

Sri Swami Vivekanand Siksan Sansta's

VIVEKANAND COLLEGE, KOLAPUR

Department of BCA

Course: Bachelor of Computer Application

PO1	Understand the concepts of key areas in computer science.
PO2	To obtain sound knowledge in the theory, principles and applications of computer systems.
PO3	Apply knowledge of mathematics, science, in the design and development of software systems.
PO4	Develop practical skills to provide solutions to industry, society and business.
PO5	Identify, formulate, review and analyze complex problems using various computer techniques.
PO6	Develop entrepreneurship skills amongst the students.
PO7	Enhances various managerial and accounting skills for better professional opportunities.
PO8	Inculcate programming aspect amongst the students.
PO9	Acquire innovative knowledge; use them to develop software, and to understand the importance of lifelong learning.
PO10	Develops communication skills and build confidence to face the challenges of the corporate world.
PO11	Focuses on preparing student for roles pertaining to computer applications and IT industry.
PO12	Acquire ability to apply design and development principles in the construction of software system.

BCA-III Sem-V
(With effect from June-2020)
Cost Accounting

Semester	V	Total credit	4
Course code	Core Course – BCA 1419E	Credit pattern	L-60, T -100 marks,P-00
Course title	Cost Accounting		

Course objectives	
1	The objective of the course is to provide adequate basic understanding about cost sheet, material issues and labour cost to the students.
2	This course designed to familiarize students with the basic concepts of cost and various methods and techniques of costing.
3	This course aims of imparting knowledge about the cost accounting principles and method.

Module	Content
I	Introduction to cost Accounting: Concept of cost, costing, Cost Accounting and Cost Accountancy, Objectives, Advantages and Limitations of Cost Accounting, Difference between cost Accounting & Financial Accounting, Cost Unit and cost centre. Elements of Cost, Preparation of cost sheet.
II	Cost Accounting of Material, Labour and Overheads : Methods of pricing of material issues FIFO, LIFO, Simple Average, weighted Average. Methods of Wages- Time basis, Piece Basis, Labour Turn over(Theory) Classification, Allocation, Absorption and Apportionment of Overheads (Theory)

III	Methods of Costing - Process:	
Learning Resources	Costing excluding calculation of Equivalent production, contract costing, service costing, (Transport Costing)	
1	Reference	1. Jawahar Lal, Cost Accounting - Tata-McGraw Hill Publishing
IV	Reconciliation of Cost and Financial Accounts:	Reconciliation of Cost and Financial Accounts
	Books	2. B.M. Lall Nigam and I.C.Jain, Cost Accounting, Principles, Methods and Techniques, K.L. Malik &sons Pvt. Ltd., Daryaganj, New Delhi. 3. M.C. Shukla, T.S. Grewal and M.P.Gupta, Cost Accounting, Text and problems, S. Chand and Co. Ltd.New Delhi. 4. S.P. Jain and K.L. Narang, Cost Accounting, Principles and Methods, Kalyani Publishers, Jalandhar. 5. S.N. Maheshwari & S.N. Mittal, Cost Accounting, Theory and Problems. Shre Mahabir Book Depot,New Delhi.

COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO1: To inculcate knowledge on cost sheet, material issues and labour cost.

CO2: To provide adequate knowledge of cost accounting practice.

CO2: To interpret cost accounting statements.

CO3: To enhance knowledge of cost accounting principles and method.

BCA-III Sem-V

(With effect from June-2020)

E Commerce

Semester	V	Total credit	4
Course code	Core Course – BCA 1420E	Credit pattern	L-60, T -100 marks,P-00
Course title	E Commerce		

Course objectives	
1	The objective of the course is to familiarize students with models of E commerce and basic concepts of Ecommerce.
2	This course aims of imparting knowledge about the Electronic Data Interchange, E-Payment System, E-Security and Security Solutions.

