GANPAT UNIVERSITY  
FACULTY OF COMPUTER APPLICATIONS  
Program Structure for Bachelor of Computer Applications (B.C.A.)

**TEACHING SCHEME**

Notation:  
A= Core Courses and Complementary Courses  
B= Common Courses / Open Courses

### SEMESTER-I

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Objective: The objective of this course is to learn programming language concept, to develop logic for programming using algorithm and basic knowledge about C Programming.

Total Sessions: (45 Theory + 60 Practical)

Details (no of session(hrs))

Fundamental of Algorithms (2.5)
- Introduction AND importance, Algorithm Development Method (0.5)
- Developed algorithm for (02)
  - Exchanging the values of two variables, Summation of a set of numbers, Reversing the digits of given integer, to check number is prime or not, factorial computation

Fundamental of Flowchart (03)
- Introduction and usages, Flowchart Development Method (01)
- Developed flowchart (02)
  - Exchanging the values of two variables, Summation of a set of numbers, Reversing the digits of given integer, To check number is prime or not, factorial computation

Overview of C (2.5)
- History of C, Importance of C (01)
- Basic Structure of C Programs (01)
- Programming Style, Executing ‘C’ Program (0.5)

Constants, Variables and Data Types (6)
- Programming importance (0.5)
- Character set, C tokens (1.5)
- keywords, identifiers AND constants (01)
- variables, rules and scope, declaration of variables, assigning value to variable defining, symbolic constants (1.5)
- data types (1.5)

Operators and Expression (11)
- Programming importance (0.5)
- Arithmetic, relational, logical, assignment, increment-decrement, conditional, bit-wise and special (06)
- Arithmetic expressions, evaluation of expressions, precedence of arithmetic operators (01)
- Type conversions in expressions, operator precedence and associatively, mathematical functions(0.5)
- Managing Input and Output Operators: Reading and writing a character formatted input-output (03)

Decision Making, branching and debugging (10)
- Programming importance (01)
- Simple IF statement, IF-ELSE statement (02)
- Nesting of IF ... ELSE statements (01)
- ELSE IF ladder (01)
- Switch statement (1.5)
- turnery (? :) operator and goto statement (1.5)
- Introduction to debugging and programme testing (02)
Note for Examiner:

Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given.

Paper Structure:

Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
    Questions must be covered all possible section.
Q-2 Must be from topics: Fundamental of Algorithms, Fundamental of Flowchart: (05 marks)
Q-3 Must be from topics: Overview of C, Constants, Variables and Data Types: (05 marks)
Q-4 Must be from topics: Operators and Expression: (06 marks)
Q-5 Must be from topics: Decision Making, branching and debugging: (07 marks)
Q-6 Must be from topics: Decision Making and Looping: (07 marks)

Reference Book:
1. Programming in ANSI-C By E. Balaguruswami, TMH Publication
2. How to Solve it by Computer, R.G.Dromey, PHI Publication
3. Let us C By Yashwant Kanetkar, BPB Publication
4. C Programming language By Kernighan, Brian, W, Retchie, Dennis PHI publication
5. Programming in C By Pradip dey and Manash Ghosh

Decision Making and Looping (10)
- Programming importance (01)
- Looping statements
  - WHILE (02)
  - DO WHILE (02)
  - FOR (02)
- Nesting and Jumps in loops (02)
- Break & continue (01)
GANPAT UNIVERSITY,
FACULTY OF COMPUTER APPLICATIONS
B.C.A. SEMESTER-I
U31A2OAT: OFFICE AUTOMATION TOOLS

<table>
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<tr>
<th>Teaching Scheme (Hrs Per Week)</th>
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**Objective:** The objective of this course is to learn Basic Application software which are always used in Office Automation.

