing elements of
an array
4.2 Mean and Median of n numbers
4.3 Row major and Column major form of array
representation
4.4 Matrices: Addition, Multiplication, Transpose, Symmetry,
upper/lower triangular

Ch. 5 Sorting and Searching   [13]
5.1 Insertion sort
5.2 Bubble sort
5.3 Selection sort

5.4 Quick sort (Recursive)
5.5 Merge sort
5.6 Radix Sort
5.7 Bucket Sort
5.8 Counting Sort
5.9 Sequential and Binary search
(Performance Analysis for space requirement and speed using
Big-Oh notation is essential)

Reference Books:
1. How to solve it by Computer – R. G. Dromy
2. Fundamentals of Data Structures – Horowitz and Sahani
3. Introduction to algorithms – Cormen, Leiserson, Rivest, Stein

B.C.A. Semester I
Subject Name -: Business Communication
Course Code -: 104

Objectives:
1. To understand the concept, process and importance of communication.
2. To develop an integrative approach where reading, writing, presentation skills are used together to enhance the students' ability to communicate and write effectively.
3. To create awareness among students about Methods and Media of communication.
4. To make students familiar with information technology and improve job seeking skills.

	Contents	No. of Lectures
Unit 1	**Introduction to Communication** 1.1 Meaning 1.2 Definition 1.3 Objective, Process, importance. 1.4 Principles of effective communication 1.5 Barriers to Communication and its types 1.6 Overcoming Barriers.	08
Unit 2	**Methods of Communication** **2.1 Verbal Communication** 2.1.1 – Written Communication-Advantages & Limitations (Letters, Memo, Agenda, Notice & Reports) 2.2.2 Oral Communication) -Advantages & Limitations (Personal & Telephonic) **2.2 Non-Verbal Communication** -Advantages & Limitations 2.2.1 Silence 2.2.2 Body Language 2.2.3 Signs & Symbols **2.3 Grapevine**	10
Unit 3	**Oral Communication** 3.1 Meaning, Nature, Scope 3.2, Principles of Effective Oral Communication 3.3 Techniques of Effective Speaking 3.4. The Art of Listening, 3.5 Principles of Good Listening- Barriers to Listening	08
Unit 4	**Business Correspondence** 4.1 Need, Functions of Business Correspondence 4.2 Components and layout of Business letter, 4.3 Drafting of letters: Enquiry, order , Complaints and follow up , Sales, Circulars. 4.4 Email etiquette	08
Unit 5	**Information Technology for Communication** Introduction, Advantages and Limitations of – Telex, Telegram, Fax, Voice Mail, Teleconferencing, Video Conferencing, Internet and Social Media Sites, E-communication at work place.	08
Unit 6	**Job Seeking Skills** 6.1 Job application letter 6.2 Curriculum Vitae	06

	6.3 Group Discussion 6.4 Interview Skills 6.5 Presentation Skills	
	Total	48

Recommended Books:

1. Business Communication (Principles, Methods and Techniques) Nirmal Singh Deep & Deep Publications Pvt. Ltd, New Delhi.
2. Essentials of Business Communication   Rajendra Pal & J. S. Korlhalli   Sultan Chand & Sons, New Delhi.
3. Media and Communication Management – C.S.Raydu Himalaya Publishing House, Mumbai.
4. Professional Communication- Aruna Koneru- Tata McGraw-Hill Publishing Co. Ltd, New Delhi.
5. Creating a Successful CV - Siman Howard - Dorling Kindersley.
6. Business Communication – Dr.Anjali Kalkar, Ashapak G.Nadaf , Tech- Max Publication, Pune
7. Effective Documentation and Presentation- Urmila Rai & S.M. Rai – Himalaya Publishing House, Mumbai.
8. Principles Practices of Business Communication – Aspi Doctor & Rhoda Doctor – Sheth Publishers Pvt. Ltd.
9. Business Communication – Concepts, Cases and Applications – P.D. Chaturvedi, Mukesh Chaturvedi, 2nd Edition (2013)

<div align="center">

B.C.A. Semester I

Subject Name -: Principles of Management

Course Code -: 105

</div>

Objectives:
1. To provide the fundamental knowledge about working of business organization.
2. To make students well acquainted with management process , functions and principles.
3. To make the students familiar with recent trends in management.