Module	Content
I	Introduction to E-Commerce: Defining Commerce; Main Activities of Electronic Commerce; Benefits of E-Commerce; Broad Goals of Electronic Commerce; Main Components of E-Commerce; Functions of Electronic Commerce – Communication, Process Management, Service Management, Transaction Capabilities; Limitations, Challenges and opportunities, Process of E-Commerce; Types of E-Commerce; Role of Internet and Web in E-Commerce; Technologies Used ; E-Commerce Systems; Pre-requisites of E-Commerce; Scope of E-Commerce; E-Business Models. EDI- Concept, Components, working mechanism of EDI, Advantages and disadvantages of EDI. Difference between E-Business and E-Commerce, Introduction to M-Commerce.
II	Electronic payment System Concept of e-payment, Difference between traditional and electronics payment system, UPI, NCPI , Digital cash, Credit and Debit card system, Smart Card, E Wallet , Prepaid, post paid and instant payment system, Electronic funds transfer, Concept of e-banking.
III	E-Security Concept of E-security, Security threats- concept and types, Malicious code, Phishing and identity theft, Hacking and cyber vandalism, Credit card fraud/Theft, Spoofing, Denial of service (DoS), Firewall and proxy server.
IV	Security Solutions Concept of encryption and decryption, Symmetric and asymmetric key encryption, Cipher text, Digital Envelopes, Digital certificates, Security socket layer (SSL), Limitations of encryption solutions.

Learning Recourses		
1	Reference Books	<ol style="list-style-type: none"> 1. E-Commerce- Kenneth C.Laudon and Carol Guercio Traver 2. Internet marketing and E-commerce-Ward Hanson and Kirthi Kalyanam 3. E-Commerce Concepts , Models , Strategies by -- G.S.V Murthy 4. E-Commerce by --Kamlesh K Bajaj and Debjani Nag 5. Electronic Commerce by --Gary P. Schneider E-Commerce A Managers Guide, Ravi Kalkota

COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO1: To understanding on how internet can help business grow.

CO2: To understanding on the importance of security, privacy, and ethical issues as they relate to E-Commerce.

CO2: To understanding on how innovative use of the E-Commerce can help developing competitive advantage.

BCA-III Sem-V

(With effect from June-2020)

Computer Network

Semester	V	Total credit	4
Course code	Core Course –BCA 1421E	Credit pattern	L-60, T -100 marks,P-00
Course title	Computer Network		

Course objectives	
1	To be familiar with the basics of data communication;
2	To be familiar with various types of computer networks;
3	To have experience in designing communication protocols;
4	To be exposed to the TCP/IP protocol suite.

Module	Content
I	1Basics of Data communication 1.1. Data Communication concept 1.1.1 Components-sender, receiver, message, transmission media 1.1.2 Data Flow- simplex, half-duplex, or full-duplex 1.2 Networks 1.2.1 Definition, Advantages and disadvantages 1.2.2 Categories of Networks- LAN, WAN. MAN 1.2.3 Network Architecture-Client-Server and Peer to peer 1.3 Multiplexing and switching 1.3.1 Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Time-Division Multiplexing 1.3.2 Circuit switching, Packet Switching, Message Switching
II	Transmission media and Reference Models 2.1 Transmission Media 2.1.1 Guided Media - Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable 2.1.2 Unguided Media: Radio Waves, Microwaves, Infrared, satellite communication 2.2 Transmission Modes- Parallel and Serial -(Asynchronous, Synchronous) 2.3 Reference Models 2.3.1 OSI reference model 2.3.2 TCP/IP reference model 2.3.3 Comparison of OSI and TCP/IP reference model 2.4 Protocol Standards 2.5 IP address scheme and characteristics of IP address
III	Data link, Network and Transport layer 12

	3.1 Data link Layer- 3.1.1 Design issues 3.1.2 Framing, error detection and correction 3.2 Network layer 3.2.1 design issues of network layer 3.2.2 Routing algorithm (shortest path, Flooding, distance vector,) 3.2.3 Congestion control 3.3 Transport layer 3.3.1 Transport Layer Primitives: listen, connect, send, receive, disconnect 3.3.2 Protocols: TCP, UDP
IV	4 Session, Presentation and Application layer 12 4.1 Session layer: 4.1.1 Services: dialog management, synchronization, activity management, exception handling 4.1.2 Remote procedure calls 4.2 Presentation layer: 4.2.1 Services: Translation, compression, encryption 4.2.2 Cryptography: concept, symmetric key & asymmetric key cryptography 4.3 Application layer: 4.3.1 Function 4.3.2 Domain name system (DNS), Hypertext Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), Telnet, File Transfer Protocol (FTP)

Learning Recourses		
1	Reference Books	1. Behrouz A. Forouzan- Data Communications And Networking - (4th edition) McGraw-Hill 2. Tanenbaum A.S. “Computer Network”, 3rd Edition, Prentice Hall of India 3. Stallng W, “Computer Communication Network”.(4th edition). Prentice hall of India 1993 4. Computer Networking: A Top Down Approach Featuring in Internet by James F. Kurose & K. W. Ross 5. Computer Networks: Protocols, Standards & Interfaces Black, Uyles 2nd ed PHI 6. Computer Networks Tanenbaum, Andrew. S. 4th ed Pearson

COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO 1: Define, use and implement Computer Networks and the basic components of a Network system.

