C. M. College, Darbhanga

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)

FOR

UG PROGRAMME

BCA COURSE

Content

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)

Three Years' Undergraduate Course

Bachelor of Computer Application (BCA)

Preamble

BCA is a three year undergraduate degree programme for candidates wishing to delve into the world of Computer languages. One of the most popular options to get started with a career in Information Technology, the course gives you an insight into the world of computers and its applications. The aim of three years' BCA Course is to provide the learners a platform for skill enrichment and enhancement so as to ensure the learners' participation towards the benefits of the society. LOCF approach requires teacher-learners' interaction so that students can easily identify the purpose of each course and can understand their learning needs. BCA programme is focused on developing comprehensive understanding of subject matter and to encourage them to apply ethical practices in information technology field and profession. LOCF approach in BCA programme is adopted with a purpose to prepare result-based courses with an object to make the course more flexible and to provide more options for the students to structure learning experiences in a more student-centric way. Here the approach of LOCF is not only to provide employment opportunity to students but also to provide personal and social skills to balance their personal and social needs. Learning outcomes based BCA programme has been aimed at providing diverse learning experience so that the knowledge may be applied in solving real life problems, keeping into consideration, the interests of the nation and the society.

Part-I

1. 1 Introduction to Programme

The youth must be provided quality education that can contribute towards skill development. BCA Course has been prepared to encourage these youth to acquire in-depth skills and analytical ability to be applied in every walk of I.T. and entrepreneurship. The three years' course has been structured not only for making learners to be competent enough to get employment in their desired field but also to contribute lot towards the society through their entrepreneurial skill. The purpose of quality education is not said to be fulfilled unless it provides social, environmental and ethical values to the learners.

BCA Course provides for clear conceptual understanding among learners and to equip them with modern sophisticated tools and techniques to deal information technology with quality leadership style, to have tactful decision making ability and to prepare them to drive and face the challenges in ever changing global scenario.

1.2 Learning Outcome-based Approach to curricular planning

1.2.1 Nature and Extent of BCA Course

i. BCA course has been designed to train learners with conceptual and practical knowledge of Information technology, Leadership and entrepreneurship quality.

ii. The course will help the learners to understand systematically about various theories and practices, policy framework and strategies needed to manage the organization throughout the world by respecting environmental and ethical issues.

iii. The optimal linkage of principles with prevailing practices will help them to handle real life problems and develop decision making ability.

iv. BCA course has been designed to classroom learning, group and individual learning, library and research projects.

v. The course has been made with an idea to integrate social needs and teaching practices in a manner that is responsive to the need of the community.

1.2.2 Aim of BCA Course

i. Three years' BCA course will help the learners to gain in-depth and systematic knowledge by enhancing their capability of understanding the challenges faced by information technology firms in real world.

ii. It will also develop the ability and competence to have a problem-solving approach towards the issues related to the society and the information technology world.

iii. The course is helpful to the students in understanding, expansion and application of subject knowledge in their academic progression.

iv. The course aims to instill mind-set and character that will help students evolve into sensitive and technically sound future information technology leaders rather than managers and aims at enhancing employability options of the students. The curriculum helps instilling curiosity and thirst for knowledge among students for skill enrichment in practical life.

1.3 Graduate Attributes

On successful completion of the BCA course the students will be able to develop following attributes, qualities and skills;

a. Disciplinary Knowledge

LOCF based curriculum three years' BCA course will help students to develop in-depth knowledge of the areas like Information Technology, Software, Hardware, Programming Languages, Web Technology, Software Engineering etc. The systematic and intensive knowledge will help them to excel in information technology and real life.

b. Communication Skills

- To help the learners in developing Communication Skills required for interacting with various internal and external stakeholders of the information technology enterprises
- To help the learners to have sufficient knowledge of required communication skills to deal in information technology affairs and to communicate with organizational staffs in a better way.
- To sharpen the ability of writing skills of various information technology letters, reports, and notes.

c. Critical Thinking

The students of BCA course will be able to develop skills and attitudes needed for critical thinking which will help them in a comprehensive problem solving approach. They shall be exposed to the pedagogy that helps them understand real life situations through class room training and case-studies. It aims at building the basic ability to think critically, evaluate dispassionately and solve complex problems creatively. The content is organized in such a way that the students would be able to think from diverse perspectives and suggest solutions according to their own sensibilities.

d. Problem Solving

BCA course has been prepared in such a way that it helps students to solve various problems related to information technology;

- Basics of I.T. will help them to solve the problem like creating software, data base, computers, web based systems etc .
- Managerial skills will help them to tackle various managerial centric problems like; to plan, to organize, decision making, ideas formulating, controlling.

e. Analytical Reasoning

The BCA course will help students to develop reasoning based analytical ability which is often required in practical information technology life.

f. Research Related Skills

BCA course encourages students to gain proper research skills required in the field of Information technology and Management

i. Ability to find research problems.

ii. Statistical analysis will provide them research tools to identify and solve the research problems.

iii. The course will develop ability to formulate and test hypothesis and research questions so that to find answers.

iv. They will be able to plan and write a research paper.

g. Team work and Time management

BCA course contains various papers like Fundamentals of Computer, Operating System, Programming Languages such as C, C++,Object Oriented Languages, Java, Relational Database management system, Web Technology ,HTML,ASP, Entrepreneurship Development, Business Accounting, Software Engineering, Hardware & Networking etc which will help to learn I.T and entrepreneurial skills to work and manage team and to manage the affairs of information technology timely. These qualities are developed through application of concept based practices, participative classroom discussion, problem solving task, case studies etc..

h. Scientific Reasoning

i. ability to analyse situations, evaluate ideas and apply scientific approach in accomplishment of organizational objectives.

ii. Ability to formulate logical and persuasive arguments.

i. Reflective Thinking

- Ability to understand the influence of local, regional, national and global factors on critical thinking.
- This course enables the student to analyze the situation objectively and give effective arguments and judgements on the basis of the analysis being done.
- This course teaches the student how to move sequentially in order to solve a problem effectively.

j. Self Directing Learning

- This course enables the student to have self directing learning approach.
- The course has been formulated in such a way that it will help the learners to postulate questions, eliciting responses from various sources and finding out the most suitable solutions to relevant problems.
- This encourages them towards self direction, experimentation and intrinsically motivated research work.

k. Digital literacy

- Ability to utilize digital sources for broadening knowledge base of the learners.
- This course will encourage the learners to use digital resources by adopting latest technologies to survive and excel in ever-changing global scenario.
- The course contains courses and topics to make the learners acquainted with latest accounting software, knowledge of latest IT Act, Digital awareness and much more.
- Sufficient digital literacy can be ensured through smart class rooms and web-based learning resources. Frequent webinars can also be arranged for greater degree of effectiveness.

l. Moral and Ethical Values

- BCA course has been designed in such a manner that it inculcates moral and ethical values in the learners.

