



“Education for Knowledge, Science, and Culture”

- Shikshanmaharshi Dr. Bapuji Salmkhe

Shri Swami Vivekanand Shikshan Sanstha's

**Vivekanand College, Kolhapur
(Autonomous)**



Department of BCA

B.C. A. Part II (CC&AECC)



(स्वायत्त) कोल्हापूर

SYLLABUS

Introduced from June 2019-20

Sr. No.		Course Name	Course Code	Credits	CA	CIE	Marks
Semester III							
1	CGPA	Management Accounting	BCA-1405C	4	80	20	100
2		Human Resource Management	BCA-1406C	4	80	20	100
3		System Analysis and Design	BCA-1407C	4	80	20	100
4		Object Oriented Programming with C++	BCA-1408C	4	80	20	100
5		Computer Oriented Statistical Methods	BCA-1409C	4	80	20	100
6		Object Oriented Programming with C++ Practical	BCA-1410C	2	50		50
7		Computer Oriented Statistical Methods Practical	BCA-1411C	2	50		50
8		PHP-I	SEC-BCA-E	2			
Semester IV							
9	CGPA	Entrepreneurship Development	BCA-1412D	4	80	20	100
10		Web Technology	BCA-1413D	4	80	20	100
11		Database Management System	BCA-1414D	4	80	20	100
12		Organizational Behavior	BCA-1415D	4	80	20	100
13		Mathematical Foundation	BCA-1416D	4	80	20	100
14		Web technology & DBMS Practical	BCA-1417D	2	50		50
15		Mini Project	BCA-1418D	2	50		50
16		PHP-II	SEC-BCA-D	2			
Total				52			1200



BCA-II Sem-III (2019-20)
(With effect from July-2019)

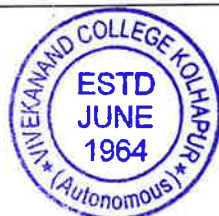
Management Accounting

Semester	III	Total credit	4
Course code	Core Course – BCA 1405 C	Credit pattern	L-60, T -100,P-00
Course title	Management Accounting		

Course objectives	
1	To develop an understanding of the conceptual framework of Management Accounting
2	To understand the process of budgeting and use of marginal costing and standard costing
3	To make the students develop competence with their usage in managerial design making and control
4	To enhance the ability of learners to analyze the financial statements.

Module	Content	Teaching Hrs.
I	Introduction to Management Accounting:- Meaning and Nature of Management Accounting, Role of Management, Accountant in Planning, Controlling and Decision Making, Difference between Financial Accounting and Management Accounting, Tools and Techniques of Management Accounting.	15
II	Financial Statement Analysis:- Importance of Financial Statement Analysis, Techniques of Financial Statement Analysis- Ratio Analysis, Classification of Ratios- Profitability Ratio, Turnover Ratios, Liquidity Ratios, Solvency Ratios.	15
III	Cost-Volume- Profit(CVP) Analysis and Decision Making- Break Even Analysis, Cost-Volume-Profit Analysis, Decision Making- Make or Buy Decisions, Shut Down or Continue Decisions, Alternative Course of Action etc.	15
IV	Budgetary Control:- Meaning of Budget and Budgetary Control, Objectives, Advantages, Limitations of Budgetary Control, Types of Budget- Production, Sales, Cash, Master Budget, Capital Expenditure, Budgeting.	15

Learning Recourses		
1	Reference Books	<ol style="list-style-type: none"> 1. Management Accounting By Khan and Jain 2. Principles of Management Accounting By Manmohan and Goyal 3. Principles of Management Accounting BY Maheshwari 4. Management Accounting By Pandey I. M. 5. Introduction to Management Accounting By Charles T. Homgren



Course Outcome

1	To develop an understanding of the conceptual framework of Management Accounting
2	To understand the process of budgeting and use of marginal costing and standard costing
3	To make the students develop competence with their usage in managerial design making and control
4	To enhance the ability of learners to analyze the financial statements.



Human Resource Management (With effect from July-2019)

Semester	III	Total credit	4
Course code	Core Course – BCA 1406 C	Credit pattern	L-60, T -100,P-00
Course title	Human Resource Management		

Course objectives	
1	Students should understand the concept of Human Resource Management within the organization.
2	To know the proper Recruitment and Selection Procedure in organization.