	Contents	No. of Lectures
Unit 1	**Nature of Management** 1. Meaning, Definition, Nature, Importance & Functions 2. Management an Art, Science & Profession-Management as social System 3. Concept of Management-Administration-Organization-Universality of management	08
Unit 2	**Evolution of management Thoughts** 2.1 Contribution of F.W.Taylor, Henri Fayol, Elton Mayo	08
Unit 3	**Functions of Management : Part – l** 3.1 Planning –Meaning –Need & Importance, types levels –advantages & limitations; 3.2 Forecasting- Need & Techniques; 3.3Decision making – Types - Process of rational decision making & techniques of decision making. 3.4 Organizing – Elements of organizing & process Types of organizations, 3.5 Delegation of authority – Need, difficulties in delegation – Decentralization. 3.6 Staffing – Meaning & importance	08
Unit 4	**Functions of Management : Part –II** 4.1 Direction - Nature – Principles 4.2 Motivation - Importance – Theories 4.3 Leadership – Meaning - qualities of effective Leadership & functions of leader 4.4 Co-ordination - Need – Importance 4.5 Controlling – Need, nature, Importance, Process & techniques	08
Unit 5	**Strategic Management** 5.1 Definition, 5.2 Classes of Decisions 5.3 Levels of Decisions 5.4 Strategy 5.5 Role of Strategic Management and its benefits 5.6 Strategic Management in India	08
Unit 6	**Recent Trends in Management** 6.1 Management of change 6.2 Disaster Management 6.3 Total Quality Management 6.4 Stress Management 6.5 Social Responsibility of management	08
	Total	48

Recommended Books:

i. Essential of Management - Harold Koontz and Iteinz Wiebritch- McGraw-Hill International
ii. Management Theory & Practice – J.N. Chandan
iii. Essential of Business Administration – K. Aswathapa, Himalaya Publishing House
iv. Principles & Practice of management – Dr. L.M. Prasad, Sultan Chand & Sons – New Delhi
v. Business Organization & management – Dr. Y.K. Bhushan.
vi. Management: Concept and Strategies by J.S. Chandan, Vikas Publishing.
vii. Principles of Management, By Tripathi, Reddy Tata McGraw Hill
viii. Business organization and management by Talloo by Tata Mc Graw Hill
ix. Business Environment and policy – A book on Strategic Management/ Corporate Planning By Francis Cherunilam, Himalaya Publishing House.
x. Business Organization & Management – C.B. Gupta
xi. Dictionary of Commerce & Management -- J.L. Hanson

B.C.A. Semester II
Subject Name -: Procedure Oriented Programming using C
Course Code -: 201

Chapter No.	Topics	No. of Lectures	Ref. Book
1	**Introduction to C language** 1.1 History 1.2 Basic structure of C Programming 1.3 Language fundamentals 1.3.1 Character set, tokens 1.3.2 Keywords and identifiers 1.3.3 Variables and data types 1.4 Operators 1.4.1 Types of operators 1.4.2 Precedence and associativity 1.4.3 Expression	4	Book 1, 2

2	**Managing I/O operations**
	2.1 Console based I/O and related built-in I/O functions
	     2.1.1 printf(), scanf()
	     2.1.2 getch(), getchar()
	2.2 Formatted input and formatted output
		2	Book 1, 2

3	**Decision Making and looping**
	3.1 Introduction
	3.2 Decision making structure
	     3.2.1 If statement
	     3.2.2 If-else statement
	     3.2.3 Nested if-else statement
	     3.2.4 Conditional operator
	     3.2.5 Switch statement
	3.3 Loop control structures
	     3.3.1 while loop
	     3.3.2 Do-while loop
	     3.3.3 For loop
	     3.3.4 Nested for loop
	3.4 Jump statements
	     3.4.1 break
	     3.4.2 continue
	     3.4.3 goto
	     3.4.4 exit
		6	Book 1, 2

4	**Functions and pointers**
	4.1 Introduction
	     4.1.1 Purpose of function
	     4.1.2 Function definition
	     4.1.3 Function declaration
	     4.1.4 Function call
	4.2 Types of functions
		12	Book 1, 2,3

