Study & Evaluation Scheme

Bachelor of Computer Applications (BCA)
[Applicable w.e.f. Academic Session 2011-12 till revised]
Study & Evaluation Scheme of Bachelor of Computer Applications

SUMMARY

Programme : BCA
Duration : Three year full time (Six Semesters)
Medium : English
Minimum Required Attendance : 75 %
Credits : 
Maximum Credits : 201
Minimum Credits required for the degree : 195
Assessment :

<table>
<thead>
<tr>
<th>Internal</th>
<th>External</th>
<th>Total</th>
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<tbody>
<tr>
<td>30</td>
<td>70</td>
<td>100</td>
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Internal Evaluation (Theory Papers)

<table>
<thead>
<tr>
<th>Class Test I</th>
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<th>Class Test III</th>
<th>Assignment(s)</th>
<th>Other Activity (including attendance)</th>
<th>Total</th>
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<td>10</td>
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<td>10</td>
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Evaluation of Practical/ Dissertations & Project Reports :

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<th>Internal</th>
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<tr>
<td>50</td>
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Duration of Examination :

<table>
<thead>
<tr>
<th>External</th>
<th>Internal</th>
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<tr>
<td>3 hrs.</td>
<td>1 ½ hrs</td>
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To qualify the course a student is required to secure a minimum of 40% marks in aggregate including the semester end examination and teachers continuous evaluation (i.e. both internal and external).

A candidate who secures less than 40% of marks in a course shall be deemed to have failed in that course. The student should have secured at least 50% marks in aggregate to clear the semester. In case a student has secured more than 40% in each course, but less than 50% overall in a semester, he/she shall re-appear in courses where the marks are less than 50% to achieve the required aggregate percentage (50%) in the semester.

**Question Paper Structure**

1. The question paper shall consist of eight questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer any five (weightage 4 marks each).
2. Out of the remaining seven questions, student shall be required to attempt any five questions. There will be minimum one and maximum two questions from each unit of the syllabus. The weightage of Question No. 2 to 8 shall be 10 marks each.
### Study & Evaluation Scheme
#### Programme: BCA
#### Semester-I

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Course Code</th>
<th>Subject</th>
<th>Periods</th>
<th>Credit</th>
<th>Evaluation Scheme</th>
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<tr>
<td>1</td>
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<td>Mathematics - I</td>
<td>6</td>
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<tr>
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<td>Principles of Economics</td>
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<tr>
<td>3</td>
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<td>Computer Fundamentals &amp; Programming Concepts</td>
<td>6</td>
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<td>4</td>
<td>BCA104</td>
<td>Principles of Management</td>
<td>6</td>
<td>-</td>
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<td>BCA105</td>
<td>Environment Studies</td>
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<td>Foundation English I</td>
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<td>7</td>
<td>BCA151</td>
<td>MS Office and Internet-Lab</td>
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<td>8</td>
<td>BCA152</td>
<td>Programming Concept- Lab</td>
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*Applicable from next session i.e. 2012-13

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### Semester-II

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<td>Programming in ‘C’</td>
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<td>3</td>
<td>BCA203</td>
<td>Operating System</td>
<td>5</td>
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<td>BCA204</td>
<td>Digital Electronics</td>
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<td>BCA205</td>
<td>Introduction to Programming Logic Formation</td>
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<td>Foundation English-II</td>
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<td>BCA251</td>
<td>‘C’ Language- Lab</td>
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<td>8</td>
<td>BCA252</td>
<td>Logic Formation- Lab</td>
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### Semester-III

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<td>Computer Based Numerical Analysis and Statistical Techniques</td>
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<td>2</td>
<td>BCA302</td>
<td>Data Structure Using ‘C’</td>
<td>6</td>
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<td>3</td>
<td>BCA303</td>
<td>Computer Organization &amp; Architecture</td>
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<td>Production and Operations Management</td>
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<td>Professional Writing</td>
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Remark: Any type of certification like CISCO/ SUN/ MCSE/MCSD/ORACLE etc shall be given credits based on the recommendation of the concerned Board of Studies and its approval by the Academic Council.

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### Semester-IV

<table>
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<td>Computer Oriented Financial Accounting</td>
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<td>Software Engineering</td>
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BCA Revised Syllabus Applicable w.e.f. Academic Session 2011-12 (22022012)  Page 3 of 54
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<td>Computer Networks</td>
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<td>BCA507</td>
<td>Computer Graphics</td>
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Elective*-Select one elective course

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<td>BCA504</td>
<td>Introduction to Operation Research</td>
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<td>Graph Theory</td>
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<td>BCA506</td>
<td>Discrete Mathematics</td>
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Semester-VI

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<td>Internet and Java Programming</td>
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<td>Communication Technique</td>
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Note: L – Lecture  T- Tutorial  P- Practical  C-Credits
1L = 1Hr  1T= 1 Hr  1P=1 Hr  1C = 1Hr of Theory Paper
                                                  = 2 Hrs of Practical/Tutorial
BCA- Semester I
MATHEMATICS- I

Course Code: BCA101       L-6, T-0, P-0, C-6

Course Contents

Unit I
Matrices: Introduction, types of matrices such as square, row, Column, diagonal, identity, symmetric, singular, non-singular Matrices. Addition, subtraction, multiplication of matrices, adjoint of a matrix. (Lecture 08)

Unit II
Inverse of matrix, Determinants & their properties. Solution of simultaneous linear equations by Matrix Method & Cramer’s rule. (Lecture 08)

Unit III
Differentiation of functions, derivatives of some common functions, polynomials, rationals, exponential, logarithmic & trigonometric functions. (Lecture 08)

Unit IV
Integration as a inverse process of differentiation, integration of simple functions, method of change of variable & substitution for integrals. Definite integrals. (Lecture 08)

Unit V
Sets & subsets, finite, infinite sets, equal sets, null sets, proper subset, universal set, singlenton set. Algebra of sets-Union, intersection, complementation. Common application of algebra of sets. (Lecture 08)

Text Books:
1. Gorakh Prashad, Text Book on Differential Calculus, Porthishala
2. Vasistha A. R., Vector Algebra, Krishna Publicaions
3. Mittal & Mittal, Co-ordinate Geometry, Pragati Prakashan

Reference Books:
1. Seth M.Ray, Elements of Matrix and Determinants
2. Vasistha A. R., Matrices, Krishna Publications
3. Shanti Narayan, Differential Calculus, S.Chand

*Latest editions of all the suggested books are recommended.
Semester I
PRINCIPLES OF ECONOMICS

Course Code: BCA102
L-6,T-0, P-0,C-6

Course Contents

Unit I
Economics: Definition, Nature and Scope of Economics; Economics as an art or Science; Relevance of Economics in Business Management; Utility analysis, Marginal Theory of utilities and Equimarginal theory of utilities. (Lecture 08)