Module	Content	Teaching Hrs.
I	Introduction to HRM : Introduction , Concept, Definition, HRD, Functions of HRM , Organization of HRD Role HRM ,Qualities of HR Manager, Limitations & challenges of HRM	15
II	Module-2 : Human resource Planning & Development : Meaning and need of HRP , Process of HRP in I.T. Industry, Factors affecting HRP , Job Analysis , Job Description, Recruitment and Selection procedures in I.T. Industry. Training and Development methods followed in I.T. Industry	15
III	Module -3 Virtual Organization : Virtual Organization: meaning, type., Difference between Traditional and Virtual Organization. ,features of Virtual Organization, HRM in Virtual Organization, HRIS	15
IV	Module-4 Employee Separation Employee Separation practices in I.T. industry, Voluntary Retirement Schemes , Resignation-Discharge-Dismissal-Suspension-Layoff, Exit interview,	15

Learning Recourses		
1	Reference Books	1. "Fundamentals of Database Systems", 5th Edition by R. Elmasri and S. Navathe, Pearson Education 2. Database System Concepts", 6th Edition by Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill. 3. 21st Century Corporate Learning & Development by Dr. Nick H.M. van Dam 4. Human Resource Management by University of Minnesota Libraries Publishing 5. Human Resource Management by V. S. P. Rao

Course Outcome:

CO1	Students should understand the concept of Human Resource Management within the organization.
CO2	To know the proper Recruitment and Selection Procedure in organization.
CO3	Ability to handle employee issues and evaluate the new trends in HRM
CO4	Integrated perspective on role of HRM in modern business.



System Analysis and Design
(With effect from July-2019)

Semester	III	Total credit	4
Course code	Core Course – BCA 1407 C	Credit pattern	L-60, T -100,P-00
Course title	System Analysis and Design		

Course objectives	
1	This course enables students to understand system concepts and its application in Software development.
2	Understanding the different Methods to develop any software.
3	To get the knowledge of System Analysis, Analyst, Design tools.
4	To Aware about the different software testing methods.

Module	Content	Teaching Hrs.
I	Introduction to System Concepts 1.1 Definition , Elements of System 1.2 Characteristics of System 1.3 Types of System 1.4 System Concepts	15
II	Requirement Analysis 2.1 Definition of System Analysis 2.2 Requirement Anticipation 2.3 Knowledge and Qualities of System Analyst 2.4 Role of a System Analyst 2.5 Feasibility Study And It's Types 2.6 Fact Gathering Techniques 2.7 SRS(System Requirement Specification)	15
III	Introduction to Software Engineering 3.1 Definition Need for software Engineering 3.2 Software Characteristics 3.3 Software Qualities (McCall's Quality Factors Software Development Methodologies 3.4 SDLC (System Development Life Cycle) 3.5 Waterfall Model 3.6 Spiral Model 3.7 Prototyping Model 3.8 RAD Model	15



IV	Analysis and Design Tools 4.1 Entity-Relationship Diagrams 4.2 Decision Tree and Decision Table 4.3 Data Flow Diagrams (DFD) 4.4 Data Dictionary 4.4.1 Elements of DD 4.4.2 Advantage of DD 4.5 Input And Output Design 4.6 CASE STUDIES (Based on Above Topic) Software Testing 4.7 Definition, Test characteristics 4.8 Types of testing 4.8.1 Black-Box Testing 4.8.2 White-Box Testing 4.8.3 Unit testing 4.8.4 Integration testing 4.9 Validation & Verification	15
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Learning Recourses		
1	Reference Books	1) Software Engineering - Roger s. Pressman. 2) SADSE (System Analysis Design) - Prof. Khalkar and Prof. Parthasarathy. 3) System Analysis and Design by Ikvindarpal Singh 4) System Analysis and Design by Eilas M Award 5) System Analysis and Design by Dennis and Wixom 6) System Analysis and Design by Goyal A

Course Outcome

CO1	This course enables students to understand system concepts and its application in Software development.
CO2	Understanding the different Methods to develop any software.
CO3	To get the knowledge of System Analysis, Analyst, Design tools.
CO4	To Aware about the different software testing methods.



Object Oriented Programming with C++

(With effect from July-2019)

Semester	III	Total credit	4
Course code	Core Course -BCA 1408 C	Credit pattern	L-60, T -100,P-00
Course title	Object Oriented Programming with C++		

Course objectives	
1	Understand the features of C++ supporting object oriented programming
2	Understand the relative merits of C++ as an object oriented programming language
3	Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism
4	Understand advanced features of C++ specifically stream I/O and file handling.
5	Student will be able to implement concept of OOP

Module	Content	Teaching Hrs
I	<p>Principles of Objective Oriented Programming History of OOP, Introduction to Object Oriented Programming, Basic Concepts of Object Oriented Programming, Benefits of Object Oriented Programming, Object Oriented Languages, Difference between C and C++.</p> <p>Beginning with C++ Tokens, Keywords, Identifiers and Constants, Data Types, Type Compatibility, Variables, Operators in C++, Operator Precedence, Control Structures (Conditional, Unconditional and Looping).</p>	15
II	<p>Functions in C++, Classes & Objects Concept of Function, main() Function, Inline Functions, Function Overloading, Specifying a Class, Data members and Member Functions, Access Specifiers, Friend Function, Static data Member, Object declaration and Initialization, Arrays of Objects</p> <p>Constructors & Destructors, Inheritance Constructors-Definition, Use of Constructors, Types of Constructors (Default, Parameterized, Copy, Dynamic), Destructors-Definition, Use, Inheritance-Definition, Types of Inheritance (Single, Multiple, Multilevel, Hierarchical, Hybrid)</p>	15
III	<p>Pointers, Virtual Functions & Polymorphism Pointer, Pointer to Object, this pointer, Pointer to Derived Classes, Polymorphism: Meaning, compile Time and Run time polymorphism, Rules for Operator Overloading, Operator Overloading (Unary & Binary)-with member function and friend function.</p>	15