CO 2: Know and Apply pieces of hardware and software to make networks more efficient, faster, more secure, easier to use,

CO 3: Able to transmit several simultaneous messages, and able to interconnect with other networks.

CO 4: Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation

CO 5: Understand how the Internet works today.

BCA-III Sem-V

(With effect from June-2020)

RDBMS with Oracle

Semester	V	Total credit	4
Course code	Core Course – BCA 1422E	Credit pattern	L-60, T -100 marks,P-00
Course title	RDBMS with Oracle		

Course objectives	
1	To enable students understand and use RDBMS concepts
2	To learn how to design and create database and to implement data base for application

Module	Content
I	Relational Database Management System: 12 1.1 Concept of RDBMS, Difference between DBMS and RDBMS, Features of RDBMS. 1.2 Introduction of Oracle, Role and responsibilities of DBA. 1.3 RDBMS Terminology- Relation, Tuple, Cardinality, Attribute, Degree, Primary Key, Domain, Codd's Rules 1.4 Relational Model, Functional Dependencies, Normalization and its types.
II	INTRODUCTION TO SQL: 12 2.1 Features of SQL, Data types, 2.2 Classification of SQL Commands – DDL (create, alter, drop), DML (insert, update, delete), DCL (grant, revoke), TCL (rollback, commit). 2.3 SQL Integrity Constraints-(Primary key, Foreign key, unique key, not null, default, check) 2.4 Select statement with group by and order by clause 2.5 SQL Operators-arithmetic, relational, Logical, Like, Between, IN operator 2.6 SQL Functions- Arithmetic functions, Conversion Functions, Date function, Aggregate functions, String functions.
III	JOIN AND SUB QUERIES: 12 3.1 Join types - Inner Join, Outer Join, Cross Join and self-Join 3.2 Sub-queries, Multiple sub queries, nesting of sub queries, sub queries in DML commands. 3.3 Correlated queries, Indexes, Sequences. Views-Create View, Drop, View and its Advantages. , Denial of service (DoS), Firewall and proxy server.
IV	INTRODUCTION TO PL/SQL: 12 4.1 Introduction to PL/SQL, Block Structure 4.2 Data types in PL-SQL 4.3 Control Structures-Branching statements, Iterative Control statements.

	4.4 Cursors –Concept, Types- Implicit, Explicit, Procedure to create explicit cursors, Cursor Attributes. 4.5 TRIGGERS: Concept and types.
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Learning Recourses		
1	Reference Books	1) SQL, PL/SQL: The Programming Language- Ivan Bayross-(BPB) 2) Structured Query Language- by Osbome 3) SQL by Scott Ullman. 4) SQL & PL/SQL Black Book for Oracle by Dr,P.S.Deshpande.

COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO1: Enhance the knowledge and understanding of database analysis and design

CO2: Enhance programming skills and techniques using SQL and PL/SQL

CO3: Use the relational Model and how it is supported by SQL and PL/SQL

CO4: To solve database problems using SQL and PL/SQL by using Cursors and Triggers.

BCA-III Sem-V

(With effect from June-2020)

Visual Programming

Semester	V	Total credit	4
Course code	Core Course – BCA 1423E	Credit pattern	L-60, T -100 marks,P-00
Course title	Visual Programming		

Course objectives	
1	This course introduces computer programming using the Visual BASIC programming language with object-oriented programming principles.
2	Emphasis is on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger.