Unit II
Demand: Meaning of demand, Factors affecting demand, Law of demand, Demand schedule, Elasticity of Demand, Types & Measurement of Elasticity, Indifference Curve Analysis, Consumer’s Equilibrium & Consumer’s Surplus, Price, Income and Substitution Effects. CASE STUDY based on law of demand. (Lecture 08)

Unit III
Production: Meaning and Analysis, Production function, Laws of Returns, Equal Product Curve (Isoquants) and Producer’s equilibrium; Cost-meaning & types. (Lecture 08)

Unit IV
Market analysis: Nature of market, Types of markets and their characteristics. Pricing under different market structures- Perfect, Monopoly, oligopoly and Monopolistic competition, Price discrimination under monopoly competition. CASE STUDY based on Pricing Under Monopoly Competition. (Lecture 08)

Unit V
Factor Pricing: Factor pricing v/s product pricing, theories of rent, interest, wages and profit. (Lecture 08)

Text Books:
1. Adhikari M, Management Economics
2. Gupta G.S., Managerial Economics, Tata McGraw Hill
3. Lal S.M., Principles of Economics

Reference Books:
1. Vaish & Sunderm, Principles of Economics
2. Mehta P.L., Management Economics
3. Dwivedi D.N., Principles of Economics

*Latest editions of all the suggested books are recommended.
Semester I
COMPUTER FUNDAMENTALS AND PROGRAMMING CONCEPTS

Course Code: BCA103          L-6, T-0, P-0, C-6

Course Contents


Unit II: MS – DOS: Getting Started on DOS with Booting the System, Internal Commands: CHDIR(CD), CLS, COPY, DATE, DEL(ERASE), DIR, WILD CARD CHARACTER, EXIT, MKDIR(MD), PROMPT, REM, RENAME(REN), RMDIR(RD), TIME, TYPE, VER, VOL, External Commands: APPEND, ATTRIB, CHKDSK, COMMAND, DOSKEY, EDIT, FORMAT, HELP, LABEL, MORE, REPLACE, Restore, SORT, TREE, UNDELETE, UNFORMAT, XCOPY.  

Unit III: MS Word: Starting MS WORD, Creating and formatting a document, Changing fonts and point size, Table Creation and operations, Autocorrect, Auto text, spell Check, Word Art, Inserting objects, Page setup, Page Preview, Printing a document, Mail Merge.  


MS Power Point: Starting MS–Power Point,, Creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, Adding a slide to presentation, Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show, preparing note pages, preparing audience handouts, printing presentation documents. MS – Access: creating table and database.  

Unit V: Data types, Variables, Constants, Keywords and Identifiers, Operators and Expression, Type Conversion, Arithmetic Expression, Logical Expression Operator Precedence, Sequencing, Applying if statement, if…..else statements, nested if…..else and else if ladder statements. Program Loops and Iteration: Use of Loops (while, do and for), Nested Loops.  

Text Books

Reference Books
3. Peter Norton’s, Introductions to Computers, Tata McGraw Hill.

*Latest editions of all the suggested books are recommended.*
Semester I
PRINCIPLES OF MANAGEMENT

Course Code: BCA104                  L-6 T-0, P-0, C-6

Course Contents

Unit I


Unit II


Unit III

Organizing: Concept, Objectives, Nature of Organizing, Types of Organization.
Communication: Concept, Process and Barriers of Communication, Case Study based on Communication Barriers.  (Lecture 08)

Unit IV

Staffing: Concept, Recruitment & Selection, Training & Development.
Directing: Concept, Principles & Techniques of directing.  (Lecture 08)

Unit V

Leadership: Meaning, Importance, Styles, Functions of good leader, Case Study based on Leadership.
Motivation: Concept, Maslow Motivational Theory.
Controlling: Concept, Principles, process and techniques of controlling.  (Lecture 08)

Text Books
1. Prasad L.M., Principles and Practice of Management, Sultan Chand

Reference Books

*Latest editions of all the suggested books are recommended.
Course Code: BCA105  
L-3, T-0, P-0, C-3

Course Contents

Unit I

(Lecture 08)

Unit II

Case study on Solar Energy.  
(Lecture 08)

Unit III

(Lecture 08)

Unit IV

(Lecture 08)

Unit V

Case study on violation of Environment Protection Act.  
(Lecture 08)

Text Books:

Reference Books:
2. Clark R.S., Marine Pollution, Clanderson Press, Oxford (TB)

*Latest editions of all the suggested books are recommended.
FOUNDATION ENGLISH - I

Course code: BCA106

L T P C
2  0  2  3

Course Contents:
Unit I
Functional Grammar: Patterns & Parts of speech Subject, Predicate, Noun, Pronoun, Adjective, Adverb, Verb, Verb phrases, Conjunction, Interjection. (10 Hours)

Unit II
Vocabulary: Word formation, Prefix, Suffix, Compound words, Conversion, Synonyms, Antonyms, Homophones and Homonyms, How to look up a dictionary. (10 Hours)

Unit III
Communication: Meaning & importance of communication, Barriers to effective communication, Channels of communication, Language as a tool of communication. (10 Hours)

Unit IV
Requisites of Sentence writing: Fragmented sentences, A good sentence, expletives, Garbled sentences, Rambling sentences, Loaded sentences, Parallel Comparison, Squinting construction, Loose & periodic sentences. (10 Hours)

Text Books:

Reference Books:

NOTE:
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students’ interest in language learning.

* Latest editions of all the suggested books are recommended.
Semester – I
MS OFFICE AND INTERNET- LAB

Course Code: BCA151        L-0, T-0, P-4, C-2

Course Contents

MS-WORD

Creating, Editing, Formatting: Font name, size, color, alignment, changing, paragraph settings, change case, spell checker, Mail Merge, Creating Tables, editing tables, alignment settings in tables

MS-EXCEL

Creating, Editing, Formatting: font name, size, color, alignment, changing, entering data, Sorting Data, Inserting, renaming and deleting Sheet, Inserting row, column, cell, picture, background, graph, symbol, hyperlink, object, diagram.

MS-POWERPOINT

Creating, Editing, Formatting: font name, size, color, alignment, changing, Inserting table, picture, background, graph, symbol, hyperlink, object, diagram.

MS-ACCESS

Creating database and editing database
Course Code: BCA152

Course Contents

Concepts based on Operating System (Windows)

Windows Operation – Such as Setting, color, background, cut, copy, paste.