IV	Working with Files File-Definition, Use, Classes for File Stream Operations, Opening and Closing a File, File Opening Modes, File Pointers, Manipulation of File Pointer(using- seekg,seekp,tellg,tellp), Input Output Operations- get () Put (), read () Write	15
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Learning Recourses		
1	Reference Books	<ol style="list-style-type: none"> 1. Object Oriented Programming with C++ by E Balagurusami. 2. Object Oriented Programming using C++ books By Yashwant Kanetkar 3. Object Oriented Programming in C++ by Rajesh K Shukla 4. The C++ Programming Language written by BjarneStroustrup. 5. Object Oriented Programming in C++ by Robert Lafore 6. Test Your Skills in Object Oriented Programming with C++ by R S Salaria

Course Outcome

CO1	Understand the features of C++ supporting object oriented programming
CO2	Understand the relative merits of C++ as an object oriented programming language
CO3	Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism
CO4	Understand advanced features of C++ specifically stream I/O and file handling.



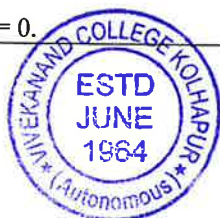
Computer Oriented Statistical Methods

(With effect from July-2019)

Semester	III	Total credit	4
Course code	Core Course – BCA 1409C	Credit pattern	L-60, T -100,P-00
Course title	Computer Oriented Statistical Methods		

Course objectives	
1	Have the versatility to work effectively in a broad range of analytic, scientific, government, financial, health, technical and other positions.
2	<p>Be mathematically, statistically and numerically literate. In particular, graduates will:</p> <ul style="list-style-type: none"> ○ recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines; ○ recognize and appreciate the connections between theory and applications; ○ be able to independently read mathematical and statistical literature of various types, including survey articles, scholarly books, and online sources;

Module	Content	Teaching Hrs
I	<p>(A) Introduction to Statistics</p> <p>1.1 Meaning and Scope of Statistics, Primary and Secondary data.</p> <p>1.2 Frequency, Frequency distribution, Qualitative and quantitative data, Discrete and Continuous variables.</p> <p>1.3 Representation of frequency distribution by graphs: Histogram, Frequency polygon, Frequency curve, O give curve.</p> <p>1.4 Numerical examples based on 1.2</p> <p>(B) Probability</p> <p>1.5 Definition: Random Experiment, Sample space, Event and Types of Events. Classical Definition of Probability of an Event. Conditional Probability.</p> <p>1.6 Addition and Multiplication laws of probability for two events(Without proof).</p> <p>1.7 Examples without use of permutations and combination.</p>	15
II	<p>Measures of Central Tendency and Dispersion</p> <p>2.1 Measures of central Tendency (Averages)</p> <p>2.1.1 Meaning of averages, Requirements of good average</p> <p>2.1.2 Definitions of Arithmetic mean (A.M.), Combined mean, Median, Quartiles, Mode, Relation between mean, median and mode.</p> <p>2.1.3 Merits and Demerits of Mean, Median and Mode</p> <p>2.1.4 Numerical examples based on 2.1.2</p> <p>2.1.5 Determination of Median and Mode by Graph</p> <p>2.2 Measures of Dispersion(Variability):</p> <p>2.2.1 Meaning of Variability, Absolute and Relative measures of dispersion.</p> <p>2.2.2 Definitions of Q.D., M.D., S.D. and Variance, Combined variance and their relative measures, Coefficient of Variation (C.V.).</p> <p>2.2.3 Numerical examples based on 2.2.2.</p>	15
III	<p>Analysis of Bivariate data</p> <p>3.1 Correlation</p> <p>3.1.1 Concept of Correlation, Types of correlation (Positive, Negative, Linear and Non-linear), Methods of studying correlation: Scatter diagram, Karl Pearson's Correlation Coefficient (r) and Spearman's Rank Correlation Coefficient (R).</p> <p>3.1.2 Interpretation of $r = +1$, $r = -1$, $r = 0$.</p>	15