**Total Sessions:** (45 Theory + 60 Practical)

**Details (no of session hrs)**

**DOS (07)**
- Introduction to DOS, Loading DOS, System prompt, Drive and its operations, Introduction to File & Directory (01)
- Internal and external dos commands (04)
- Batch file (02)

**Window (05)**
- Introduction of windows, The desktop, Working with window and mouse, Working with My computer, Windows explorer (01)
- Recycle bin, notepad, calculator, WordPad, paint (04)

**MS-Word (10)**
- Introduction to word, Applications of word processing, Editing a document, move and copy Text, Find and Replace Text, Spell Check (2)
- Formatting Text and Paragraph, border and shading, page formatting, Bullets & Numbering, Page Setup (2.5)
- Different Views of document and its use, working with graphics, wordart (0.5)
- Tables and Other Features, Use of Formula in Table (02)
- Mail Merge (2)
- Format painter, Header, Footer, Footnote and End notes, autocorrect and auto text (01)

**MS-Power point and Computer Virus (11)**
- Introduction to PowerPoint, Creating a Presentation, PowerPoint views, Slide show, Formatting slides, Slide transition & adding special effects, Inserting pictures, sound, chart. (5)
- Introduction to Computer Virus, how does it spread? Symptoms of it, Types of Virus, Antivirus, prevention from Virus. (6)

**MS-Excel (12)**
- Introduction to Worksheet and Work Book, Application of Excel, Cell, Addressing modes, Move/Copy text, Insert/Delete Rows and Columns (3)
- Formatting a Worksheet, Print the workbook, Charts, Naming Ranges, and Conditional Formatting, Filtering the data from database (2)
- Drawing toolbar, Freeze Panes, Splitting the worksheet. (1)
- Goal Seek, Pivot table and Hyperlinks (2)
- Functions: Date and Time function, Statistical, Math and Financial Functions, Database functions (4)

**Reference Book:**
Note for Examiner:
Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given.

Paper Structure:
Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
    Questions must be covered all possible section.
Q-2 Must be from topics: DOS and Windows: (08 marks)
Q-3 Must be from topics: MS Word: (07 marks)
Q-4 Must be from topics: MS-Power Point and Computer Virus: (7 marks)
Q-5 Must be from topics: MS-Excel: (8 marks)
GANPAT UNIVERSITY  
FACULTY OF COMPUTER APPLICATIONS  
B.C.A. SEMESTER-I  
U31A3FAT: FINANCIAL ACCOUNTING WITH TALLY

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<tr>
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<td>INTERNAL Th. Pr. EXTERNAL Th. Pr. TOTAL Th. Pr.</td>
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**Objective:** The objective of this course is to learn Financial Accounting Concept and how to keep computerised accounting with TALLY Software.

**Total Sessions:** (45 Theory + 60 Practical)

**Details (no of session (hrs))**

**Accounting (16)**
- Definition, advantages, limitations, Methods of Accounting (Deshi Nama, Double Entry, Single Entry) (03)
- Branches of Accounting – Financial Accounting – Cost Accounting – Management Accounting, users of Accounting information (01)
- Types of Accounts and Rules of Debit and Credit, Cash and Credit b Transaction (03)
- Preparation of Journal, Ledger, Subsidiary books and Trial Balance. (06)
- Rectification of Errors (Types of errors, rectification entry only). (03)

**Final Accounts (12)**
- Introduction to Final Accounts (Sole Proprietorship only) (01)
- Preparation of Trading A/c (3.5)
- Preparation of Profit & Loss A/c (3.5)
- Preparation of Balance Sheet covering simple adjustments (04)

**Analysis of financial statements using : Accounting Ratios (10)**
- Meaning, Advantages and Limitations of Accounting ratios. (03)
- Computation of following ratios. (7)
  - Gross Profit Ratio, Gearing Ratio, Net Profit Ratio, Debtors Ratio, Stock Turnover Ratio, Creditors Ratio, Operating Ratio, Return on Capital Employed, Current Ratio, Earning Per Share, Liquid Ratio, Return on shareholders’ fund, Proprietary Ratio, Return on Equity Shareholders fund

**Accounting Software : Tally (07)**
- Introduction, Advantages of computerized accounting system, Features of Tally Accounting software (02)
- Company : Company features, create, alter, delete.(01)
- Group and Ledger : Single and multiple (02)
- Voucher Entry : Purchase, Sales, Receipt, Payment, Contra, Journal, Creditnote, debit note. (02)

**Reference Book:**
1. Financial Accounting and Management By Rana T J - B.S.Shah Prakashan
2. Advanced Accountancy By Rana T J -Sudhir Prakashan
3. Tally Instant Reference, A.K.Nadhani  BPB Publication
Note for Examiner:
Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given.