		4.3 Call by value and call by reference		
		4.4 Storage classes		
		4.5 Recursion		
		4.6 Introduction to pointer		
		4.6.1 Definition		
		4.6 2 Declaration		
		4.6.3 Initialization		
		4.7 Indirection operator and address of operator		
		4.8 Pointer arithmetic		
		4.9 Dynamic memory allocation		
		4.10 Functions and pointers		
5	**Arrays and Strings**	8	Book 1, 2
	5.1 Introduction to one-dimensional Array		
	5.1.1 Definition		
	5.1.2 Declaration		
	5.1.3 Initialization		
	5.2 Accessing and displaying array elements		
	5.3 Arrays and functions		
	5.4 Introduction to two-dimensional Array		
	5.4.1 Definition		
	5.4.2 Declaration		
	5.4.3 Initialization		
	5.5 Accessing and displaying array elements		
	5.6 Introductions to Strings		
	5.6.1 Definition		
	5.6.2 Declaration		
	5.6.3 Initialization		
	5.7 Standard library functions		
	5.8 Implementations without standard library functions.		
6	**Structures and union**	5	Book 1, 2
	6.1 Introduction to structure		
	6.1.1 Definition		
	6.1.2 Declaration		
	6.1.3 Accessing members		
	6.2 structure operations		
	6.3 nested structure		
	6.4 Introduction to union		
	6.4.1 Definition		
	6.4.2 Declaration		
	6.5 Differentiate between structure and union		
7	**C Preprocessor**	2	Book 1, 2
	7.1 Definition of preprocessor		
	7.2 Macro substitution directory		
	7.3 File inclusion directory		
	7.4 Conditional compilation		
8	**File handling**	9	Book 1, 2
	8.1 Definitions of files		
	8.2 File opening modes		
	8.3 Standard functions		

	8.4 Random access to files 8.5 Command line argument		
	Total	**48**	

Reference Book :-
1) Let us C –Yashwant Kanetkar, BPB publication.
2) Programming in C - Balguruswamy, Tata McGraw-Hill publication.
3) Pointers in C - Yashwant Kanetkar, BPB publication.
4) C programming by Dr.Vishal Lichade dreamtech press

B.C.A. Semester II
Subject Name -: Database Management Systems
Course Code -: 202

Sr. No.	Chapter No.	Name of Chapter and Contents	No. of Lect.	Reference

1	1	**File Structure and Organization**
		1.1 Introduction
		1.2 Logical and Physical Files
		1.2.1 File
		1.2.2 File Structure
		1.2.3 Logical and Physical Files Definitions
		1.3 Basic File Operations
		  1.3.1 Opening Files
		  1.3.2 Closing Files
		  1.3.3 Reading and Writing
		  1.3.4 Seeking
		1.4 File Organization
		  1.4.1 Field and Record structure in file
		  1.4.2 Record Types
		  1.4.3 Types of file organization
		    1.4.3.1 Sequential
		    1.4.3.2 Indexed
		    1.4.3.3 Hashed
		1.5 Indexing
		  1.5.1 What is an Index?
		  1.5.2 When to use Indexes?
		  1.5.3 Types of Index
		    1.5.3.1 Dense Index
		    1.5.3.2 Sparse Index
			6	1

2	2	**Database Management System**
		2.1 Introduction
		2.2 Basic Concept and Definitions
		  2.2.1 Data and Information
		  2.2.2 Data Vs Information
		  2.2.3 Data Dictionary
		  2.2.4 Data Item or Field
		  2.2.5 Record
		2.3 Definition of DBMS
		2.4 Applications of DBMS
		2.5 File processing system Vs DBMS
		2.6 Advantages and Disadvantages of DBMS
		2.7 Users of DBMS
		  2.7.1 Database Designers
		  2.7.2 Application programmer
		  2.7.3 Sophisticated Users
		  2.7.4 End Users
		2.8 Views of Data
		2.9 Data Models
			14	1

		2.9.1 Object Based Logical Model
		    a. Object Oriented Data Model
		    b. Entity Relationship Data Model
		2.9.2 Record Base Logical Model
		    a. Relational Model
		    b. Network Model
		    c. Hierarchical Model
		2.10 Entity Relationship Diagram (ERD)
		2.11 Extended features of ERD
		2.12 Overall System structure		