Module	Content
I	Introduction 12 1.1 overview, Architecture, Features of .NET , 1.2 Meta data, CLR, Managed and unmanaged code 1.3 CTS, CLS, .NET base classes 1.4 Introduction to Visual Studio .NET IDE 1.5 Types of JIT compiler
II	Introduction To C# 12 2.1 Introduction to C#, Entry point method, command line arguments 2.2 Compiling and building projects, Compiling a C# program using command line utility, CSC.EXE, Different valid forms of main. 2.3 Global stack and heap memory, reference type and data type, casting implicit and explicit 2.4 Boxing and unboxing, pass by value and pass by reference and out parameters 2.5 Partial class, DLL, Difference between DLL and EXE
III	Introduction to Web Programming 12 3.1 Understanding role of WEB server and WEB browser, HTTP request and response structure. 3.2 Introduction to ASP, Types of path, FORM tag 3.3 Types of server controls 3.4 Validation controls-Base validator, compare validator, range validator, grouping control validator 3.5 Web forms life cycle 3.6 Event handling in WEB forms, response.redirect, server.response, cross page post back property of button 3.7 ASP.NET state management

	3.8 WEB.config, globalization and localization, AppDomain
IV	ADO .NET 12 4.1 Introduction to ADO.Net 4.2 ADO.NET Architecture- Connction, command, dat reader, data adapter, data set 4.3 Understanding connected layaer of ADO.NET and disconnected layer of ADO.NET

Learning Recourses		
1	Reference Books	1. Inside C# - By Tom Archer, Andrew Whitechapel (Microsoft Pub) 2. ASP.NET Black Book- By Steven Holzner 3. Professional ASP.NET 2 –Wrox Series- Wallace B. McClure

COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO 1: Design, create, build, and debug Visual Basic applications.

CO 2: Explore Visual Basic’s Integrated Development Environment (IDE).

CO 3: Implement syntax rules in Visual Basic programs.

CO 4: Explain variables and data types used in program development.

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

B.C.A. Part – III (Sem- V)

Semester	V	Total credit	2
Course code	Core Course –BCA 1424E	Credit pattern	P-4, T -00 ,P-50 marks
Course title	Lab Course based on 1422E and 1423E		

Lab exercise based on paper1422E - RDBMS with Oracle

1. SQL queries on DDL statements.
2. SQL queries on DML statements.
3. SQL queries on Operators-relational, Logical, Like, Between, IN operator
4. SQL queries on Oracle Functions and clauses
5. SQL queries on Join
6. Creating Views and index
7. PL-SQL block on branching statement.
8. PL-SQL block on looping statement.
9. PL-SQL blocks to create explicit cursor.
10. PL-SQL blocks to study attributes of explicit cursor.
11. PL-SQL blocks to create Trigger.

B.C.A. Part – III (Sem- V)

Semester	V	Total credit	2
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Course code	Core Course – BCA 1425E	Credit pattern	P-2, T -00 ,P-50 marks
Course title	Mini Project		

The group of students may undertake a software project in consultation with the internal guide. The group size should not exceed four students. The student is expected do project in any language studied in 5th or earlier Semesters. The mini Project will be evaluated by the external examiners appointed by University.

BCA-III Sem-VI

(With effect from June-2020)

Learning Recourses					
Semester	VI	Reference	1. AzarKazmi – Business Policy – Tata McGraw Hill	Total credit	4
Course code	Books	Core Course – BCA R426F	2. R.M. Srivastava – Management Policy and Strategic Management – Himalaya Publishing House	Credit pattern	L-60, T-100 marks, P-00
Course title	Strategic Management		3. R. Srinivasan – Strategic Management – Indian Context – Prentice Hall of India Pvt. Ltd.		
			4. Srinivasan, Strategic Management – Indian Context, Prentice		

Course objectives

1	To impart the basic concepts in strategic management, strategic business unit, mission, Competitive Advantage.
2	To familiarize the students with the internal and external environment of business and do environmental scan to formulate and implement strategies of an organization.
3	Empowering students with knowledge of various concepts of strategies.