Internet Lab

Programming Concepts-
Programming Concepts Based on simple arithmetic operations and logical operations. Decision Control, Loop Control and case control with program.
Semester II
MATHEMATICS -II

Course Code: BCA201 L-6, T-0, P-0, C-6

Unit I
Integration of rational and irrational functions, Reduction formulae. (Lecture 08)

Unit II
Infinite series, convergence of series, series of positive terms, Comparison tests, Cauchy’s nth root test, D’Alambert’s ratio test, Raabe’s test, Logarithmic test. (Lecture 08)

Unit III
Limits and Continuity, simple Applications of mean value theorem, Maxima & minima, Indeterminate forms. (Lecture 08)

Unit IV
Successive differentiation, Leibnitz theorem, Alternative series and Maclaurin’s series for $\sin x$, $\cos x$, $\log (1 + x)$, $(1 - x)^m$ (Lecture 08)

Unit V
Differential equations of Ist order by method of separation of variables, homogeneous, non homogeneous equations, linear equations. (Lecture 08)

Text Books:
2. Vasistha A. R.& Hemlata Vasistha, “. Elementary Real Analysis”
3. Ray and Seth, “. Sequence, series and summability”

Reference Books:
1. Integral Calculus - Shanti Narayan
2. Differential Equations - M. D. Raysinghania

*Latest editions of all the suggested books are recommended.
Semester II
PROGRAMMING IN ‘C’

Course Code: BCA202       L-6T-0, P-0, C-6

Course Contents

Unit I

Concept of C programming: History, Introduction of C programming language, Structure of C program, C character set, Data types, Variables, Constants, Keywords and Identifiers, Expression statements, Operators (Arithmetic, Logical, Relational, Assignment) (Lecture 07)

Unit II

Conditional Program: Execution, if statement, if…..else statements nested if…..else and else if ladder. Program Loops and Iteration, while loop, do loop and for loop, Nested Loops, Use of break, continue and goto statements, Applying switch statements, use of break and default with switch. (Lecture 08)

Unit III

Functions: Built-In and User Defined functions, Function Declaration, Definition and Function Calling, Parameter Passing (Call by Value and Call by Reference), Recursion, Pointers. (Lecture 09)

Unit IV

Arrays: Linear Arrays, Multidimensional Arrays, Passing Array to function, String Processing, Macros. (Lecture 08)

Unit V

Structure and Union: Definition, File Handling: Opening and Closing a data file, Read and Write Functions, different modes of files. (Lecture 08)

Text Books:
1. BalagurushmyE., Programming in ANSI C, TMH
2. Kanitkar Yashwant, Let Us C, BPB

References Books:
1. Yashwant Kanitkar, Pointers in C, BPB
2. Shaum’s Series Programming in C, TMH

*Latest editions of all the suggested books are recommended.
Semester II
OPERATING SYSTEMS

Course Code: BCA203  L-5, T-0, P-0, C-5

Course Contents

Unit I
Introduction to the Operating System (OS), Types of OS: Batch System, Time Sharing System, Real Time System. Multi Programming, Distributed System, Functions and Services of OS.  (Lecture 08)

Unit II

Unit III
Deadlocks-System model, Characterization, Deadlock Prevention, Deadlock Avoidance and Detection, Recovery from deadlock. (Lecture 09)

Unit IV
Memory Management: Logical Address, Physical Address Contiguous Allocation, External and Internal Fragmentation (Lecture 06)

Unit V

Text Books:

Reference Books:

*Latest editions of all the suggested books are recommended.
Semester II
DIGITAL ELECTRONICS

Course Code: BCA204       L-5, T-0, P-0, C-5

Course Contents

Unit I
Number systems: Binary number system, Octal & Hexa-decimal number system, Conversion of Number System, r's & (r-1)'s complement, Arithmetic operation on Binary numbers.

Unit II
Logic Gates: AND, OR, NOT GATES and their Truth tables, NOR, NAND & XOR gates.
Boolean Algebra: AND, OR, Inversion, Basic Boolean Law's, Demorgan's theorem, Minimization techniques: K-Map, Sum of Product & Product of Sum. (Lecture 08)

Unit III
Flip-flops: Types of Flip Flop: R-S, D, J-K, T, Master Slave, and State Realization of one Flip Flop Using Other Flip Flop. (Lecture 08)

Unit IV
Combinational circuits: Multiplexers, Demultiplexers, Decoders & Encoders, Half Adder, Full Adder, Half Subtractor, Full Subtractor. (Lecture 08)

Unit V
Registers and Counters: Shift Registers, Types of registers, Universal Shift Register with parallel load, Bi directional Shift register. (Lecture 08)

Text Book:

Reference Books:

*Latest editions of all the suggested books are recommended.*
Semester II
INTRODUCTION TO PROGRAMMING LOGIC FORMATION

Course Code: BCA205        L-5, T-0, P-0, C-5

Course Contents

Unit I
Introduction: Hardware, Software, Relationship between software & hardware, Word processor, Electronic spread sheets, Database system, Accounting packages, Utilities- File Management Utilities. Evolution of programming language, Classification of PL, features of good PL. (Lecture 15)

Unit II

Unit III
Planning the Computer Program: Developing of purpose of program planning, Algorithm, flowcharts: - flowcharts symbols, sample flowcharts, levels of flowcharts, Program Testing and program debugging. (Lecture 08)

Unit IV
Elements of Programming Formulation: Body of program, data types, char, identifiers, constant variables, operation, Basic input & output instructions, control structure, if then else statements while statement, do statement, for statement, Switch, Break, Goto Statements. (Lecture 10)

Unit V
Introduction of Edit and VI Editors: Introduction to editors, How to start Edit in windows, creating a text file, cursor movement keys. (Lecture 08)

Text Books
1. Pearl Software, Computer fundamental, Khanna Publishers
2. Sinha P.K., Computer Fundamental, BPB

Reference Books
1. Bajpai S.K., Introduction to Computers and C programming, New Age
2. Peter Norton, Introduction to Computers, BPB
3. E-Balagurusamy, Programming, TMH

*Latest editions of all the suggested books are recommended.
Semester-II
FOUNDATION ENGLISH - II

Course code: BCA206
(Common with EHM 201/BPH206/BBA206/BHM201/AR207/BCH206/BFA203)

<table>
<thead>
<tr>
<th>Unit I</th>
<th>Functional Grammar: Articles, Preposition, Tenses: Functions, Synthesis, Transformation, Spotting errors and correction of sentences. (10 Hours)</th>
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<tr>
<td>Unit II</td>
<td>Pre- Requisites of Technical written Communication: One word substitution, Spelling rules, Words often confused &amp; misused, Phrases. (10 Hours)</td>
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<td>Unit III</td>
<td>The Structure of sentences/ clauses: Adverb clause, Adjective clause, Noun clause. Sentences: Simple, Double, Multiple and complex, Transformation of sentences: simple to complex &amp; vice versa, simple to compound &amp; vice-versa, Interrogative to assertive &amp; to negative &amp; vice-versa. (10 Hours)</td>
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<tr>
<td>Unit IV</td>
<td>Technical Communication: Nature, Origin and Development, Salient features, Scope &amp; Significance, Forms of Technical Communication, Difference between Technical Communication &amp; General writing, Objective Style vs. Literary Composition. (10 Hours)</td>
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Text-Books:

Reference Books:

NOTE:
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students’ interest in language learning.