3	3	**Relational Model**
		3.1 Introduction
		3.2 Terms
		  a. Relation
		  b. Tuple
		  c. Attribute
		  d. Cordinality
		  e. Degree of relationship set
		  f. Domain
		3.3 Keys
		  3.3.1 Super Key
		  3.3.2 Candidate Key
		  3.3.3 Primary Key
		  3.3.4 Foreign Key
		3.4 Relational Algebra Operations
		  a. Select
		  b. Project
		  c. Union
		  d. Difference
		  e. Intersection
		  f. Cartesian Product
		  g. Natural Join
			8	1

4	4	**SQL (Structured Query Language)** 4.1 Introduction 4.2 History Of SQL 4.3 Basic Structure 4.4 DDL Commands 4.5 DML Commands 4.6 Simple Queries 4.7 Nested Queries 4.8 Aggregate Functions	12	2
5	5	**Relational Database Design** 5.1 Introduction 5.2 Anomalies of un normalized database 5.3 Normalization 5.4 Normal Form 5.4.1 1 NF 5.4.2 2 NF 5.4.3 3 NF	5	1

		5.4.3.4 BCNF		

References:

1) Database System Concepts By Henry korth and A. Silberschatz
2) SQL, PL/SQL The Programming Language Oracle :- Ivan Bayross, BPB Publication.
3) Database Systems Concepts, Designs and Application by Shio Kumar Singh, Pearson
4) Introduction to SQL by Reck F. van der Lans by Pearson
5) Modern Database Management by Jeffery A Hoffer , V.Ramesh, Heikki Topi , Pearson
6) Database Management Systems by Debabrata Sahoo ,Tata Macgraw Hill

B.C.A. Semester II
Subject Name -: Organizational Behavior
Course Code -: 203

Objectives:

1) To equip the students to understand the impact that individual, group & structures have on their behavior within the organizations.

2) To help them enhance and apply the knowledge they have received for the betterment of the organization.

	Contents	No. of Lectures
Unit 1	**Fundamentals of Organizational Behavior** Definition,Nature, Scope, and Goals of Organizational Behavior Fundamental Concepts of Organizational Behavior Models of Organizational Behavior Emerging aspects of Organizational Behavior: TQM, Managing Cultural Diversity, Quality Circles & Total Employee involvement	08
Unit 2	**2. Attitude Values and Motivation** Effects of employee attitudes Personal and Organizational Values Nature and Importance of Motivation, Motivation Process - Motivation Model **Theories of Work Motivation**: (a) Maslow's Need Hierarchy Theory, (b) McGregcrs's Theory 'X' and Theory 'Y' (c) Herzberg's Two factor theory of Motivation	08
Unit 3	**3. Personality** Definition of Personality, Determinants of Personality Theories of Personality – Trait theory : The Big Five Model Type Theory : Myers- Briggs Type Personality Self Theory : Locus of Control	08
Unit 4	**4. Work Stress** Meaning and definition of Stress, Sources of Stress: Individual Level, Organizational Level, Type A and Type B Assessment of Personality Causes of stress in organization Effect of Stress – Physiological Effect, Psychological Effect, Behavioral Impact Stress Management – Individual Strategies, Organizational Strategies	08
Unit 5	**Conflict in Organizations** Concept of Conflict, Process of Conflict Types of Conflict – Intrapersonal,interpersonal,intergroup,organizational, Johari Window Effects of Conflict, Conflict management Strategies	08
Unit 6	**6. Group Behavior and Change in Organization** Nature of Group, Types of Groups Team Building & Effective Teamwork Goals of Organizational Change, resistance to change, Overcoming resistance to change.	08

Books Recommended:-

1. Organizational Behavior Text, Cases and Games- By K. Aswathappa, Himalaya Publishing House, Mumbai, Sixth Edition (2005)

2. Organizational Behavior Human Behavior at Work By J. W. Newstrom, Tata McGraw Hill Publishing Company Limited, New Delhi, 12th Edition (2007)

3. Organizational Behavior - By Fred Luthans - McGRAW – HILL

4. Organizational Behavior - By **Super Robbins**

5. Organizational Behavior - Anjali Ghanekar - Everest Publishing House

6. Organizational Behavior Fandamentals, Realities and Challenges By Detra Nelson, James Campbell Quick Thomson Publications

7. Organizational Behavior through Indian Philosophy By M.N. Mishra, Himalaya Publication House

8. Organizational Behavior - Stephen P. Robbins, Timothy A. Judge, Seema Sanghi - Pearson Prentice Hall

B.C.A. Semester II
Subject Name -: Elements of Statistics
Course Code -: 204

Objectives:
1. To understand the power of excel spreadsheet in computing summary statistics.
2. To understand the concept of various measures of central tendency and variation and their importance in business.
3. To understand the concept of probability, probability distributions and simulations in business world and decision making.