Strategic Management

Module	Content
I	Introduction to Strategic Management Concept of Mission, Vision, Objectives, Concept of Strategy, Importance of Strategy, Levels of Strategy, Strategic Management Process – Different Phases.
II	Environment Analysis Concept and Characteristics of environment, components of internal environment, SWOC, Components of external environment, PESTEL Framework – Porter’s Five Forces Model.
III	Strategies Types and Analysis Corporate strategies: stability strategy, expansion strategy, retrenchment strategy.- adv/disadv. Competitive strategy: cost leadership, Differentiation and Focus Strategy – Types – adv/disadv. BCG Matrix, TOWS Matrix, ANSOFF Matrix.
IV	Strategic Evaluation and Control Strategic evaluation: imp, problems -Benchmarking for strategy evaluation. Strategic Control : Types and techniques of strategic control, -operational control- managing strategic change-types, mechanism and process of managing strategic change-strategy in global environment-Social & environmental sustainability issues in strategic management, Triple bottom line– Role of Different Strategists- Contemporary practices of strategic management.

		Hall Of India 5. Fraed R. David – Strategic Management Concepts and Cases (Person) 6. P Subba Rao- Business Policy and Strategic Management (Himalaya)
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COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO 1: Design, create, build, and debug Visual Basic applications.

CO 2: Explore Visual Basic's Integrated Development Environment (IDE).

CO 3: Implement syntax rules in Visual Basic programs.

CO 4: Explain variables and data types used in program development.

BCA-III Sem-VI

(With effect from June-2020)

Data Mining and Data Warehousing

Semester	VI	Total credit	4
Course code	Core Course – BCA 1427F	Credit pattern	L-60, T -100 marks,P-00
Course title	Data Mining and Data Warehousing		

Course objectives	
1	To introduce students to the basic concepts and techniques of Data Mining
2	To understand and implement classical models and algorithms in data warehousing and data mining
3	To characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering

Module	Content
I	Introduction to Data Mining 12 1.1 Basic Data mining Task 1.2 DM versus Knowledge Discovery in Databases 1.3 Data Mining Issues 1.4 Data Mining Metrics 1.5 Social implementation of Data Mining 1.6 Overview of Application of Data mining 1.6.1 Architecture of DW 1.6.2 OLAP and Data Cubes 1.6.3 Dimensional Data Modeling - star , snowflake schemas 1.6.4 Data processing - Need Data cleaning. Data integration and Transformation, Data reduction 1.6.5 machine learning 1.6.6 pattern matching
II	Data Mining techniques 14 2.1 Frequent item - set and association rule mining: apriori algorithm, use of sampling for frequent item- set tree algorithm 2.2 graph sampling : frequent sub graph mining . tree mining ,sequence mining 2.3 Classification and prediction: 2.3.1 Decision tree [3 hrs] 2.3.2 Construction, performance, attribute selection 2.3.3 Issues : Over fitting tree pruning methods, missing values, continuous classes 2.3.4 Classification and regression tree(CART)

	2.3.5 Bayesians Classification [6 hrs] 2.3.6 Bayesians theorem , Narvee Bayes classifier 2.3.7 Bayesian networks 2.3.8 Inference 2.3.9 Parameter and structure learning 2.3.10 Leaner classification [4 hrs] 2.3.11 Least squares, logistics , perception and SVM classifiers 2.3.12 Prediction [3 hrs] 2.3.13 Linear regression 2.3.14 Non-linear regression
III	Clustering 12 3.1 K-means 3.2 expectation maximization (EM) algorithm 3.3 Hierarchical clustering , Carrolton clustering
IV	Software for Data mining and application of Data mining 10 4.1 R 4.2 Weka 4.3 Sample applications of data mining

Learning Recourses		
1	Reference Books	1. Data Mining : Concept and Techniques Han Elsevier ISBN : 978938031913 2. Margaret H. Dunham , S. Shridhar Data Mining- Introductory and advanced topics Pearson education 3. Tom Mitchell- machine learning McGraw hill 1997

COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO 1: Describe different methodologies used in data mining and data ware housing.

CO 2: Understand the functionality of the various data mining and data warehousing component.

CO 3: Appreciate the strengths and limitations of various data mining and data warehousing models.

CO 4: Explain the analyzing techniques of various data.

CO 5: Compare different approaches of data ware housing and data mining with various technologies.