* Latest editions of all the suggested books are recommended.
Course Code: BCA251        L-0, T-0, P-6, C-3

Course Contents

Core concepts of programming on data types, simple arithmetic and logical operation. Decision control, Iteration control, Sequencing, and case control.

Basic Input/output functions based on standard library.

Advanced concept based on array, strings, passing arrays to the functions, Call by value, call by reference, Recursion, structure, union passing structure to the functions, macros, DMA, and files.
Semester II
LOGY FORMATION- LAB

Course Code: BCA252        L-0, T-0, P-4, C-2

Course Contents

Developing Flowcharts in MS Word, Mail Marge, Creating Tables, editing tables, alignment settings in tables

Creating, editing, formatting – font name, size, color, alignment, changing, entering data, Sorting Data, Inserting, renaming and deleting Sheet, Inserting row, column, cell ,picture, background, graph, symbol, hyperlink ,object, diagram.

MS-POWERPOINT

Creating, editing, formatting – font name, size, color, alignment, changing, Inserting table, picture, background, graph, symbol, hyperlink, object, diagram.

Design Algorithm for given problem and Implement in C Programming.

Edit Editor- Starting Edit Editor, Creating & Editing and Saving files in edit editor.

VI Editor- Starting VI Editor, Creating & Editing and Saving files in vi editor.
Semester III
COMPUTER BASED NUMERICAL ANALYSIS AND
STATISTICAL TECHNIQUES

Course Code: BCA301        L-6, T-0, P-0, C-6

Course Contents

Unit I

Solution of Systems of Linear Equations: Direct method, Gauss Jordan and Gauss Elimination methods, Pivoting, Iterative methods – Jacobi and Gauss Seidel methods. (Lecture 08)

Unit II

Solution of Systems of Nonlinear Equations: Bisection method, Regula -Falsi method, Newton-Raphson method, Rate of convergence. (Lecture 08)

Unit III

Interpolation: Finite difference, Newton’s forward and backward interpolation formulae, Central difference formulae – Gauss forward and backward difference formulae, Newton’s divided difference Formula, Lagrange’s interpolation formula. (Lecture 08)

Unit IV

Numerical Integration and Differentiation: Trapezoidal and Simpson’s rule. (Lecture 08)

Unit V

Statistical Methods: Measures of central tendency, Dispersion, Curve fitting by principle of least square methods. (Lecture 08)

Text Books:
1. Raman Raja, Computer Oriented Numerical Methods, Prentice Hall.

Reference Books:
1. Gerald & Wheatley, Applied Numerical Analyses, PHI
5. Scheld Francis, Numerical Analysis, Tata McGraw Hill

*Latest editions of all the suggested books are recommended.
Semester III
DATA STRUCTURE USING ‘C’

Course Code: BCA302       L-6, T-0, P-0, C-6

Course Contents
Unit I
Introduction: Basic Terminology, Elementary Data Organization, Data Structure operations, Algorithm, Design and analysis, Complexity and Time-Space trade-off.
Arrays: Array Definition, Representation and Analysis, Single and Multidimensional Arrays, address calculation, application of arrays, Character String in C, Character string operation. (Lecture 08)

Unit II
Queues: Array and linked representation and implementation of queues, Operations on Queue: Create, Add, Delete, Circular queue. (Lecture 08)

Unit III
Linked list: Representation and Implementation of Singly Linked Lists, Traversing and Searching of Linked List, Overflow and Underflow, Insertion and deletion to/from Linked Lists, Insertion and deletion Algorithms, Doubly linked list, Linked List v/s Array.  (Lecture 08)

Unit IV
Sorting: Bubble Sort, Selection Sort Insertion Sort, Quick Sort, Merge Sort, and Heap Sort.
Searching: Sequential search, Binary search. (Lecture 08)

Unit V
Trees: Basic terminology, Binary Trees, Binary tree representation, algebraic Expressions, Complete Binary Tree, Array and Linked Representation of Binary trees, Traversing Binary tree, Binary Search Trees. (Lecture 08)

Text Books:
1. Lipschutz, Data Structure, Tata Mc Graw Hill

Reference Books:
1. Horowitz and Sahani, Fundamentals of Data Structures, Galgotia
2. Kruse et.al R., Data Structures and Program Design in C, Pearson Education
4. Loudon K., Mastering Algorithms with C, Shroff Publisher & Distributors
6. Adam Drozdek, Data Structures and Algorithms in C++, Thomson Asia

*Latest editions of all the suggested books are recommended.
Semester III
COMPUTER ORGANIZATION AND ARCHITECTURE

Course Code: BCA303        L-6, T-0, P-0, C-6

Course Contents

Unit I
Basic Building Blocks: Half Adder, Full Adder, Subtractor, Decoder, Encoders, Multiplexer, Demultiplexer, Registers, Registers with parallel load

Unit II
Register Transfer and Micro operations
Register Transfer Language: Bus and Memory Transfer, Three State Bus Buffers, Memory Transfer, Arithmetic Micro operation(Binary Adder, Binary Adder-Subtractor, Binary Increment, Arithmetic Circuit), Logic Micro operations(List of logic operation), Shift Micro operations, Arithmetic Logic Shift Unit.

Unit III
Processor Design
Processor Organization: General register organization, Stack organization, Reverse Polish Notation, Addressing mode.

Unit IV
Input-Output Organization
I/O Interface: I/O bus and interface modules, Strobe control, Hand Shaking, DMA, Interrupts & Interrupt handling, Direct Memory access: DMA Controller and DMA Transfer

Unit V
Memory Organization:
Memory Hierarchy, Main Memory: RAM & ROM chips, Memory Address Map, Cache memory, Virtual Memory.

Text Books:

Reference Books:

*Latest editions of all the suggested books are recommended.
Semester III
PRODUCTION AND OPERATIONS MANAGEMENT

Course Code: BCA304        L-6, T-0, P-0, C-6

Course Contents

Unit I

Unit II

Unit III
Plant Location: Concept, factors affecting Plant Location, methods of determining plant location, Layout Planning, Production Planning & Control- concept, objectives, functions, Aggregate Planning(output and capacity)concept, objectives, process.  (Lecture 08)

Unit IV
Introduction to Material Management, Material Requirement Planning- concept, objectives, functions, types; MRP System, MPS system, Just in time-concept, objectives, advantages & disadvantages JIT types  (Lecture 08)

Unit V
Introduction to Quality, Cost of quality, TQM-concept, fundamentals, components, Quality Assurance, Deming’s and Juran’s quality principles, Quality Circle-concept, objectives, importance, SQC (Statistical Quality Control) methods.  (Lecture 08)

Text Books
1. Aswathappa K. & Shridhara K., Production and Operation Management, Himalaya
2. Gupta C.B., Operations Management and Control, Sultan Chand