- These values will help them not only to be successful information technology persons, entrepreneurs and professionals but also to be persons having responsible approach towards environment, nation and society.
- The course also involves training the students to check unethical behaviour, falsification and manipulation of information in order to avoid debacles which can be seen rising persistently over the period of time.
- It would also help the learners in becoming responsible citizens and the course will facilitate character building.

1.4 Qualification Descriptors

The qualification descriptors for the BCA course shall be five learning attributes such as deciphering, understanding, communication, analysis, and application of subject knowledge .It involves awareness on the part of the students towards their society, community and Nation. The key qualification descriptor for BCA course shall be clarity of conceptual framework as well as critical thinking and rational approach. Each successful student of BCA Course shall be able to

- *Demonstrate* a coherent and systematic knowledge and understanding of the field of Information Technology. This would also include the student's ability to identify, speak and write about the different types of computer, programming languages, web technology, operating systems, new trends in software development, software, hardware and networking, their respective advantages and limitations.

- *Demonstrate* the ability to understand the role of I.T in a changing world from the ethical perspective through promoting fair information technology and professional practices. The objective is to encourage the learners to practice peaceful co existence.
- *Demonstrate* the ability to think and write critically and clearly about the role of each entrepreneur and I.T. Professional in causing benefits to the society and the community so far as finance- based issues are concerned.

- *Communicate* ideas, opinions and values—both theoretical values and values of life in all Shades and shapes—in order to expand the knowledge of the subject as it moves from the classroom to real life situations.

- *Demonstrate* the ability to share the results of academic and disciplinary learning through different forms of communication such as essays, dissertations, reports, findings, notes, etc, on different platforms of communication such as the classroom, the media and the internet.

Recognize the scope of the study of computer application,in terms of career opportunities, employment generation and lifelong engagement in teaching, publishing, translation, communication, media, soft skills and other allied fields.

- *Apply* subject-specific skills in Information Technology and Management to foster a larger sense of ethical and moral responsibility among the learners towards general interest of the society and the Nation. The course will encourage the students to develop a rational and scientific approach in solving real life problems on the basis of Managerial theories and Principles. The best practices are to be encouraged so that the interests of the nation are served in the short and the long run.

1.5 Programme Learning Outcomes of BCA course

The programme learning outcome relating BCA course are as follows:

OC-1 - To develop a basic understanding of elements of Information Technology and to encourage rational thinking and problem solving skill among the students so as to facilitate rational decision making under dynamic situations.

OC-2 - To develop comprehensive knowledge of Computers, Accounting, Information technology Management and Information technology Law.

OC-3 - To increase awareness among the students regarding Socio- economic policies of the Government and their impact on Information Technology industries.

OC-4 - To enable the students to find solutions to the real life information technology problems through the application of theoretical managerial concepts and principles.

OC-5 - To make the students acquainted with the prevalent laws and acts in India like I.T Act, Cyber Security Act,Netiquette etc.

OC-6 - To encourage the students to apply ethical practices in Information technology and professional environment.

OC-7 - To enable the students in attaining enrichment of skills so as to facilitate greater employability.

OC-8 - To enable the students to crack various competitive examinations like Civil Services examination,Banking,I.T sectors, NIMSET,MCA/PGDCA etc.

OC-9 - To develop professional and leadership effectiveness among the students so as to encourage entrepreneurship.

Programme Outcomes will be matched with learning outcomes of respective courses.

COURSE STRUCTURE

1st Year

BCA(Hons.) PAPER 1- COMPUTER FUNDAMENTAL

BCA(Hons.) PAPER 2- PROGRAMMING LANGUAGE-C

BCA(Hons.) PAPER 3- OPERATING SYSTEM

BCA(Hons.) PAPER 4- OFFICE AUTOMATION TOOLS

BCA(Subsidiary) PAPER 1- MATHEMATICS

BCA(Subsidiary) PAPER 2- BUSINESS ACCOUNTING

2nd Year

BCA(Hons.) PAPER 5- RELATIONAL DATABASE MANAGEMENT SYSTEM

BCA(Hons.) PAPER 6- DATA STRUCTURE USING-C

BCA(Hons.) PAPER 7- WEB TECHNOLOGY AND INTERNET

BCA(Hons.) PAPER 8- OBJECT ORIENTED PROGRAMMING C++

BCA(Subsidiary) PAPER 1- MATHEMATICS

BCA(Subsidiary) PAPER 2- BUSINESS ACCOUNTING

3rd Year

BCA(Hons.) PAPER 9- COMPUTER GRAPHICS (AUTO-CAD)

BCA(Hons.) PAPER 10- SOFTWARE ENGINEERING

BCA(Hons.) PAPER 11- HARDWARE AND NETWORKING

BCA(Hons.) PAPER 12- PROJECT WORK

BCA(Subsidiary) PAPER 1- ENTREPRENEURSHIP DEVELOPMENT

The University will hold examination at the end of the first, second and the third years of course to be known respectively as BCA (H) Part I, Part II & Part III examination. There shall be a written examination for each of the theory paper of 3 hours duration. The marks of each Honours paper shall consist of 60 marks for university examination and 40 marks for internal assessment of the total of 100 marks while The Project Work and the subsidiary papers will carry 100 marks.

SYLLABUS OF B.C.A.

1st YEAR

DETAILED SYLLABUS

Hons. Paper 1 – COMPUTER FUNDAMENTAL

Course Objective

- To give fundamental knowledge on Computer and generation of various computers.
- To explain the basic concepts and diagram of computer, peripheral devices, Information.
- To make the learners know about different elements of a computer processing system.