BCA-III Sem-VI

(With effect from June-2020)

Linux Operating System

Semester	VI	Total credit	4
Course code	Core Course – BCA 1428F	Credit pattern	L-60, T -100 marks,P-00
Course title	Linux Operating System		

Course objectives	
1	To introduce Role and Functions of Operating System
2	To understanding Linux File System and basic commands in Linux
3	To use VI editor and create shell programming

Module	Content
I	Introduction 12 1.1 Operating system 1.2 Types of operating system 1.3 Functions of operating system 1.4 History and development of Linux 1.5 Features of Linux 1.6 Login , logout procedure, Concept of shell, kernel, Kernel-shell relationship
II	Handling files and directory's 12 2.1 Concept of file, types, file system tree 2.2 Different GPU (clear ,cal , date, wc, who) 2.3 file handling- ls ,cat ,cp, mv , rm commands , listing file names, using meta characters (* , ? , []). 2.4 Concept of directory , home directory , directory handling commands- cd , mkdir, rmdir,pwd. 2.5 Basic file attributes, change file/directory, chmod command 2.6 Filters-cut, paste, sort, unique, head, tail, grep commands. 2.7 Command linking using pipe () operator, command substitution.
III	VI editor 12 3.1 Vi Editor, use of VI , features of VI 3.3 Different modes and working with VI editor 3.4 Command mode -cursor movements(k,j,h,l), delete(character, line, word), Screen up , down, use of repeat factor , joining lines (J), searching for pattern (/ and ?) 3.5 Input mode- switching with (I,o,r,s,a,I,O,R,S,A) 3.6 ex mode – saving (w, x, q)
IV	Simple Shell programming 12 4.1 Concept of Shell Script, running a shell script

	4.2 Statements – read , echo , test , if, case , exit. 4.3 Loops- while, until, for 4.4 Command line arguments 4.5 Exit status of a command
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Learning Recourses		
1	Reference Books	1. Unix concept and applications ----- Sumitabha Das 2. Unix shell programming- Yashwant Kanetkar 3. Linux programming- Foreword By- Alan Cox 4. RedHalt Linux 718 By Bill Ball , David Pitts

COURSE OUTCOMES: At the end of this course it is expected that the students

CO 1: Get knowledge of Operating System functions

CO2: Execute different commands in Linux

CO3: develop various shell script programs using VI editor.

BCA-III Sem-VI

(With effect from June-2020)

Java Programming

Semester	VI	Total credit	4
Course code	Core Course – BCA 1429F	Credit pattern	L-60, T -100 marks,P-00
Course title	Java Programming		

Course objectives	
1	To introduce students to the Java programming language.
2	To create Java programs that leverage the object-oriented features of the Java language.
3	such as encapsulation, inheritance and polymorphism;
	Use data types, arrays and other data collections;
	To implement I/O functionality to read from and write to text files.

Module	Content
I	Introduction To Java 1.1 History and features of Java Programming 1.2 Difference between Java & C++ 1.3 Java Environment 1.4 Java tokens, constants, variables, data types, type casting 1.5 Operators and Expressions 1.6 Implementing Java Program 1.7 Branching and looping statements 1.8 Class, objects, methods 1.9 Constructors and destructor
II	Inheritance and Packages 2.1 Defining sub class, subclass constructor 2.2 Inheritance-Multiple and hierarchical 2.3 Defining packages, system packages 2.4 Creating & accessing packages 2.5 Adding a class to package 2.6 Polymorphism- function overloading and over ridding, its difference
III	Multithreading and Exception Handling 3.1 Creating threads, extending a thread class- declaring the class, run() method 3.2 Stopping and blocking threads 3.3 Life cycle of thread 3.4 Using thread method 3.5 Thread priority

	3.6 Introduction to exception 3.7 Syntax of exception handling code 3.8 Multiple catch statement 3.9 Using finally statement 3.10 Throwing exception
IV	Applets Programming & Introduction to AWT 4.1 Introduction to applets 4.2 Building applet code 4.3 Applet life cycle 4.4 Adding applet code to HTML file 4.5 Introduction to Abstract Window Toolkit (AWT)

Learning Recourses		
1	Reference Books	1. Programming with JAVA, A Primer, 2 nd Editions, E Balagurusamy 2. Java Programming- Rajendra Salokhe (Aruta Pub) 3. Core Java an integrated approach – Dr R. Nageshwara

COURSE OUTCOMES: At the end of this course it is expected that the students will be able:

CO1: Understanding of the principles and practice of object oriented analysis and design in the construction of robust, maintainable programs which satisfy their requirements;

CO2: Ability to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem.