Reference Books
1. Russeli Roberta S., Production and Operation Management, Prentice Hall
2. Sharma D.D., Total Quality Management, Sultan Chand
3. Adam & Ebert, Production and Operation Management, PHI

*Latest editions of all the suggested books are recommended.
Semester-III
PROFESSIONAL WRITING

Course code: BCA305
(Common with EHM 301/BBA306/BHM301/AR307/BCH306/BFA303)

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Course Contents:

Unit I
**Functional Grammar**: Active and passive voice, Conditional sentences, Syntax, Concord, Common errors. (10 Hours)

Unit II
**Requisites of Paragraph writing**: Structure of Paragraph, Coherence & Unity, Development of paragraph, Inductive order, Deductive order, Spatial order, Linear, Chronological orders, Expository writing, and Argumentative writing, Factual description of objects, process, experiments. (10 Hours)

Unit III
**Précis Writing**: Techniques of Précis writing, Writing a précis. (10 Hours)

Unit IV
**Comprehension skills**: Role of listening, Reading comprehension; Reasons for poor comprehension, Improving comprehension skills. (10 Hours)

Text Books:

References Books:

NOTE:
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students’ interest in language learning.

* Latest editions of all the suggested books are recommended.
Course Code: BCA351        L-0, T-0, P-6, C-3

Course Contents

Program based on:

- Arrays – Sorting and searching: Insertion Sort, Quick Sort, Two Way Merge Sort, and Heap Sort. Sequential search, binary search.


- Queues – Array and linked representation and implementation of queues, Operations on Queue: Create, Add, Delete, Circular queue

- **Linked list:** Representation and Implementation of Singly Linked Lists, Traversing and Searching, Inserting and Deleting of Linked List. Same operation in Doubly Linked List, Circular Linked List.

- BST- Creation, searching and traversal.
Course Contents

- Programming based on nonlinear equation- Bisection method, Regula-Falsi method.
- Programming based on linear equation: Gauss elimination and Gauss Jordan method.
- Newton’s forward and backward interpolation formulae.
- Lagrange’s interpolation formula.
- Numerical integration and differentiation: Trapezoidal and Simpson’s rule.
- Activity: To implement the working of all basic Gates using Specific IC’s.
- To minimize Boolean expression using Universal Gates.
Semester IV
COMPUTER ORIENTED FINANCIAL ACCOUNTING

Course Code: BCA401       L-6, T-0, P-0, C-6

Course Contents

Unit I
**Accounting:** Principles, concepts and conventions, double entry system of accounting, journal entry, Ledger posting and Trial balance. (Lecture 08)

Unit II
**Final Accounts:** Trading, profit and loss accounts and balance sheet. Introduction to manufacturing account. (Lecture 08)

Unit III
**Rectification of Errors & Bank Reconciliation statement (BRS):** Classification of Errors, Location of Errors. Suspense Account and Rectifying Accounting Entries. Clauses of BRS, Methods of preparing BRS (Lecture 08)

Unit IV

Unit V
**Introduction to Computerized Accounting Package i.e. “TALLY”:** Creation of Company. Gateway of Tally: Masters, Transactions & Reports. Alteration of Company. Features & Configuration. (Lecture 08)

Text Books:

Reference Books:

*Latest editions of all the suggested books are recommended.*
Semester IV
SOFTWARE ENGINEERING

Course Code: BCA402  L-6, T-0, P-0, C-6

Course Contents

Unit I
Introduction: Software Engineering approach, SDLC, Software Crisis, Software Process, Process models (Waterfall, Prototype, Iterative, Evolutionary and Spiral model)  (Lecture 08)

Unit II
Software Requirement: Analysis and Specifications DFDs, Software Requirement Specifications, Steps for constructing good SRS.  (Lecture 08)

Unit III

Unit IV
Software Testing: Validation and Verification, Black Box testing approach, White Box testing approach, Levels of testing: Unit Testing, Integration Testing, Validation testing.  (Lecture 08)

Unit V

Text Books:

Reference Books:
1. Sommerville Ian, Software Engineering, Pearson Education

*Latest editions of all the suggested books are recommended.
Semester IV
DATABASE MANAGEMENT SYSTEM

Course Code: BCA403       L-5, T-0, P-0, C-5

Course Contents

Unit I (Lecture 10)
Introduction: Elements of Database System, Characteristics of database approach, File system versus DBMS, data models, DBMS architecture and data independence. Role of DBA, DDL, DML and DCL.

Unit II (Lecture 10)
E-R Modeling: Entity types, entity set, attribute and key, relationships, relation types, roles and structural constraints, weak entities, enhanced E-R and overview of object modeling. Specialization and generalization.

Unit III (Lecture 10)
Relational Data Model: Relational model concepts, relational constraints, relational algebra. SQL: SQL queries, programming using SQL, Integrity Constraints, Roles and privileges.

Unit IV (Lecture 10)
Data Normalization: Functional dependencies, Normal form up to 3rd normal form & BCNF

Unit V (Lecture 10)
Concurrency Control: Transaction processing, locking techniques, database recovery, security and authorization. Overview of recovery techniques and Database Security.

Text books:

Reference Books:

*Latest editions of all the suggested books are recommended.
Semester IV
OBJECT ORIENTED PROGRAMMING’S (OOPs) AND C++

Course Code: BCA404        L-6, T-0, P-0, C-6

Course Contents

Unit I

(Lecture 08)

Unit II
Classes and Objects: Encapsulation, abstract data types, Object & classes, attributes, methods, C++ class declaration, State identity and behavior of an object, Constructors and destructors, object types, Metaclass /abstract classes.

(Lecture 08)

Unit III
Inheritance: - Access specifiers, Types of inheritance, Ambiguity resolution in Multiple Inheritance, Constructor calling (Implicit and Explicit Constructor call) to base class, Containership and inheritance. Virtual Base Class,

(Lecture 08)

Unit IV
Friend :-Friend Function, Friend Member Function and Friend Class.
Polymorphism :- Function Overloading , Operator overloading , operator overloading using friend. Virtual function & Pure Virtual function.