Prerequisite

Basic knowledge of computer fundamental.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of fundamentals of computers so as to apply it in real life problems.
- Develop an in depth knowledge of various motivational theories.
- Develop skills to get employment in I.T. field.

Hons. Paper 1 – COMPUTER FUNDAMENTAL

What is a computer- an Introduction , History , Generation of various computers , uses of computer in modern society e.g. weather forecasting, census , oil exploration, speech recognition , Banking , Publishing , Accounting, Research etc. Basic Block Diagram of Computer, peripheral devices, Information, Language and Communication. Computer Arithmetic and Number systems. ASCII & EBCDIC character sets , Elements of a computer processing system Hardware Software- computer capabilities and limitation. Concepts of files and Directories. Hardware features and use-CPU, I/O devices and Media, Introduction To Networking, Multiprocessing,

Time Sharing , Multitasking and Real time computing. Variety of hardware system and features . Various types of computer available in market, MICRO , MINI, and MAINFRAME , SUPERCOMPUTERS.

Reference Books:

1. Computer Today - Galgotia Publications.
2. Introduction to Computers -Alexis Leon.
3. Introduction to Information Technology- ITL- Pearson Education.
4. Computer Fundamentals - Pradeep K.Sinha, Priti Sinha.
5.Fundamentals of Computers - C.S.V. Murthy

Hons. Paper 2-PROGRAMMING LANGUAGE-C

Course Objective

- To give fundamental knowledge of Programming Languages
- To explain the basic concepts related to ,Algorithms, Flowchart, Compiler, Linking and Loading
- To make the learners acquainted with the use different operators.

Prerequisite

Basic knowledge of programs .

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of programming theories so as to apply it in real life problems.
- Develop an in depth knowledge of various techniques of programs.

- Develop skills to get employment in the field of computer field.

Hons. Paper 2-PROGRAMMING LANGUAGE-C

INTRODUCTION TO PROGRAMMING- program and its Technique ,Algorithms, Flowchart, Compiler, Linking and Loading , Testing and Debugging. Introduction to C . Character Set , Variables and identifiers, Data types , variable definition , Arithmetic operators constant and literals, Assignment Statements ,Basic input/output statement. Conditional statement and loops, Decision making, conditions,Relational operators, Logical operators if statements, if- else statement loops: while loop, do while loop, nested loop ,infinite loop , switch statement, Array - one Dimension array ,array manipulation ,searching manipulation , deletion of elements from an array, two dimension array. Addition/Multiplication transpose of a square Matrix. Functions standard Library of C function. Prototype of a function. Return type. Function call. Block Structure . Passing Argument to a function : call by value by reference, recursive function. Structure and Unions. Structure variable ,initialization, structure assignments. Nested structure , structure and function, structure and array , unions , pointer. Address operators , pointer,types declaration,pointer assignment, pointer initialization , pointer arithmetic , function , function pointer , pointer array ,File processing: Concept of files, file opening in various modes and closing a file , reading from a file, writing to a file.

Reference Books:

1.Let Us C -Yashwant Kanetkar.

2.Programming in ANSI C- E.Balagurusamy.

3.The C Programming Language - Kernighan,Ritchie.

4. C Programming - A Practical Perspective - Dr. Sachin Kadam, Prof Gauri Madan.

Hons. Paper 3- OPERATING SYSTEM

Course Objective

- To give fundamental knowledge Operating system.
- To explain the basic concepts of G.U.I and C.L.I.
- To make the learners acquainted with the use of Memory.

Prerequisite

- Basic knowledge of operating system

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of organizational, individual and group behaviour so as to apply it in real life problems.
- Develop an in depth knowledge of various o.s theories.
- Develop skills to get employment in I.T Field

Hons. Paper 3- OPERATING SYSTEM

Introduction to operating system, and its functions . Category of the operating system. Various component of operating system .process. Task loader, Memory managements . Process management, Deadlocks, CPU Scheduling and its Criteria , Threads , Ms- DOS, Windows X , Introduction to UNIX.

Reference Books:

1.Operating System - Galvin,Gagne.

2. Operating System - Rohit Khurrana.

3. Operating System - Stallings.

4.Modern Operating System - Tanenbaum, Bos

Hons. Paper 4- OFFICE AUTOMATION TOOLS

Course Objective

- To give fundamental knowledge Office tools .
- To explain the basic concepts of word,powerpoint,excel.
- To make the learners acquainted with the use of presentation sheets and documents.

Prerequisite

- Basic knowledge of windows

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of documents,sheets and presentation.
- Develop an in depth knowledge of various office theories.
- Develop skills to get employment in I.T Field

Hons. Paper 4- OFFICE AUTOMATION TOOLS

MS-WORD: Word processing , word processor , component of word processor, creating a document. Saving a document , Layout, Opening a Document , Quieting a word, selecting , Deselecting and deleting the text , Undo & Redo. The action, finding and replacing text , spelling check and Grammar , mail merge , formatting paragraph, printing documents, handling graphics, working with table and columns, header and footer , OLE , Macro.

MS-EXCEL: Spreadsheet concept, components of spreadsheet program, workbook , worksheet, cell, range , data handling in cell , cell pointer , operators, Data types. Functions. Data filtering ,

Data validation ; Conditional Formatting , page setup , print preview , page Break , Page Number and Printing order, Creating and modifying chart, OLE , Macro.

POWER POINT : Introduction , Presentation , Slide, Creating and saving slide. View types adding formatted text. Word art and clip art , making note page and hand out , Drawing and working with object. Running and Controlling slide. Transition and Animation.

Reference Book

1. Introduction to Information Technology- ITL- Pearson Education
2.MS Office XP for everyone - Sanjay Saxena
3. P.C Software & I.T Tools - Gautam Roy.
4.Office 2013 ALL IN ONE- Rutledge
5. Computer Today - Galgotia Publications

SUBSIDIARY PAPERS

Course Objective

- To give fundamental knowledge of set theories,abstract algebra.
- To explain the basic concepts of matrices,trigonometry.
- To make the learners acquainted with the use of Calculus and vector analysis.

Prerequisite

- Basic knowledge of maths

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of Mathematical functions.
- Develop an in depth knowledge of Mathematical theories.
- Develop skills to get employment in I.T and Analysis Field

SUBSIDIARY PAPER 1- MATHEMATICS

SET THEORY: General form of De Morgan laws ; Cartesian products of sets ; Equivalence relation induced by a partition of a set and fundamental theorem on equivalence relation; Composition and factorization of mapping , set mapping , Count ability of rational , Real or Algebric number system.