CO3: Demonstrate the principles of object oriented programming;

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

B.C.A. Part – III(Sem- VI)

Semester	VI	Total credit	2
Course code	Core Course –BCA 1430F	Credit pattern	P-4, T -00 ,P-50 marks
Course title	Lab Course based on 1428F		

Practicals-

1. Login , logout procedure (user/ login name and password)
2. Copy, move, delete files form different directories.
3. Change file access permissions using chmod and confirm using ls –l command
4. Use of filter commands
5. Creating text files using VI editor.

Shell scripts-

1. Shell script to get any number and display its square , cube sum of its digits
2. Use of command line arguments in a script.
3. Script using if statement.
4. Script handling use of case structure.
5. Scripts with command substitution such as to count number of files, number of users working on Linux network etc,

B.C.A. Part – III (Sem- VI)

Semester	VI	Total credit	2
Course code	Core Course –BCA 1431F	Credit pattern	P-4, T -00 ,P-50 marks
Course title	Lab Course based on 1429F		

Sample programs

1. Java programs based on command line arguments
2. Java programs based Type Casting
3. Java programs based on branching and looping statements
4. Java programs based on constructors
5. Java programs based on method overloading
6. Java programs based on interfaces
7. Java programs based on inheritance
8. Java programs based on packages
9. Java programs based on multithreading
10. Java programs based on exception handling
11. Java programs with applets.

B.C.A. Part – III(Sem- VI)

Semester	VI	Total credit	4
Course code	Core Course – BCA 1432F	Credit pattern	P-2, T -00 ,P-100 marks
Course title	Major Project		

A group of maximum four students prepare a major project under the guidance of internal teacher. Project report will be evaluated by the internal teacher out of 20 marks and there will be viva-voce examination for 80 marks.(Documentation – 20 Marks, Online Presentation-- 30 Marks, Viva-Voce -- 30 Marks.)

The panel for viva-voce examination will be appointed by university. The student should prepare the project report on the work carried out as a project in semester VI.

Guidelines for Project:

Number of Copies: The student should submit two Hard-bound copies of the Project Report. Acceptance/Rejection of Project Report:

The student must submit an outline of the project report to the college for approval. The college holds the right to accept the project or suggest modifications for resubmission.

Only on acceptance of draft project report, the student should make the final copies.

Format of the Project Report:

The student must adhere strictly to the following format for the submission of the Project Report.

a. Paper:

The Report shall be typed on white paper, A4 size, for the final submission. The Report to be submitted to the must be original and subsequent copies may be photocopied on any paper.

b. Typing:

The typing shall be of standard letter size, 1.5 spaced and on one side of the paper only. (Normal text should have Arial Font size 11 or 12. Headings can have bigger size)

c. Margins:

The typing must be done in the following margins:

Left -----1.5 inch, Right ----- 1 inch

Top ----- 1 inch, Bottom ----- 1 inch

d. Front Cover:

The front cover should contain the following details:

TOP : The title in block capitals of 6mm to 15mm letters.

CENTRE: Full name in block capitals of 6mm to 10mm letters.

BOTTOM: Name of the University, Course, Year of submission -all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centering.

f. Blank Sheets:

At the beginning and end of the report, two white blank bound papers should be provided, one for the purpose of binding and other to be left blank.

Documentation Format

- a) Cover Page
- b) Institute/College Recommendation
- c) Guide Certificate
- d) Declaration
- e) Acknowledgement
- f) Index
- g) Chapter Scheme
 - 1) Introduction to Project
 - Introduction
 - Existing System
 - Need and scope of Computer System
 - Organization Profile
 - 2) Proposed System
 - Objectives
 - Requirement Engg.
 - Requirement Gathering
 - SRS
 - 3) System Analysis
 - System Diagram
 - DFD
 - ERD
 - UML(if applicable)
 - 4) System Design
 - Database Design
 - Input Design
 - Output Design
 - 5) Implementation
 - System Requirement
 - Hardware
 - Software
 - Installation process
 - User Guideline
 - 6) Output(with valid Data)
(Minimum 6 reports)
 - 7) Conclusion and Suggestions
 - Conclusion
 - Limitations
 - Suggestion
 - 8) References:-
 - i) Books:-

ii) Journals:-

iii) Periodicals and Newspapers:-

iv) Web

v) Questioner/Schedule(if used)

vi) Source code(Include Main Logic source code)

Nature of Question Paper (Theory)

B.C.A. III

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.