	<p>3.1.3 Numerical examples on 3.1.1 and 3.1.2</p> <p>3. Regression:</p> <p>3.2.1. Concept of Regression, Definitions of regression coefficients and Equations of regression lines. Properties of regression coefficients. (Statements only)</p> <p>3.2.2 Numerical examples on 3.2.1.</p>	
IV	<p>Module 4 – Sampling Techniques and Time Series Analysis</p> <p>4.1 Sampling Techniques:</p> <p>4.1.1 Definitions of Sample, Population, Sampling, Sampling Method and Census method. Advantages of sampling method over census method.</p> <p>4.1.2 Types of sampling: Simple Random Sampling (with and without replacement), Stratified Random Sampling, Merits and Demerits of S.R.S. and Stratified Sampling</p> <p>4.1.3 Simple examples on Stratified Sampling.</p> <p>4.2 Time Series: (Analysis and Forecasting)</p> <p>4.2.1 Meaning and components of Time Series</p> <p>4.2.2 Methods of determination of trend by</p> <p>(I) Method of Moving Averages.</p> <p>(II) Method of Progressive Averages.</p> <p>(III) Method of Least Squares (St. Line only)</p> <p>4.2.3 Numerical examples on 4.2.2.</p>	15

Learning Recourses		
1	Reference Books	<p>1) Mathematical Statistics by H.C. Saxena and J. N. Kapur</p> <p>2) Business Statistics by G. V. Kumbhojkar</p> <p>3) Fundamentals of Statistics by S. C. Gupta</p> <p>4) Business Statistics by S. S. Desai</p>

Note:-Use of Nonprogrammable calculator is allowed

Course Outcome

CO1	Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.
CO2	Recognize and appreciate the connections between theory and applications.
CO3	Be able to independently read mathematical and statistical literature of various types, including sample survey articles, scholarly books, and online sources.
CO4	Compute various statistical measures.



Object Oriented Programming with C++ Practical

Semester	III	Total credit	2
Course code	Core Course – BCA 1410 C	Credit pattern	L-60, T -00,P-50
Course title	Object Oriented Programming with C++ Practical		

List of experiments:

- 1 WAP to understand the structure of C++ program
- 2 WAP to find the sum of two numbers using function.
- 3 WAP to find Simple Interest and Compound Interest.
- 4 WAP to demonstrate the working of following Loops: While, Do While, For, If-Else, switch.
- 5 WAP Simple Program using Class and Object.
- 6 WAP to find greatest number amongst given three numbers using class.
- 7 WAP to find mean of data members of two classes using friend function.
- 8 WAP to demonstrate Static data member.
- 9 WAP to demonstrate Array of Object.
- 10 WAP using Constructor (with and without Parameter).
- 11 WAP using Destructor.
- 12 WAP to demonstrate Types of Inheritance.
- 13 WAP using Virtual Function.
- 14 WAP to Overload Unary Operator with member function and friend function.
- 15 WAP to Overload Binary Operator with member function and friend function.
- 16 WAP for file handing- Opening file using Constructor.
- 17 WAP for file handing- Opening file using open() method.
- 18 WAP for working with Multiple files.

Course Outcomes:

On Completion of the course students should be able to:

CO1	Implement object oriented programming concepts using C++ language.
CO2	Apply the principles of virtual functions and polymorphism.
CO3	Analyzing and handling files using C++
CO4	Implement concept of function overloading and operator overloading.



Computer Oriented Statistical Methods Practical

Semester	III	Total credit	2
Course code	Core Course –BCA 1411 C	Credit pattern	L-60, T -00,P-50
Course title	Computer Oriented Statistical Methods Practical		

Lab Assignments

1-Formation of frequency distribution

2-Construct following types of charts with the help of given

data. a) Bar

b) Pie

c) Histogram

d) Ogive curve

3- Calculate Mean, mode and Median of given series (without using in built functions for mean, Mode Median in MS-Excel)

4- Calculate S.D. and C.V. (without using in built functions for SD & CV in MS-Excel)

5- Computation of correlation coefficient and rank correlation coefficient using appropriate statistical formula-

6- Time series computation of trend values by- Moving average Method

- Progressive average method

- Least square Method

(Note- Provide required data for each pract. Assignment)

Course Outcomes:

CO1	Construction of frequency distribution and graphical methods.
CO2	Compute measures of central tendency to various data set
CO3	Compute measure of dispersion to various data sets
CO4	Compute correlation coefficient, regression coefficient



BCA-II Sem-IV
(With effect from July-2019)

Entrepreneurship Development

Semester	IV	Total credit	4
Course code	Core Course –BCA 1412 D	Credit pattern	L-60, T -100,P-00
Course title	Entrepreneurship Development		

Course objectives	
1	To impart theoretical knowledge & Entrepreneurship.
2	To develop Entrepreneurship qualities and skills.
3	To compare and classify the types of Entrepreneurs.
4	To familiarize the students with the latest programs of the government authorities in promoting small and medium industries