(Lecture 08)

Unit V
File Handling
Stream Classes Hierarchy, Opening and closing FILE, Read and write in file. File pointers and Manipulations. Error Handling in File Operation. Command line Argument

(Lecture 08)

Text Books:
1. Lafore R., Object Oriented Programming using C++, Galgotia

Reference Books:

*Latest editions of all the suggested books are recommended.
Semester IV
MANAGEMENT INFORMATION SYSTEM

Course Code: BCA405        L-4, T-0, P-0, C-4

Course Contents

Unit I
An Overview of Management Information Systems: Types of information systems, Definition of a management information system, MIS & Decision Support Systems, Concept of an MIS.
  (Lecture 08)

Unit II
  (Lecture 08)

Unit III
  (Lecture 08)

Unit IV
  (Lecture 08)

Unit V
Managing Information Technology: Managing Information Resources and technologies, Global information technology, Security and control Issues in Information system, ethical and societal challenges of IT.
  (Lecture 08)

Text Books:

References Books:
1. Murdick, Information System for Modern Management, PHI.
3. Jain Sarika, Information System, PPM
4. Davis, Information System, Palgrave Macmillan

*Latest editions of all the suggested books are recommended.
Semester-IV
TECHNICAL COMMUNICATION

Course code: BCA406
(Common with EHM 401/BPH406/BBA406/ BHM401/BCH406/BFA403)

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Course Contents:

Unit I

**Communication:** Objectives of Communication, Need for Communication, Types of communication, written & Verbal communication, Formal and informal communication (The grapevine), upward and downward communication. (10 Hours)

Unit II

**Business communication:** Importance of written business correspondence, General principles and essentials of good commercial correspondence, Different types of commercial correspondence & their drafting, Types of Business letters, Official letters, electronic communication process. (10 Hours)

Unit III

**Project, Thesis and Dissertation writing:** Project Report, Thesis & Dissertation writing Structure of Thesis writing. (10 Hours)

Unit IV

**Modern Technology and Communication:** Globalization of Business, Role of Information Technology, Tele-communication, Internet, Tele-conferencing and Video-conferencing. (10 Hours)

Text Books:

Reference Books:

**NOTE:**
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students’ interest in language learning.

* Latest editions of all the suggested books are recommended.
Semester IV
DATABASE MANAGEMENT SYSTEM- LAB

Course Code: BCA451        L-0, T-0, P-4, C-2

Course Contents

The Programme to be implemented using SQL

1. Create Table, insert data into tables, Deletion, Updation
2. Retrieval of data using SQL statement with all possible clauses.
3. Using aggregate function
4. Using group by and having clause
5. Write query for Join, set operation
6. Creating View
Semester IV
OBJECT ORIENTED PROGRAMMING’S (OOPs)
AND C++ LAB

Course Code: BCA452 L-0, T-0, P-6, C-3

Course Contents

Write programs in C++ for
1. Program illustrating basic input/output operations using CIN, COUT.
2. Implementing class and objects.
3. Implementing function overloading.
4. Implementing various constructors and destructor
5. Program illustrating overloading of various operators.
6. Program illustrating use of Friend, Inline, Static Member functions, default arguments.
7. Program illustrating various forms of Inheritance
8. Program illustrating use of virtual functions, virtual Base Class.
Semester V
LINUX INTERNALS

Course Code: BCA501
Course Contents

Unit 1
Linux Introduction and File System: Basic Features, Advantages of Linux, Disadvantages of Linux Installing requirement, Installing the Linux system, Basic Architecture of Unix/Linux system, Kernel, Shell. Linux File system-Boot block, super block, Inode table, data blocks, How Linux access files, storage files, Linux standard directories.
(Lectures 08)

Unit 2
(Lectures 08)

Unit 3
Linux Essential Commands: pwd, cd, ls, who, whoami, which, cp, mv, rm, mkdir, touch, hostname, cat, cal, mount, umount, login, logout, echo, wget, wc, grep, dd, test, chmod, date, du, head, tail, id, kill, ln, more, less, find.
(Lectures 08)

Unit 4
VI EDITOR A Text Editor
Vim: Modes of Operation, The first Editing Session, Block Commands, Search, Find and Replace, Delete and Paste, Yank and Paste, Set Commands, Customizing The vi Environment, Multiple File Editing in vi, Command Line Options in vi.
Shell Programming I
Shell Variables, Shell Keywords, Another way of Assigning Values to Variables, Unix-defined or System Variables, Unchanging Variables, Positional parameters, Passing Command Line Arguments, Setting Values of Positional Parameters, Displaying Date in Desired Format, Using Shift on Positional Parameters, Arithmetic in Shell Script, tput Command.
(Lectures 08)

Unit 5
Shell Programming II
(Lectures 08)

Text Books:
1. Unix – Sumitaba Das
2. Unix Shell Programming – Yashwant Kanetkar, Bpb Publications,

Reference Books:
1. Using Linux By Jack Tackett, David Gunter, Phi, Eee Edition
2. Red Hat Linux Bible –Christopher Negus, Idg Books India Ltd.
3. Linux Installation And Administration, Nicholas Wells, Course Technology (Vikas Publishing, New Delhi).

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Semester V
VB.NET

Course Code: BCA502 L-6, T-0, P-0, C-6

Course Contents

Unit I

Unit II
The VB.NET IDE: The VB.NET IDE: The start page, Menu and Tool Bar, Toolbox, Solution Explorer, Properties Window, Task List and Output Window, Server Explorer, Keywords, variables, Data types, Operators, Decisions with if statement, Select Case statements, Loops, Arrays. (Lecture 08)

Unit III
Procedures, Class and Objects, Error Handling, Working with Textbox, Buttons, Labels, Checkbox, Radio Buttons, List box, Combo Box, Picture Box, Menu. (Lecture 08)

Unit IV
ADO.NET: ADO.NET Data Namespaces, SqlConnection, SqlCommand, SqlDataAdapter, DataSet Class, Data Binding, Data View. (Lecture 08)

Unit V
Building Forms, GDI+ (Graphics Handling), Windows Services, Web Services, Web Forms. Case study based on Chat applications. (Lecture 08)

Text Books:

Reference Books:
2. Blair Richard & Crosland Jonathan *Professional VB.NET*, Willy

*Latest editions of all the suggested books are recommended.*
Semester V
COMPUTER NETWORKS

Course Code: BCA503       L-5, T-0, P-0, C-5

Course Contents

Unit I
Networks: Goal and applications, Network Criteria, Types of network, Network Topologies, Network architecture, Internetworks, OSI and TCP/IP model. (Lecture 08)

Unit II
Transmission Media: Type of guided and unguided Media, Modems, Network Interface Card, Attenuation, distortion, noise, Switching Theory: Circuit switching, Packet switching. (Lecture 08)

Unit III
Channel Allocation, FDM, TDM, Aloha Protocol, CSMA/CD Protocols, Collision free Protocols. Framing, Error Correction and detection, sliding window protocols. (Lecture 08)

Unit IV
Introduction to Routing Algorithms, Congestion control and prevention policies, Point to point network protocol, IP Protocol, IP addressing, sub netting, Network Devices-Repeaters, bridges, hubs, routers, gateways (Lecture 08)

Unit V
Transport Layer: TCP, UDP, Socket address, Port Address, Security Threats, Firewall Application layer: Introduction to WWW, Message security. (Lecture 08)

Text Books:
3. Godebole, *Data Communication and Networking*, TMH

Reference Books:

*Latest editions of all the suggested books are recommended.*
Semester V
INTRODUCTION TO OPERATION RESEARCH

Course Code: BCA504        L-5, T-0, P-0, C-5

Course Contents

Unit I

**Introduction to operation research (OR):** Nature and meaning of ‘OR’, Principles of Modeling, General Methods for solving ‘OR’ Models, Main Characteristics of ‘OR’, Main phases of ‘OR’, Scope of ‘OR’, Role of ‘OR’ in decision making, Quantitative techniques of ‘OR’, Development of ‘OR’ in India, Role of computers in Operation Research.  