ABSTRACT ALGEBRA AND MATRICES: Binary operations, Definition of group, Abelian group with examples, Uniqueness of identity element in a group, Cancellation laws in a group Definition of subgroup and cyclic group with examples Definition of ring , integral domain and field with examples , Definition of matrix, operations of matrix algebra, kinds of matrices , transpose, adjoint and inverse of a matrix , product of determinants , solution of consistent system of linear equations.

TRIGONOMETRY: De Moivre's theorem and its applications , Expansions of sin x and tan x , complex argument, Trigonometrical functions of complex angles , Hyperbolic functions , Gregory's series , Summation of series.

REAL ANALYSIS : Sequence of Real numbers and their Limits, Bounded sequences, Monotonic sequences, Cauchy's general principle of convergence, Convergent and Divergent series: convergence of series of positive terms, Comparison test , Cauchy's root test , D'Alemberts ratio test and Raabe's test, Alternating series and Lebnitz's test: Absolute convergence of series . Continuity and Differentiability of real functions of one variable , properties of continuous functions.

CO-ORDINATE GEOMETRY OF TWO DIMENSIONS : System of circles: Orthogonal Circles , Co-axial circles, Parabola , Ellipse and Hyperbola , their standard equations, Equations of

tangents and normals , General equation of the second Degree , Conditions for different types of conic sections.

DIFFERENTIAL CALCULUS : Successive differentiation and Lebnitz's theorem, Taylor's series and Maclaurin's series, Partial Differentiation , Euler's theorem Indeterminate forms, Equation of tangents and normal, Asymptotes , formulae for radius of curvature of different co-ordinate systems.

VECTOR ANALYSIS : Triple product of Vectors, Differentiation of Vector point functions, Differentiation of products of Vectors , Gradient of sector , Divergence and curl of vectors in Cartesian Co-ordinates

Reference

1. Degree Level Differential Calculus -Bharati BHAWAN

2. Degree Level Real Analysis.- Bharati Bhawan

3.Degree Level Analytical Geometry in two dimension- Dasgupta ,Prasad,LAL

4. Fundamental of Statistics - D.N. Elhance

5. Fundamental Mathematical Statistics - Gupta & Kapoor

SUBSIDIARY PAPER 2- BUSINESSS ACCOUNTING

Course Objective

- To provide systematic knowledge of Business Accounting and techniques used in record keeping.
- To develop skills related to preparation and presentation of financial and business statements.

- To develop an understanding of accounting systems applicable in various specialized areas like Branch accounting, Departmental Accounting, Hire Purchase System and Installment Payment System.

Prerequisite

- Basic knowledge of Book Keeping and Accounting

Learning Outcome

On the successful completion of the course, students will be able to:

- Utilize the Accounting concept by having clear concept of Indian and International Business Reporting Standards;
- Prepare and present financial statements.
- Understand the accounting practices relevant to various areas ; Branch Accounting, Departmental Accounts, Royalty Accounts, Hire Purchase and Installment Payment System;
- Comprehend the accounting practices related to dissolution of Partnership Firms;
- Prepare accounting records of Not for Profit organizations

SUBSIDIARY PAPER 2- BUSINESS ACCOUNTING

INTRODUCTION TO ACCOUNTING : *Accounting- Meanings Objective, Accounting as source of Information , Internal and External users of Accounting Information and their Needs. *Qualitative characteristics of Accounting Information- Reliability , Relevance , Understandability and Comparability. *Basic Accounting Terms- Asset , Liability, Capital,

Expense, Income, Expenditure, Revenue, Debtors, Creditors, Goods, Cost, Gain, Stock, Purchase, Sales, Loss, Profit, voucher, Discount, Transaction, Drawing.

THEORY BASE OF ACCOUNTING : *Accounting Principles-Meaning and Nature. *Accounting concepts : Entity, Money Measurement, Going concern, concern, Accounting Periods, Cost Consistency, Conservation, Materiality. *Accounting Standard- Concepts and list of Indian Accounting Standards. *Accounting Mechanism-Single Entry and Double Entry. *Bases of Accounting- Cash Basis , Accrual Basis.

RECORDING OF BUSINESS TRANSACTIONS : *Voucher and Transactions : Origin of Transactions-Source Documents and Vouchers, Preparation of Vouchers; *Accounting Equation approach- Meaning and Analysis of Transactions using Accounting Equation ; Rules of Debit and Credit. *Recording of Transactions: Books of original entry- Journal , Special Purpose Books: (i) Cash Book- Simple , Cashbook with Bank Column and petty Cashbooks : (ii) Purchase book, Sales book , Purchase returns book , sales returns book ; Ledger- Meaning , Utility , Format ; Posting from Journal and Subsidiary books ; Balancing of Accounts. *Bank Reconciliation Statement : Meaning , Need and Preparation, Corrected Cash book balance.

TRIAL BALANCE AND RECTIFICATION OF ERRORS : *Trial balance : meaning, objectives and operation. *Errors : types of errors ; errors affecting Trial balance ; Errors not affecting Trial balance; Detection and Rectification of Errors (one side and two sided) ; uses of suspend Account.

DEPRECIATION , PROVISION AND REVERSES : *Depreciation : Meaning and need for charging Depreciation, Factors affecting Depreciation, Methods of Depreciation-Straight Line Methods, Written Down Value Methods(Excluding change in Method), Method of Recording Depreciation-Charging to Assets Account, Crating Provision for Depreciation/Accumulate Depreciation Account ; Treatment of Disposal of an Asset. *Provisions and Reserves : Meaning , Importance, Difference between Provisions and Reserves , Types of Reserves : Revenue Reserve , Capital Reserve , General Reserve , Specific Reserve and Secret Reserve.

ACCOUNTING FOR BILLS OF EXCHANGE TRANSACTIONS : *Bills of Exchange and promissory note : Definition, Features , Parties, Specimen and Distinctions. *Important Terms : Terms of bill , concept of Accommodation Bill , Days of Grace , Date of Maturity, Bill after

Date, Negotiation ; Endorsement , Discounting of bill , Dishonor , Retirement and Renewal of a bill. *Accounting Treatment of Bill Transactions.