Module	Content	Teaching Hrs.
I	Entrepreneurship:- Concept, Classification – Functions, Qualities of successful Entrepreneurship , Concept of Entrepreneur and entrepreneur. Entrepreneurship in modern Era.	15
II	Entrepreneurship Development:- Concept, objectives, process, problems, measures in Entrepreneurship Development , Role of Entrepreneurship In Economic Development (Theories), Institutional support for Entrepreneurship Development - National Institute for Entrepreneurship and Small Business Development (NIESBD), Small Industry Development Bank of India (SIDBI), District Industry Censes (DIC)	15
III	Project Management:- Project- classification of project, Stages of Project Management, Reasons for failure for, Project, Project for Retail stores, Hotel, Hospital, Dairy.	15
IV	Successful IT Indian Entrepreneurs:- Ratan Tata, AzimPremji, Narayan Murthy, Anand Mahindra, Kumar Mangalam Birla, NandanNilekani.	15

Learning Recourses		
1	Reference Books	1. Management Accounting By Khan and Jain 2. Dynausic of Entrepreneurship Development - & Management –By vasaut Desai 3. Entrepreneurship Development in India- By C.B.Gupta and N.P.Srinivasan 4. Entrepreneurship Development-By S.S. Khanke 5. Entrepreneurship Development-By Godron E and Natarajan

Course Outcome	
CO1	To impart theoretical knowledge & Entrepreneurship.
CO2	To develop Entrepreneurship qualities and skills.
CO3	To compare and classify the types of Entrepreneurs.
CO4	To familiarize the students with the latest programs of the government authorities in promoting small and medium industries



With effect from July-2019)

Web Technology

Semester	IV	Total credit	4
Course code	Core Course –BCA 1413 D	Credit pattern	L-60, T -100,P-00
Course title	Web Technology		

Course objectives

1	Understand Web designing techniques.
2	Develop commercial web development.
3	Organize content, hosting and web publishing
4	Create well formed valid HTML documents

Module	Content	Teaching Hrs.
I	Internet and WWW : 1.1 Network, Client, Server, 1.2 What is Internet & Applications, WWW 1.3 URL, DNS, Browsers, Web Development: 2.1 :Introduction, features, steps in web development, . 2.2 Scripting Languages 2.3 HTML,structure 2.4 Basic Tags 2.5 Formatting tags , examples	15
II	HTML tags : 3.1 Heading and paragraph tags, font tag. <table> tag 3.2 List Tags-ordered and unordered list tags: , <HR>.,<Marquee> 3.3 : Hyperlink, <A> Image and Image maps, <form> tag, form controls to design UI	15
III	JAVA SCRIPT : 4.1 Introduction, Difference in Client-Side and Server-Side Script, features, introduction to Java script 4.2 keywords, data types, control statements (if-else, looping) with examples 4.3 objects in java. Events and Event Handlers, 4.4 Dialogue boxes, Built-in functions and Validations	15
IV	Introduction to Server-Side scripting : 5.1 ASP – Advantages and limitations, server set-up for ASP (PWS/IIS), built in ASP objects 5.2 loop Structure, control structure (If-Else-Then), methods to get data from 5.3 Clients – (GET and POST), difference between GET and POST 5.4,database handling, connections and record set object. 5.5Case Studies: On line Shopping Website, University Website	15



Learning Recourses		
1	Reference Books	1. HTML, JavaScript, DHTML and PHP, Ivan Bayross, BPB publications, 2010 Edition 2. HTML Black Book, Steven Holzner, DreamTech Press, 2009 Edition 3. Web Technologies Black Book, Kogent Learning Solutions Inc., Dreamtech press, 2011 Edition 4. ASP.NET 4.0 Black Book, Kogent Learning Solutions Inc., Dreamtech press, 2012 Edition 5. ASP.NET 4.0 Programming, JoydipKanjilal, TATA McGraw-Hill Education Private Ltd., 2010 Edition

Course Outcome

CO1	Understand Web designing techniques.
CO2	Develop commercial web development.
CO3	Organize content, hosting and web publishing
CO4	Create well-formed valid HTML documents



(With effect from July-2019)

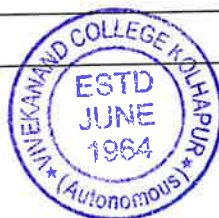
Database Management System

Semester	IV	Total credit	4
Course code	Core Course –BCA 1414 D	Credit pattern	L-60, T -100,P-00
Course title	Database Management System		

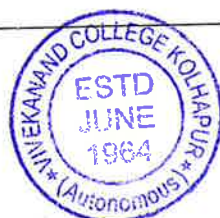
Course objectives

1	To Know the Fundamentals of Databases.
2	To understand how to use Databases in day to day Applications.
3	Design ER Models to represent simple database application scenarios
4	Improve the database design by normalization.