*(Lecture 08)*

Unit II

**Linear Programming Problems (LPP):** Definition of LPP, Graphical Solutions of Linear Programming Problems, Simplex Method and Artificial Variable Method, Two Phase Method.  

*(Lecture 10)*

Unit III

**Transportation Problems:** Introduction to Transportation Model, Matrix Form of TP, Applications of TP Models, Basic Feasible Solution of a TP, Degeneracy in TP, Solution Techniques of TP, Different Methods for Obtaining Initial Basic Feasible Solutions viz. Matrix Minima Method, Row Minima Method, Column Minima Methods, Vogel’s Approximation Method, Techniques for Obtaining Optimal Basic Feasible Solution.  

*(Lecture 10)*

Unit IV

**Assignment Problems:** Definition, Hungarian Method for AP. Travelling salesman problems.  

*(Lecture 04)*

Unit V

**Replacement:** Introduction – Replacement of items that deteriorate with time – when money value is not counted and counted – Replacement of items that fail completely.  

*(Lecture 08)*

**Text Books:**
2. Kapoor V.K., *Operation Research*

**Reference Books:**

*Latest editions of all the suggested books are recommended.*
Semester V
GRAPH THEORY

Course Code: BCA505
L-5, T-0, P-0, C-5

Course Contents

Unit I

Generating function, Recurrence Relation: Introduction, Linear recurrence relation with constant coefficient, Homogeneous solution, Particular solution, Total solution, Solution by the method of generating function. (Lecture 08)

Unit II

Graph: Graphs, sub-graphs, some basic properties, Walks, Path & circuits, connected graphs, disconnected graphs and component, Eular and Hamiltonian graphs, Various operation on graphs and weighted graph. (Lecture 08)

Unit III

Tree: Tree and its properties, circuits, Distance diameters, Radius and pendent vertices, Rooted and binary trees, Counting trees, Spanning trees, Finding all spanning trees of a graph. Cut-sets and cut vertices, some properties, All cut sets in a graph, Fundamental circuit and cut sets. (Lecture 08)

Unit IV

Planar graphs: Combinatorial and geometric dual, Kuratowski to graph detection of planarity, Geometric dual, some more criterion of planarity, Thickness and Crossings. (Lecture 08)

Unit V

Coloring and covering partitioning of graph, Chromatic number, Chromatic partitioning, Chromatic polynomials, Matching and covering, four color problem, Five Color Problems. (Lecture 08)

Text Books:
1. Deo Narsing, Graph Theory with Applications to Engineering & Computer Science, Prentice Hall of India.
2. Gupta S.C., Combinatorics & Graph Theory
3. Liu C. L., Discrete Mathematics, TMH

Reference Books:
1. Tremblay & Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw Hill
2. Joshi K.D., Fundamental of Discrete Mathematics, New Age International
3. John Truss, Discrete Mathematics for Computer Scientist, Addition Wesley

*Latest editions of all the suggested books are recommended.
Semester V
DISCRETE MATHEMATICS

Course Code: BCA506   L-5, T-0, P-0, C-5

Course Contents

Unit I
Propositional Calculus: Propositions, Truth tables, Logical Equivalence, Logical implications, Algebra of propositions, Conditional propositions, Bi-conditional statements, Negation of Compound statements, Tautologies and Contradiction, Normal Form, Arguments, Fallacies.  (Lecture 08)

Unit II
Boolean algebra and Circuits: Boolean Expression, Logic Gates, Logic Circuits, Boolean Functions, Sum of Product and Product of Sum Forms, Canonical Forms, Simplification of functions using K-Map.  (Lecture 08)

Unit III
Set Theory: Basic concepts of Set theory, some operations on sets, Venn diagram, Basic Set identities, Cartesian product.
Relation: Definition, Types of relation, Pictorial representation of relation, Composition of Relation, Equivalence relation.
Function: Definition, Classification of function. Types of function (one to one, many to one, into, onto, objective), Composition of function, Inverse function, Identity function.  (Lecture 08)

Unit IV
Combinatorics: Fundamental principles, Permutation and Combination, Recurrence Relation, Generating Function.  (Lecture 08)

Unit V
Graphs and Trees: Introduction to graphs, Graph terminology, Application of Graphs, Finite and Infinite graphs, Incidence and Degree, Isolated vertex, Pendent Vertex, and Null graph.  (Lecture 08)

Text Books:
1. Sarkar Swapan Kumar, Discrete Mathematics, S Chand
2. Narsingh Deo, Graph Theory with Applications to Engineering and Comp. Science, Prentice Hall of India.

Reference Books:
1. Liu C.L., Elements of Discrete Mathematics, TMH

*Latest editions of all the suggested books are recommended.
Semester V
COMPUTER GRAPHICS

Course Code: BCA507 L-5, T-0, P-0, C-5

Course Contents

Unit I
Introduction: Application areas of Computer Graphics, overview of graphics systems. Graphics primitives: video-display devices, and raster-scan systems, random scan systems. (Lecture 08)

Unit II
Plasma displays, LCD, Plotters, printers, graphics monitors and workstations and input devices, input techniques. Output Primitives: Points and lines, line drawing algorithms, circle drawing algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms. (Lecture 08)

Unit III
2-D Geometrical Transforms: Translation scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems. (Lecture 08)

Unit IV
2-D Viewing: The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm. (Lecture 08)

Unit V
Computer Animation: Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications. (Lecture 08)

Text Books:
2. VanDam, Feiner & Hughes, Computer Graphics Principles &Practice, Pearson Education.

Reference Books:

*Latest editions of all the suggested books are recommended.
Semester-V
BUSINESS COMMUNICATION

Course code: BCA508
(Common with BBA504/BCH506/BCH506)

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Course Contents:

Unit I
**Business Communication:** Importance of written business correspondence, Essentials of good commercial correspondence, Components of commercial correspondence, Different types of commercial correspondence & their drafting, Official letters, electronic communication process. (10 Hours)

Unit II
**Employment communication:** Interview, Types of interview, candidate’s preparation, Impact of Technological advancement on Business communication. (10 Hours)

Unit III
**Other Forms of Technical Communication:** Bio-Data Making, Resumes, Writing Job application. (10 Hours)

Unit IV
**Negotiating:** The Art of Negotiation, Some truths about negotiation, Common hurdles in negotiation, Negotiating cultural diversities. (10 Hours)

Text Books:

Reference Books:

**NOTE:**
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students’ interest in language learning.

* Latest editions of all the suggested books are recommended.
Evaluation Process

Project Guide/Supervisor of the project will be nominated by Head of Department and the internal evaluation shall be done by three faculty members committee nominated by the Director of the college.