Reference Books:

1. Advanced Accounts - M.C. Shukla, S Chand
2. Financial Accounting - S.M. Shukla, Sahitya Bhawan Publications
3. Financial Accounting – D.K. Goel, Arya Publishing

2nd YEAR

DETAILED SYLLABUS

Hons. Paper 5-RELATION DATABASE MANAGEMENT SYSTEM (RDBMS)

Course Objective

- To give fundamental knowledge database and management system.
- To explain the basic concepts of architecture of database.
- To make the learners acquainted with the use of data management issues .

Prerequisite

- Basic knowledge of database management system.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of dbms and normalization.
- Develop an in depth knowledge of various R.D.B.M.S and SQL Theories.
- Develop skills to get employment in DATABASE Field

Hons. Paper 5-RELATION DATABASE MANAGEMENT SYSTEM (RDBMS)

Database and its categories, Network, Hierarchical and Relation Database, Application of DBMS. Entity Relationship, Relation model, Database architectures (Three levels of the architecture : external, conceptual and internal level). Data management Issues: backup

recovery, maintenance and performance. Database design (scheme Refinement, Functional Dependencies. Normal forms . Decompositions . Normalization . Foxpro programming . Introduction to Oracle , Components of Oracle. Application on various DDL,DML, commands , Queries , Multiple queries, Views Reports, Triggers and PL/SQL programming.

Reference Book.

1.R.D.B.M.S-Nirupma Pathak
2.Database System- Connoly Begg
3.Mastering Fox Pro 2.6 - Charles Seagal
4. The Complete Reference SQL -Groff Weinberg
5. Database System - Connoly, Begg

Hons. paper 6-DATA STRUCTURE USING-C

Course Objective

- To give fundamental knowledge data type various data structure.
- To explain the basic concepts of searching and graph theories.
- To make the learners acquainted with the use of different theories.

Pre-requisite

- Basic knowledge of programming language.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of data structure.

- Develop an in depth knowledge of various searching techniques.
- Develop skills to get employment in Data Field

Hons. paper 6-DATA STRUCTURE USING-C

Structural programming, top-down design, abstract data type , implement of arrays, triangular arrays , structure. Character strings, Pointer dynamic memory management. Singly linked list. implementation linked using arrays, implementation of linked list using dynamic memory allocation circular link list, doubly linked list, polynomial manipulation using linked list, representation of sparse matrices. Stacks their concepts and implementation, multiple stacks. Conversion of infix to postfix notation using stack, evaluation of postfix expression, recursion, how recursion-works, queues their concepts and implementation, deque primary queues , simulation. trees, binary tree – their representation and operations, tree travels, threaded binary trees, conversion of general trees to binary trees , binary expression tree and application of trees. Sequential searching binary search , height balanced tree and weight balanced trees, multiway search trees, digital search , hashing and collision – resolution techniques. Sorting algorithms , bubble sort, selection sort, inserted sort, quick sort, merge sort, address calculation sort and heap sort, complexity of the algorithm. Graphs, terminology, representation of graphs, reach ability, minimum path problem, critical events , graphs traversals , spanning trees, application of graph.

Reference Book.

1.Data Structure throgh C++ - Dr Madhulika Jain,Shashi Singh
2.Programming in C & C++ - S.S.Khadare
3.C & Data Structure- Dr. N.B. Venkateshwar,Dr E.V.Prasad.
4.Data Structure Through C - S.K.Srivastava, Deepali Srivastava

Hons. Paper 7- WEB TECHNOLOGY AND INTERNET

Course Objective

- To give fundamental knowledge Internet Technology and Protocol .
- To explain the basic concepts of Tools and tag used in HTML.
- To make the learners acquainted with the use of different theories related to A.S.P.

Pre-requisite

- Basic knowledge of Networks & programming language.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of Internet Technology and Protocol.
- Develop an in depth knowledge of Creating and saving HTML document techniques.
- Develop skills to get employment in ASP,Networking and HTML Field.

Hons. Paper 7- WEB TECHNOLOGY AND INTERNET

Introduction and History, Internet Technology and Protocol, Domain. FTP,IPS. Telnet, E-mail. WWW . Browser. Home page, internet Etiquette Network topology, DNS types of internet Connection search Engine.

HTML: Introduction Tools and tag used in HTML, Creating and saving HTML document , Hyperlink and Anchors, Working with Image , table, Form, Frame, multimedia style Sheet and List.

ASP- Discuss the role of server side scripting. Discuss about various Server Language, study the setting up of PWS and IIS fir ASP. Discuss the Application, Response, Request, Session objects. Study the retrieving of data from forms. Study the use of Text Boxes, radio buttons, check boxes etc. Discuss the validation of from data. Study file uploads, Describe the use of Application

object. Describe the use of sessions. Discuss the importance of cookies. Study the creation of cookies with Asp. Study th=e use of Asp custom components. Study the use of Third party components. Study the creating of custom components. Study the Basic principles of JSP.

Reference Book.

1.Web Technology - Srinivasan
2.HTML 5 - Black Book
3.Web Technology and Internet- D.P.Nagpal
4.O -Level Internet Technology and Web Design- Prof Satish Jain,Shashank Jain, Shashi Singh

Hons. Paper 8-OBJECT ORIENTED PROGRAMMING-C++

Course Objective

- To give fundamental knowledge of Identifiers and Keywords,Constants, C++ Operators.
- To explain the basic concepts of Manipulator Functions.
- To make the learners acquainted with the use of different theories related to Object Oriented Programming.

Pre-requisite

- Basic knowledge of C language.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of Object Oriented Programming.
- Develop an in depth knowledge of OOPs techniques.
- Develop skills to get employment in Programming Field.

Hons. Paper 8-OBJECT ORIENTED PROGRAMMING-C++

Identifiers and Keywords. Constants, C++ Operators, Type Conversion , Declaration of Variables. Statement Simple C++ Programs, iostream.h.Keyboard and screen I/O. manipulator Functions. Predefined manipulators, Input and Output Stream Flags , if statement if else statement switch Statement, for loop, do-while, break statement, continue statement, goto statement.

defining a Function, return statement, types of Functions, Actual and Formal Arguments. Local and global variables, Default Arguments, Multifunction Program, Storage Class Specifies, Recursive Function, preprocessors Header Files, Standard Functions. Array, Array and Functions Multidimensional arrays. Character Array. pointer operator. Address operator, pointer expressions, Pointer Arithmetic, pointer and Functions, Pointer and Strings. Array of Pointer to pointers.