Module	Content	Teaching Hrs.
I	Introduction of Database 1.1 Introduction 1.2 Definition of DBMS 1.3 file processing system Vs DBMS 1.3.1 Limitation of file processing system 1.3.2 Comparison of File processing system and DBMS 1.4 Advantages and Disadvantages of DBMS 1.5 Users of DBMS 1.5.1 Database Designers 1.5.2 Application programmer 1.5.3 Sophisticated Users 1.5.4 End Users 1.6 Capabilities of good DBMS 1.7 Types of Database System: 1.7.1 Centralized database system 1.7.2 client-server system 1.7.3 Distributed database system.	15
II	Organization of Database System 2.1 Introduction 2.2. Logical and Physical Files 2.2.1 Logical and Physical Files Definitions 2.2.2 File Structure 2.3 Basic File Operations 2.3.1 Opening Files 2.3.2 Closing Files 2.3.3 Reading and Writing 2.3.4 Seeking 2.4 File Organization 2.4.1 Field and Record structure in file 2.4.2 Record Types 2.5 Types of file organization 2.5.1 Files of Unordered Records (Heap Files) 2.5.2 File of Ordered Records (Sorted Files) 2.5.3 Hash Files 2.5.4 Indexed file	15
III	Data Models	15



	<p>3.1 Introduction</p> <p>3.2 Data Models</p> <p> 3.2.1 Object Based Logical Model</p> <p> 3.2.2 Record Base Logical Model</p> <p> a. Relational Model</p> <p> b. Network Model</p> <p> c. Hierarchical Model</p> <p>3.3 Entity Relationship Model</p> <p> 3.3.1 Entity Set</p> <p> 3.3.2 Attribute</p> <p> 3.3.3 Relationship Set</p> <p>3.4 E-R Model terms Introduction</p> <p> a. Relation</p> <p> b. Tuple</p> <p> c. Attribute</p> <p> d. Cardinality</p> <p> e. Degree</p> <p> f. Domain</p> <p>3.5 Keys</p> <p> 3.5.1 Super Key</p> <p> 3.5.2 Candidate Key</p> <p> 3.5.3 Primary Key</p> <p> 3.5.4 Foreign Key</p> <p>3.6. Relational Database Design</p> <p> 3.6.1 Introduction</p> <p> 3.6.2 Normalization</p> <p> 3.6.3 Normal Form</p> <p> 3.6.1 1 NF</p> <p> 3.6.2 2 NF</p> <p> 3.6.3 3 NF</p>	
IV	<p>Relational algebra</p> <p>4.1 Introduction</p> <p>4.2 Operations</p> <p> a. Select</p> <p> b. Project</p> <p> c. Union</p> <p> d. Difference</p> <p> e. Intersection</p> <p> f. Cartesian Product</p> <p> g. Natural Join</p> <p>4.3. SQL (Structured Query Language)</p> <p> 4.3.1 Introduction</p> <p> 4.3.2 History of SQL</p> <p> 4.3.3 Basic Structure</p> <p> 4.3.4 DDL Commands</p> <p> 4.3.5 DML Commands</p> <p> 4.3.6 Simple Queries</p> <p> 4.3.7 Nested Queries</p> <p> 4.3.8 Aggregate Functions</p> <p>4.3.9 Clauses</p>	15



Learning Recourses		
1	Reference Books	1) Database System Concepts By Henry korth and A. Silberschatz 2) An Introduction to Database System by Bipin Desai 3) File Structure by Michael J. Folk, Greg, Riccardi 4) Teach Yourself SQL in 14 days by Jeff Parkins and Bryan Morgan 5) Database Management System by Raghu Ramakrishnan 6) An Introduction to Database System by Bipin Desai

Course Outcome

CO1	To Know the Fundamentals of Databases.
CO2	To understand how to use Databases in day to day Applications.
CO3	Design ER Models to represent simple database application scenarios
CO4	Improve the database design by normalization.



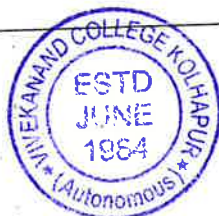
(With effect from July-2019)
Organizational Behavior

Semester	IV	Total credit	4
Course code	Core Course –BCA 1415 D	Credit pattern	L-60, T -100,P-00
Course title	Organizational Behavior		

Course objectives	
1	Students should understand the impart that individual, group and structures have on their behavior within the organization.
2	They should identify the required behavioral model in the Organizational
3	Analyze the complexities associated with management of the group behavior in the organization.
4	Develop creative and innovative ideas that could positively shape the organization.