Unit 1. Introduction to statistical functions of Excel   (12)

Concept of population and sample, Qualitative and Quantitative variables, Raw data,

Basic Spreadsheet concept, data entry and its summary statistics using excel functions, preparation of grouped and ungrouped frequency distribution using excel, creating bar charts and pie chart, frequency curves and ogive curves.

(There will be no theory question on above chapter separate practical exam of 20 marks of one hour should be conducted on it)

Unit 2. Methods of counting   **(06)**
Fundamental principals of counting

Permutations and combination of n dissimilar objects taken r at a time, example and problems.

Unit 3. Elements of Probability Theory   (12)

Random experiments, all possible outcomes (sample space),events , algebra of events.

Classical definition of probability, addition theorem of probability(without proof), Independence of events, Simple numerical problems.

Unit 4. Standard Discrete Distributions   (08)

Discrete Uniform : Probability distribution, cumulative probability distribution, mean ,variance (without proof)

Bernoulli : Probability function, Mean and variance

Binomial : Probability distribution, cumulative probability distribution, mean ,variance(without proof) Examples and problems.

Unit 5: Simulation Techniques   (10)

Random Number Generator

Model sampling from discrete uniform and binomial distributions

Monte Carlo Simulation examples and problems.

Total   lectures: 48

B.C.A. Semester II
Subject Name -: E-Commerce Concepts
Course Code -: 205

Sr. No	Chapter No.	Name Of Chapter and Contents	No. of Lectures	Reference Book no.
1	1	**Introduction to Electronic Commerce** 1.1 What is E-Commerce (Introduction and Definition) 1.2 Main activities E-Commerce 1.3 Goals of E-Commerce 1.4 Technical Components of E-commerce 1.5 Functions of E-commerce 1.6 Advantages and Disadvantages of E-commerce 1.7 Scope of E-commerce 1.8 Electronic commerce Applications 1.9 Electronic commerce and Electronic Business (C2C)(2G , G2G , B2G , B2P,B2A,P2P, B2A, C2A, B2B,B2C)	6	4
2	2	**Building own website** 2.1 Reasons for building own website 2.2 Benefits of website 2.3 Bandwidth requirements 2.4 Cost , Time , Reach 2.5 Registering a Domain Name 2.6 Web promotion 2.7 Target email , Banner Exchange , Shopping Bots	7	4
3	3	**Internet and Extranet** 3.1 Definition of Internet 3.2 Adv and Dis adv of the Internet 3.3 Component of a Intranet Information technology structure 3.4 Development of a Intranet 3.5 Extranet and Intranet Difference 3.6 Role of Intranet in B2B Application	5	4
4	4	**Electronic payment System** 4.1 Introduction 4.2 Types of Electronic payment system 4.3 Payment types 4.4 Traditional payment 4.5 Value exchange system 4.6 Credit card system 4.7 Electronic funds transfer 4.8 Paperless bill 4.9 Modern payment cash 4.10 Electronic cash	6	1,2
5	5	**Technology Solution** 5.1 Protecting Internet Communications 5.2 Encryption 5.3 Symmetric Key Encryption 5.4 Public key Encryption	6	1,2

		5.5 Public Key Encryption using digital signatures 5.6 Digital Envelopes 5.7 Digital Certificates 5.8 Limitations to Encryption solutions.		
6	6	**E-com Security** 6.1 E-commerce security environment 6.2 Security threats in E-com environment 6.3 Malicious code and unwanted programs 6.4 Phishing and identity theft 6.5 Hacking and cyber vandalism 6.6 Credit card fraud/Theft 6.7 Spoofing 6.8 Denial of service(DOS) 6.9 Distributed denial of service(dDOS)	6	1,2

References :

1. E-Commerce- Kenneth C.Laudon and Carol Guercio Traver
2. E-Commerce by --Kamlesh K Bajaj and Debjani Nag
3. Internet marketing and E-commerce-Ward Hanson and Kirthi Kalyanam
4. E-Commerce Concepts , Models , Strategies by -- G.S.V Murthy
5. Electronic Commerce by --Gary P. Schneider