Classes Declaration of Class, Member Functions . Defining the object of the class. Accessing a Member of Class. Array of class Objects. Pointer and Classes. Unions and Classes. Nested Class. Constructors . Destructors . Inline Member Functions Static class Members. Friend Functions, Dynamic Memory Allocation, this Pointer, Single Inheritance, types of base Classes. Types of Derivation, Ambiguity in Single Inheritance, Array of Class Objects and single Inheritance, Multiple Inheritance.

Container Classes, Member access Control, Function Overloading, Special Features of Function Overloading Operator Overloading, Overloading assignment operator overloading of Binary Operators. Overloading arithmetic operators, overloading of comparison operators. Operators. Overloading eg Unary Operators, Polymorphism, Farly Binding , Polymorphism with Pointers, virtual functions , Late Binding, pure virtual Functions, Abstract Base Classes. Constructors under Inheritance, Destructions under Inheritance, Virtual Destructor, Virtual Base class.

Data file operations: opening & closing of files. State Member functions. reading/writing a character from a file . Binary file operations. Classes & file operations, Array of class object & file operations, Nested classes & file operations, Random Access, File processing.

Reference Book.

1.Object Oriented Modelling & Design with U.M.L - Blaha,Rambaugh
2.Object Oriented Programming with C++ - Balagurusamy
3.Object Oriented Programming with C++ - R.Subburaj
4. Object Oriented Programming with C++ -Bhave ,Patekar

SUBSIDIARY PAPERS

SUBSIDIARY PAPER 1-MATHEMATICS

Course Objective

- To give fundamental knowledge of set theories,abstract algebra.
- To explain the basic concepts of matrices,trigonometry.
- To make the learners acquainted with the use of Calculus and vector analysis.

Prerequisite

- Basic knowledge of maths

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of Mathematical functions.
- Develop an in depth knowledge of Mathematical theories.
- Develop skills to get employment in I.T and Analysis Field
-

SUBSIDIARY PAPER 1-MATHEMATICS

Section A – Integral Calculus, Differential Equations.

Section B – Coordinate Geometry of three dimensions, Linear Programming

Section C- Mechanics (Dynamics and Statics)

1. INTEGRAL CALCULUS

Integration of rational and irrational functions, Integration as a summation, Reduction formulae, Rectification and Quadro true with simple examples. Volume and Surface-area of Solids of revolution. Moment of Inertia, Simple uses of double and triple integration, Gamma and Beta functions

2. DIFFERENTIAL EQUATIONS

Differential equations of the first order and first degree, Variables separable, Homogeneous equations, Linear forms, Differential equations of the first order and higher degrees, Clairaut`s form, Orthogonal trajectories, Linear Differential equations of the second order with constant coefficients

3. COORDINATE GEOMETRY OF THREE DIMENSIONS

Cartesian coordinates, Spherical polar coordinates, Direction cosines, Angle between two lines, Symmetric equation of a line, Equation of a plane in different forms, Coplanar and skew lines, Sphere, Cone and Cylinder : Their standard equations and tangent planes.

4. LINEAR PROGRAMMING

Line segment, Hyper plane, half-spaces, Convex set, convex combinations, Elementary properties of convex sets. Linear programming problems (LLP) Formation of LLP and its standard form, Feasible solutions, Basic solution and optimal solution, Graphical Solution, Application of Simplex method in solving problems.

5. MECHANICS

STATISTICS: coplanar forces, Necessary and sufficient conditions for equilibrium of coplanar forces, Necessary condition for equilibrium of forces action on a rigid body, Equation of the line of action of the resultant of coplanar forces acting on a rigid body. principal of Virtual Work

DYNAMICS : Basic concepts of Mathematics, basic law of mechanics. Inertial frame of reference, Work and Energy, Principle of linear momentum, Angular momentum, Conservative field, Potential energy.

Principle of conservation of energy for a particle. Rectilinear motion, Uniformly accelerated motion (including connected system), Resisted motion Harmonic Oscillators, Damped and free vibration, elastic strings, hook`s law, Vertical and Horizontal vibration of a particle attached to an elastic String Motion in a plane, Components of velocity and acceleration in Cartesian coordinates and their (i) radial and transverse forms &(ii)tangential and normal forms.

REFERENCE

1. Degree Level Differential Calculus -Bharati BHAWAN

2. Degree Level Real Analysis.- Bharati Bhawan

3.Degree Level Analytical Geometry in two dimension- Dasgupta ,Prasad,LAL

SUBSIDIARY PAPER 2- BUSINESS ACCOUNTING

Course Objective

- To provide systematic knowledge of Business Accounting and use of computer in accounting.
- To develop skills related to preparation and presentation of financial database and business statements.
- To develop an understanding of accounting systems applicable in various specialized areas like Branch accounting, computer accounting,Departmental Accounting, Hire Purchase System and Installment Payment System.

Prerequisite

- Basic knowledge of Book Keeping ,computers and Accounting

Learning Outcome

On the successful completion of the course, students will be able to:

- Utilize the Accounting concept by having clear concept of Indian and International Business Reporting Standards;
- Prepare and present financial statements.
- Understand the accounting practices relevant to various areas ; Branch Accounting, Departmental Accounts, Royalty Accounts, Hire Purchase and Installment Payment System;
- Comprehend the accounting practices related to dissolution of Partnership Firms;
- Prepare accounting records of Not for Profit organizations

SUBSIDIARY PAPER 2- BUSINESS ACCOUNTING

Unit I: **Computers in Accounting**

- Introduction to Computer and Accounting Information System (AIS).
- Application of Computers in Accounting: Automation of Accounting Process, Designing Accounting Reports, MIS Reporting, Data Exchange with other Information System.
- Comparison of Accounting Process in Manual and Computerized Accounting, Highlighting Advantages and Limitations of Automation.
- Sourcing of Accounting System: Readymade and Customised and Tailor-made Accounting System. Advantages and Disadvantages of each option.