Module	Content	Teaching Hrs.
I	Introduction to Organizational Behavior: Definition, Importance, Scope, Fundamental Concepts of OB, Disciplines continuing to O.B. Evolution of O.B	15
II	Attitude, Values and Motivation: Meaning of attitude, perception, Effects of employee attitudes, components of Attitude, Organizational Values, Importance of Motivation, Motivation process, Motivation model. Maslow's Need Hierarchy Theory	15
III	Organizational culture, Quality Work Life and Stress Management : A) Organization Culture & Stress Management: B) Stress Management C) Quality Work Life	15
IV	Group Behavior ,Conflict and Stress: Nature of Group. Types of Groups, Team Building and Effective team works, Stages of group Formation, Concept of conflict- Conflicts & Stress – Concept, why and how & Management	15

Learning Recourses		
1	Reference Books	<ol style="list-style-type: none"> 1. Organizational Behaviour by Stephen P. Robbins 2. Organisational Behavior Book by K. Aswathappa 3. Organizational Behavior, Luthans, FredMGH 4. Organizational Behavior Mcshane, S. L/ Glinow, M. A. V. TMH 5. Organizational Behavior Robbins, S. P/ Judge, T. A/ Sanghi, S.Pearson



Course Outcome:

CO1	Students should understand the impart that individual, group and structures have on their behavior within the organization.
CO2	They should identify the required behavioral model in the Organizational
CO3	Analyze the complexities associated with management of the group behavior in the organization.
CO4	Develop creative and innovative ideas that could positively shape the organization.



(With effect from July-2019)
Mathematics Foundation

Semester	IV	Total credit	4
Course code	Core Course –BCA 1416 D	Credit pattern	L-60, T -100,P-00
Course title	Mathematics Foundation		

Course objectives	
1	Students should understand the impart that individual, group and structures have on their behavior within the organization.
2	They should identify the required behavioral model in the Organizational

Module	Content	Teaching Hrs.
I	<p>SETS</p> <p>1.1 Meaning of a set.</p> <p>1.2 Methods of describing of a set.</p> <p> 1.2.1 Tabular form</p> <p> 1.2.2 Set builder form</p> <p>1.3 Types of a set</p> <p> 1.3.1 Finite set, Infinite set, Empty set, Subset, Universal set.</p> <p> 1.3.2 Equal sets, Disjoint sets, Complementary set.</p> <p>1.4 Operation on Sets</p> <p> 1.4.1 Union of sets</p> <p> 1.4.2 Intersection of sets</p> <p> 1.4.3 Difference of sets.</p> <p>1.5 De Morgan's Laws (without proof).</p> <p>1.6 Venn diagram.</p> <p>1.7 Cartesian product of two sets.</p> <p>1.8 Idempotent laws, Identity laws, Commutative Laws, Associative laws, Distributive laws, Inverse laws, Domination Laws, Absorption laws, Involution laws.</p> <p>1.9 Duality.</p> <p>1.10 Computer Representation of sets and its operations.</p> <p>1.11 Examples based on above.</p>	15
II	<p>Logic</p> <p>2.1 Introduction</p> <p>2.2 Meaning of Statement (Proposition).</p> <p>2.3 Simple and compound statements.</p> <p>2.4 Truth values of a statement.</p> <p>2.5 Law of excluded middle.</p> <p>2.6 Logical Operations: Negation, Conjunction, Disjunction, Implication, Double Implication.</p> <p>2.7 Equivalence of Logical statements.</p> <p>2.8 Truth Tables and construction of truth tables.</p> <p>2.9 Converse, Inverse and Contra positive.</p> <p>2.10 Statement forms: Tautology, Contradiction, Contingency.</p> <p>2.11 Duality, Laws of logic: Idempotent laws, Commutative laws, Associative laws, Identity laws, Involution laws, Distributive laws, Complement laws, De Morgan's laws.</p> <p>2.12 Argument: Valid and Invalid arguments.</p> <p>2.13 Examples based on above.</p>	15



III	Matrices 3.1 Meaning of a matrix, Order of matrix. 3.2 Types of matrices 3.2.1 Row matrix, Column matrix, Null matrix, Unit matrix 3.2.2 Square Matrix, Diagonal matrix, Scalar matrix, 3.2.3 Symmetric matrix, Skew - symmetric matrix 3.2.4 Transpose of a matrix, 3.3 Definition of Determinants of order 2nd & 3rd and their expansions 3.4 Singular and Non-Singular Matrices 3.5 Algebra of Matrices 3.5.1 Equality of matrices 3.5.2 Scalar Multiplication of matrix 3.5.3 Addition of matrices, Subtraction of matrices 3.5.4 Multiplication of matrices. 3.6 Elementary Row & Column Transformations 3.7 Inverse of Matrix (Using Elementary Transformations) 3.8 Examples based on above.	15
IV	Graph Theory 4.1 Introduction to Graph 4.2 Kinds of Graph : Simple, Multi and Pseudo Graph 4.3 Digraph 4.4 Weighted Graph 4.5 Degree of Vertex, Isolated Vertex 4.6 Path, Cycle, A-Cycle, 4.7 Types of Graph: Complete, Regular, Bi-Partite, Complete Bi-partite, Isomorphism of Graph 4.8 Matrix Representation of Graph: Adjacency and Incidence Matrix 4.9 Operation on Graph: Union, Intersection, Complement, Product of Graphs, Fusion of Graphs 4.10 Examples based on above.	15