The external evaluation will be done by the external examiner arranged by examination branch of the university.
Course Code: BCA552

Course Contents

Write programs in VB.NET Illustrating

- The use of sequence, conditional and iteration construct.
- Various operators like logical, arithmetical, relational, etc.
- Overloading of various operators.
- Use of Friend, Inline, and Static Member functions, default arguments.
- Various forms of Inheritance.
- File operation.
- Use of ADO.NET
Course Code: BCA553        L-0, T-0, P-2, C-1

Course Contents

Use of different commands CD, LS, CP, MD, RM, MKDIR, RMDIR, more, less, creating and viewing files, using CAT, file comparisons, View files, disk related commands, checking disk free spaces.

batch commands, kill, PS, who, sleep, Printing commands, grape, FGREP, find, sort, Cal, banner, touch, file, file related commands-WS, SAT, CUT, GREP, DD, etc. Mathematical commands- BC, EXPR, FACTOR, UNITS. VI EDITOR

Shell Programming conditional and looping statements, case statements, parameter passing and arguments, Shell variables, shell keywords, Creating Shell programs

DDA algorithm, Bresenham’s algorithm for line, generation of circle, rotating a triangle.
Course Code: BCA601       L-6, T-0, P-0, C-6

Course Contents

Unit I
Web: History of the web, Growth of the Web, Protocols governing the web, Introduction to Cyber Laws in India, Introduction to International Cyber laws.  (Lecture 08)

Unit II
HTML: Formatting Tags, Links, List, Tables, Frames, forms, Comments in HTML, DHTML. (Lecture 08)

Unit III
XML: Introduction, Displaying an XML Document, Document type definitions. (Lecture 08)

Unit IV
Common Gateway Interface (CGI), PERL, RMI, COM/DCOM, VBScript. (Lecture 08)

Unit V
Java Script: Introduction to Documents, forms, Statements, functions, objects in JavaScript, Arrays, FORMS, Buttons, Checkboxes, Text fields and Text areas. (Lecture 08)

Text Books:

Reference Books:
2. DON Box, Essential COM, Addison Wesley.

*Latest editions of all the suggested books are recommended.
Semester VI
INTERNET AND JAVA PROGRAMMING

Course Code: BCA602        L-6, T-0, P-0, C-6

Course Contents

Unit I
Internet: Internet, Connecting to Internet: Telephone, Cable, Satellite connection, Choosing an ISP, Introduction to Internet services, E-Mail concepts, Sending and Receiving secure E-Mail, Voice and Video Conferencing.  

(Lectures 08)

Unit II
Core Java: Introduction, Operator, Data type, Variable, Arrays, Control Statements, Methods & Classes, Inheritance, Package and Interface, Exception Handling.  

(Lectures 10)

Unit III

(Lectures 08)

Unit IV

(Lectures 8)

Unit V
JDBC: Introduction to JDBC, Types of JDBC Drivers, JDBC-ODBC Bridge, Connecting to a Database, retrieving data from a Database, Introduction to Java Server Pages (JSP).  

(Lectures 08)

Text Books:
1. Margaret Levine Young, The Complete Reference Internet, Tata Mc Graw Hill

Reference Books:
2. Cay Horstmann, Gary Cornell, Core Java, Volume 1
3. Steven Holzner, Java2 Black Book, Dreamtech

*Latest editions of all the suggested books are recommended.
Semester VI
MULTIMEDIA AND ANIMATION

Course Code-BCA603       L-6, T-0, P-0, C-6

Course Contents

Unit I


(Lecture 08)

Unit II

Text, sound (MIDI), Digital Audio, Audio File, Formats, MIDI under Windows environment, Audio & Video Capture.

(Lecture 08)

Unit III

Macromedia products, Basic drawing techniques, Creating multi layer combining interactivity and multiple scenes.

(Lecture 08)

Unit IV


(Lecture 08)

Unit V


(Lecture 08)

Text Books:

Reference Books:
2. Rosch, *Multimedia Bible*, SAMS Publishing

*Latest editions of all the suggested books are recommended.*
Semester-VI
COMMUNICATION TECHNIQUE

Course code: BCA604
(Common with EHM601/BPH606/BBA603/BCH606/BHM601)

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Course Contents:

Unit I
**Oral Communication:** Principles of effective oral communication, Features, Vitals of communication, Interpersonal communication, Persuasive communication. (10 Hours)

Unit II
**Presentation Strategies:** Purpose, Audience & Locale, Organizing contents, Preparing outlines. Audio-Visual aids, Body Language, Voice dynamics. (10 Hours)

Unit III
**Listening Skills:** The Listening process, Hearing & listening, Types of listening, Listening with a purpose, Barriers to listening, Telephonic conversation. (10 Hours)

Unit IV
**Speaking Skills:** Improving voice & speech, Art of public speaking, Using visual aids, Job interview being interviewed by the media, Dealing with the boss. Dealing with subordinates, How to run a meeting. (10 Hours)

Text Book:

Reference Books:

**NOTE:**
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students’ interest in language learning.

* Latest editions of all the suggested books are recommended.
Course Contents

The students are advised to get exposed to web technologies like HTML, XML and their variants as well as Java Programming

- Write HTML/Java scripts to display your CV in Web Browser.
- Creation and annotation of static web pages using any HTML editor.
- Write a program to use XML and JavaScript for creation of your homepage.
- Write a program in XML for creation of DTD which specifies a particular set of rules.
- Create a Style sheet in CSS/XSL and display the document in Web Browser.
- Write a program in Java for illustrating, overloading, over riding and various forms of inheritance.
- Write programs to create packages and multiple threads in Java.
- Write programs in Java for event handling Mouse and Keyboard events.
- Using Layout Manager create different applications.
- Write programs in Java to create and manipulate Text Area, Canvas, Scroll Bars, Frames and Menus using swing/AWT.
- Using Java create Applets.
- JDBC-ODBC Connectivity.
Semester VI
MULTIMEDIA AND ANIMATION-LAB

Course Code: BCA652        L-0, T-0, P-6, C-3

Course Contents

- Web Page designing using Basic Tags in HTML.
- Introduction to JavaScript.
- CSS designing using Dreamweaver.
- CSS-JavaScript Communication
- Dynamic HTML Pages using CSS-JavaScript.
- Creating small Animations using CSS.
- Introduction to Adobe Photoshop.
- Design frames using Adobe Photoshop.
Course Code: BCA653

Semester VI
PROJECT WORK

L-0, T-0, P-6, C-3

Project work to be carried out on either of the following categories:
1. Client Server Based (VB.Net/Java)
2. MIS Based (VB.Net/Java/C-C++)

Evaluation:

Project Guide/Supervisor of the project will be nominated by Head of Department and the internal evaluation shall be done by three faculty members committee nominated by the Director of the college.
The external evaluation will be done by the external examiner arranged by examination branch of the university.