Unit II: **Accounting and Database System**

- Accounting and Database Management System.

Concepts of Entity and Relationship: Entities and Relationship in an accounting system: Designing and Creating Simple Table, Forms, Queries and Reports in the Context of Accounting system.

Unit III: **Financial Statement**

- Financial Statements : Meaning and Users.
- Distinction between Capital Expenditure and Revenue Expenditure.
- Trading and profit and Loss Account : Gross Profit, Operating Profit, Net Profit.
- Balance Sheet : Need, Grouping, Marshalling of Assets and Liabilities, Vertical Presentation of Financial Statements.
- Adjustments in preparation of financial Statements with respect to Closing Stock, outstanding Expenses, Prepaid Expenses, Accrued Income, Income received in Advance, Depreciation, Bad Debts, Provision for Doubtful Debts, Provision for Discount on Debtors, Manager`s Commission.
- Preparation of Trading and Profit & Loss Account and Balance Sheet of Sole Proprietorship.

Reference Books:

1. Advanced Accounts - M.C. Shukla, S Chand
2. Financial Accounting - S.M. Shukla, Sahitya Bhawan Publications
3. Financial Accounting – D.K. Goel, Arya Publishing

3rd Year

Hons. Paper 9-COMPUTER GRAPHICS (Auto -CAD)

Course Objective

- To give fundamental knowledge of Installation and Introduction of Auto –CAD. Drawing commands, editing commands, Display commands, 3D commands, Drawing aids, Information commands.
- To explain the basic concepts Drawing, Editing , Display and 3D commands.
- To make the learners acquainted with the use of different theories Blocks and Layers, Elevation(Left, Right, Front) of Drawing object, Layout of Building

Pre-requisite

- Basic knowledge of Auto -Cad.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of Installation and Introduction of Auto –CAD
- Develop an in depth concepts Drawing, Editing , Display and 3D commands .
- Develop skills to get employment in Graphics field.

Hons. Paper 9-COMPUTER GRAPHICS (Auto -CAD)

Installing of Auto –CAD , Introduction of Auto –CAD, Drawing commands, editing commands, Display commands, 3D commands, Drawing aids, Information commands, Blocks and Layers, Elevation(Left, Right, Front) of Drawing object, Layout of Building etc.

Reference Books

1.Computer Graphics -Er R.K.Dhawan

2.Computer Graphics- Neeta Nair

3.Computer Graphics & Multimedia- Anirban Mukhopadhyay,Arup Chattopadhyay.

Hons. Paper 10 Software Engineering

Course Objective

- To give fundamental knowledge of Program and its type ,Software etc
- To explain the basic concepts of Algorithm and its flowchart, Program Development.
- To make the learners acquainted with the use of different types of System Development Life Cycle, System Analysis and Designing.

Pre-requisite

- Basic knowledge of Softwares.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of software engineering
- Develop an in depth concepts of system specification, system design, system development, testing, maintenance.
- Develop skills to get employment in Software Engineering .

Hons. Paper 10 Software Engineering

Program and its type, Algorithm and its flowchart, Program Development, Pseudo code, Trends in Software Development, FCL, System Analysis and Designing, System Development Life Cycle, linear or waterfall Cycle, linear cycle phase problem definition system specification, system design, system development, testing, maintenance, iterative Cycle, Spiral model Requirement analysis, Importance of communication, Identifying Requirements, Feasibility

Studies, Databases, Personal System, Centralized System, Data Warehousing, data mining, Distributed System, Evolution of Distributed processing, Client server system, System Investigation. Visual Basic, Core JAVA

Reference:

1. Software Engineering- Roger S. Pressman

2. Software Engineering Concept -Fairley -Mcgraw Hill

3. Software Project Management -Hughes, Cotterell, Mall

4. Software Testing -Desikan, Ramesh

Hons. Paper 11 Hardware and Networking

Course Objective

- To give fundamental knowledge of Hardware & Networking.
- To explain the basic concepts of Algorithm and its flowchart, Program Development.
- To make the learners acquainted with the use of different types of System Development Life Cycle, System Analysis and Designing.

Pre-requisite

- Basic knowledge of Hardware & Networks.

  Learning Outcome

  On the successful completion of the course, students will be able to;

Have a clear understanding of hardware & networking, LAN Components and Network Addressing .

- Develop an in depth concepts of System board, computers used for communication among devices.
- Develop skills to get employment in Hardware & Networking Industry.

Hons. Paper 11 Hardware and Networking

Basic Architecture of PC, Parts of Computer: Mother board, RAM, CPU, HDD etc.

PC hardware and software Computers.

Hardware used for 1/P , O/P & inside computer case, System board, computers used for communication among devices, Software-3 type of Software, ROM, BOIS, OS, application Software, Function of BOIS. The boot process POST and important beep code.

Know about different connectors, System Board. Types of System boards. The CPU & the chipset-CPU from factor. CPU slots and sockets . Different types of RAM, Buses-ISA, MCA, BISA USB, Fire wire.

AGP, PCI, Setting the CPU & BUS speed, CMOS setup and data protection.

Managing Storage devices

Know about Semiconductor Memories- RAM ROM on System

Board, Main Memory SIMMA, DIMMS Other RAM Hard drives hard

Drive technology-IDF, EIDE, SCSI, SATA. Hard drive particulars, troubleshooting. Disk backup, Know about Flash memories know Function units of optical memories CD-ROM, DVD ROM etc. Troubleshooting Fundamental, Stand by UPS, line –interactive UPS, intelligent UPS.

Introduction to Network and Topologies.

Understand to overview Networking. 5.2 State the need for Networking. Classification of Networks LAN, MAN,WAN List the Hardware and Software Components. Various Network Communication.

Standards. .OSI Reference Model. TCP/IP Reference Model . Understand

The overview of Network Topologies. Know Basic Topologies such as Bus, ring, star and hybrid.

LAN Components and Network Addressing

Know about LAN Cable and Connector, wireless network adapter. Know about Coaxial Cables. Twisted Pair Cables. Optical Fibers and Connector . Explain LAN Devices, Repeaters Hubs, Switches, Network Interface Cards(NICS), Routers (CISCO, DAX. Etc.) Modem (56KBPS Internal or External, ADSL Modems, Etc.). Introduction

To Network Addressing. Know about TCP/IP Addressing scheme. Components of IP Address Classes. IP Sub netting. Know about protocols Hyper Text Transfer Protocol (HTTP), File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP), Telnet.