Learning Recourses		
1	Reference Books	<ol style="list-style-type: none"> 1. Discrete Mathematics & Structures by SatinderBal Gupta, <i>University Science Press</i> 2. Fundamental Approach to Discrete Mathematics by D. P. Acharjya, Sreekumar, <i>New Age International Publishers</i> 3. Discrete Mathematical Structures by Kolman, Busby, Ross, <i>Pearson Education Asia</i> 4. Matrices by Shantinakaran, <i>S. Chand & Co. , New Delhi</i> 5. Discrete Mathematics by Schaum Series 6. Discrete Mathematics by K D Joshi

Course Outcome:

CO1	Familiarize basic Concept of Set theory.
CO2	Recognize different types of function.
CO3	Compute the addition and multiplication of matrices.
CO4	Find inverse of matrices by Elementary transformation and Adjoint method.



Lab Course on DBMS and Web Technology

Semester	IV	Total credit	2
Course code	Core Course –BCA 1417 D	Credit pattern	L-60, T -00,P-50
Course title	Lab Course on DBMS and Web Technology		

Practical's on Web Technology:

Unit-I

1. Programs based on singular and paired tags, formatting tags, list tags,
2. Programs based on marquee, hyperlink, image maps
3. Program based on frame tags

Unit-II

4. Programs based on CSS, cross browser testing
5. Programs based on creating forms, inputting values
6. Programs based on drop down and list box, text area, password
7. Program based on action buttons, radio, checkbox Unit-III
8. Programs based on control statements
9. Programs based on event handling and built in functions
10. Program based on validations

Unit-IV

11. Programs based on control statements (branching and looping)
12. Programs based on GET and POST method
13. Programs based on database handling
14. Design and develop interactive website using different HTML tags, ASP, Java Script and database handling.

Practical's on DBMS: (Take sample tables)

1. Write procedure for creating database.
2. Generate form and write steps in detail.
3. Establish relationship between tables and write steps for it.
4. Create reports using different queries based on multiple tables and write steps in detail for it.

I. Library system:

1. Create database for library system.
2. Establish essential relationship between tables.
3. Design form for above library system.
4. Generate following reports for library system.
 - a. List of book with accession numbers
 - b. List of books according to author
 - c. List of books issued to student
 - d. Demand books report of students

II. Design Database System for Payroll management system:

1. Draw ER diagram
2. Create database- contains 1. At least 5 tables 2. At least 3 fields with proper data type
3. Set primary key wherever required
4. Create relationship structure



5. Create form for each table
6. Insert at least 5 records in each table
7. Create different query using query wizard
8. Create at least 3 reports using report wizard (at least 5 records)

III. Design Database System for Hospital management system

1. Draw ER diagram
2. Create database- contains 1. At least 5 tables 2. At least 3 fields with proper data type
3. Set primary key wherever required
4. Create relationship structure
5. Create form for each table
6. Insert at least 5 records in each table
7. Create different query using query wizard
8. Create at least 3 reports using report wizard (at least 5 records)

Course Outcome:

CO1	Understand Web designing techniques.
CO2	Develop commercial web development.
CO3	Ability to design and implement a database schema for given problem.
CO4	Apply the normalization techniques for development of application software to realistic problems.

Exam Pattern

Sr. No.	Type	Particular	Marks	Total
1	External	Practical Exam	50	50
Total				50



Course Name: Mini Project

Mini Project (Any subject related to Computer Study.)

Semester	IV	Total credit	2
Course code	Core Course –BCA 1418 D	Credit pattern	L-60, T -00,P-50
Course title	Mini Project		

Course outcomes	
1	Understand how to identify the issues and challenges of industry.
2	Prepare report on the application of emerging technologies in the selected industry.
3	Implement hardware and / or software techniques for identified problems.
4	Test and analyze the modules of planned project.

Exam Pattern

Sr. No.	Type	Particular	Marks	Total
1	External	Practical Exam	50	50
Total				50



Exam Pattern:

Sr. No.	Type	Particular	Marks	Total
1	Internal	Assignment	06	20
		Seminar	08	
		Oral	06	
2	External	Theory paper	80	80
Total				100

Nature of Question Paper (Theory)

B.C.A. II

Marks 80

Instructions:-

- 1) All Questions carry equal marks.
- 2) Attempt any five Questions out of seven.
- 3) Question No. 8 is Compulsory

Q.1	Long Answer	16Marks
Q.2	Long Answer	16Marks
Q.3	Long Answer	16Marks
Q.4	Long Answer	16Marks
Q.5	Long Answer	16Marks
Q.6	Long Answer	16Marks
Q.7	Long Answer	16Marks
Q.8	Write Short Notes (Attempt any four out of Six)	16Marks

Note: Question of 16 Marks can be distributed in 8 + 8 marks sub questions.



W. J. J.
HEAD
DEPARTMENT OF B. C. A.
VIVEKANAND COLLEGE, KOLHAPUR
(AUTONOMOUS)