Reference:

1.Computer Networking - Kurose,Ross

2.Data Communication & Networking -Forouzan

3. Data Communication & Computer Network - Rajneesh Agrawal, Bharat Bhusan Tiwari

4.Data & Computer Communication - Stallings

Hons. Paper 12 - Project Work

Course Objective

- To give fundamental knowledge of Project..
- To explain the basic concepts of Project management life cycle.
- To make the learners acquainted with the use of different types of Projects.

Pre-requisite

- Basic knowledge of Project work.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of Project.

- Develop an in depth concepts of Project work.
- Develop skills to get employment in Software Industry.

Hons. Paper 12 - Project Work

Medium of Instruction : ***The medium of instruction shall be English.***

A. The University will hold examination at the end of the first, the second and the third year of the course to be known respectively as the BCA part-I, II, III EXAMINATION. Each of the Paper shall carry 60 marks for University Examination marks for Computer Practical and Internal assessment: of which practical paper shall consist of 25 marks and internal assessment shall be of 15 marks. Marks of the practical Examination and the internal assessment will be submitted by the College to the University before the Commencement of annual examination.

B. These written Examinations for each of the theory paper shall be three hours duration. The medium for the written examination shall be English/Hindi.

C. A student shall not be allowed to appear at the next BCA Part-II or Part-III Annual examination unless she/he has passed the Previous Annual Examination of B.C.A Part-I or B.C.A Part-II as the case may be.

D. A carry over shall be allowed for failures in a maximum of one subject at the part-I and Part-II examinations but such a candidate shall not be permitted to appear in Part-III examination unless she/he has cleared all the subject of Part-I and Part-II examinations.

E. In order to be declared successful in BCA examination the candidate shall have to pass in theory with 45% marks and practical/ project work with 50% marks separately.

F. The Following Shall be percentage of marks required for:
   1. The 1st class 60% and above marks in the BCA I,II,III examinations taken together.
   2. The 2nd class 45% or more but below 60% marks in the BCA. I,II,III examinations taken together.
   3. A candidate who obtains less than 45% marks in the BCA. I,II,III examinations taken together shall be declared to have failed in BCA examination.

G. A candidate obtaining 75% marks or more in the aggregate at the BCA. I, II, III examinations taken together shall be declared to have passed in First class with distinction.

H. Candidate shall be permitted to appear in the BCA I,II,III examination only if he has attended at least 75% of the classes held in the respective academic year.

I. Other matters, if any, not covered under present regulation shall be decided by the university.

SUBSIDIARY PAPER 1-Enterpreneurship Development

Course Objective

- To provide systematic knowledge of the concept of Entrepreneurship
- To develop an understanding of the rationale of entrepreneurship development in India
- To develop an understanding of the problems related to Industrial and agricultural sector in India
- To understand the theories of Entrepreneurship

Prerequisite

Basic knowledge of Economics and Business

Learning Outcome

On the successful completion of the course, students will be able to:

- Understand the Concept of Entrepreneurship Development;
- Understand the process of Project identification and Project Formulation.

REFERENCE

1.Software Project Management -Hughes ,Cotterell,Mall

SUBSIDIARY PAPER 1-Enterpreneurship Development

Unit 1: Introduction to Entrepreneurship

Chapter 1: Need Scope and characteristics of Entrepreneurship, **Chapter 2:** Special schemes for technical entrepreneurs – STED, **Chapter 3:** Institution – Network of Support Organization

Unit 2 : Project Identification – Selection

Chapter 4: Identification of Opportunity, **Chapter 5:** Criteria for and Principles of Product Selection and Development, **Chapter 6:** Techno-Economic Feasibility of the Project, **Chapter 7:** Market survey techniques

Unit 3: Project Formulation

Chapter 8: Need, scope and approaches to project formulation, **Chapter 9:** Structure of Project Report

Unit 4: Technology

Chapter 10: Choice of technology, plant and equipment, **Chapter 11:** Plant Layout and process planning for the project

Unit 5: Project Implementation

Chapter 12 Financial Institution**,** Financial procedure and Financial Incentives

Unit 6: Project Management

Chapter 13: Resource management: Men, machine and material, **Chapter14:** Books of Accounts, Financial statements, Funds flow analysis, **Chapter 15:** Elements of Marketing and sales Management.

Chapter 16: (a) Nature of product and market strategy. (b) Packaging and advertising. (c) After sales services

Unit 7: Government control/regulations

Chapter 17: Important provisions of Factory Act, Sales of goods act, Partnership Act

Chapter 18: Income tax, Sales tax and Excise Duty

Unit 8: Project Monitoring

chapter 19: Sickness in small Scale Industries and their remedial measures.

Reference Books:

1. Entrepreneurship Development – K Jayashree, New Age International Publishers
2. Entrepreneurial Development- S.S.Khanka, S Chand
3. Vasant Desai & Urmila Ravi : Himalaya Publishing House Pvt. Ltd. – Entrepreneurial Development & Business Communication.
4. Entrepreneurship Development – K Jayashree, New Age International Publishers
5. Entrepreneurial Development- S.S.Khanka, S Chand
6. Vasant Desai & Urmila Ravi : Himalaya Publishing House Pvt. Ltd. – Entrepreneurial Development & Information technology Communication.
7. Entrepreneurship Development – K Jayashree, New Age International Publishers
8. Entrepreneurial Development- S.S.Khanka, S Chand
9. Vasant Desai & Urmila Ravi : Himalaya Publishing House Pvt. Ltd. – Entrepreneurial Development & Information technology Communication.
10. Entrepreneurship Development – K Jayashree, New Age International Publishers
11. Entrepreneurial Development- S.S.Khanka, S Chand
12. Vasant Desai & Urmila Ravi : Himalaya Publishing House Pvt. Ltd. – Entrepreneurial Development & Information technology Communication.
13. Entrepreneurship Development – K Jayashree, New Age International Publishers
14. Entrepreneurial Development- S.S.Khanka, S Chand
15. Vasant Desai & Urmila Ravi : Himalaya Publishing House Pvt. Ltd. – Entrepreneurial Development & Information technology Communication.