Paper Structure:
Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
  Questions must be covered all possible section.
Q-2 Must be From topics: Accounting: (10 marks)
Q-3 Must be From topics: Final Accounts: (09 marks)
Q-4 Must be From topics: Analysis of financial statements using: Accounting Ratios: (06 marks)
Q-5 Must be From topics: Accounting Software: Tally: (05 marks)
GANPAT UNIVERSITY
FACULTY OF COMPUTER APPLICATIONS
B.C.A. SEMESTER-I
U31A4COA: COMPUTER ORGANIZATION AND ARCHITECTURE

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**Objective:** The objective of this course is to learn Basic Knowledge about Fundamentals of Computer and its architecture.

**Total Sessions:** (45 Theory)

### Details (no of session(hrs))

#### Data Representation and Number System (11)
- Number System: Introduction to Decimal, Binary, Octal, Hexadecimal number system (01)
- Conversation of number from one number system to another number system (like Decimal to Binary etc.) (06)
- Binary Arithmetic: - Addition (Simple Method, Using 1’s Complement, Using 2’s Complement method) (1.5)
- Subtraction (Simple Method) (0.5)
- Multiplication (Simple Method) (01)
- Division (Simple Method) (01)

#### Different Codes (09)
- Representation of Error Detection Codes: Parity Bit Method, Checksum Method (02)
- Representation of Error Correction Code: Hamming Code (02)
- Alphanumeric Codes: ASCII, EBCDIC (02)
- Excess – 3 Code (01)
- BCD Addition Method (01)
- Gray Code: Gray to Binary Conversion, Binary to Gray Conversion (01)

#### Fundamentals of Computer (12)
- Introduction to Ideal Microcomputer (02)
- An Actual Microcomputer: CPU, Address Bus, Data Bus, Control Bus (04)
- Memory: RAM - SRAM,DRAM, ROM - PROM, EPROM, UVEPROM, EEPROM (02)
- History of Microprocessor (01)
- Microcontroller (Application Only) (1.5)
- Addressing Techniques (1.5)

#### Introduction To Digital Electronics (13)
- Logic Gates: Inverter, OR Gate, AND Gate, NOR Gate, NAND Gate, EX-OR Gate, EX-NOR Gate, De'Morgan's Theorems (05)
- Boolean Algebra: Universal Gates (Only for Logic Conversion) (02)
- K-Map Simplifications, Pair, Quad, Octet (upto 4 variables) (03)
- Don't Care Condition (01)
- Arithmetic Logic Unit: Half Adder, Full Adder, Binary Adder, 2's Complement Adder Subtractor (02)

**Reference Book:**
1. Fundamentals of Computers by V. Rajaraman
2. Structured Computer Organization by Andrew S. Tanenbaum
4. Digital Principles and Applications by Albert Paul Malvino and Donald P. Leach
Note for Examiners:

Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given.

Paper Structure:

Q-1 Attempt any Six Out of Nine: Each question must be 5 marks: (30 Marks)
  Questions must be covered all possible section.
Q-2 Must be from topics: Data Representation and Number System: (08 Marks)
Q-3 Must be from topics: Different Codes: (07 Marks)
Q-4 Must be from topics: Fundamentals of Computer: (07 Marks)
Q-5 Must be from topics: Introduction to Digital Electronics: (08 Marks)
GANPAT UNIVERSITY
FACULTY OF COMPUTER APPLICATIONS
B.C.A. SEMESTER-I
U31B5LCS: LANGUAGE AND COMMUNICATION SKILLS-I

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**Objective:** The objective of this course is to learn Basic English Grammar, Technical Communication skill and Language Skills. It is designed to enable the student to acquire proficiency that is at par with satisfactory accomplishment of Level - 1 (Intermediate ESL). To develop the skills of the professional undergraduate students for proper self-expression, social communication, spoken English, correct pronunciation and business etiquettes. The students should improve their personality, communication skills and enhance their self-confidence.

**Total Sessions:** (45 Theory)

**Details(no of session(hrs))**

**Enriching Vocabulary (06)**
- Synonyms & Antonyms (01)
- Prefixes & Suffixes (01)
- Word Often Confused (02)
- Word Followed by appropriate preposition (01)
- Compound Words (01)

**Introduction to Communication (09)**
- Introduction of communication, (1)
- Cycle of Communication, (2)
- Importance of effective communication (01)
- Verbal and Non-Verbal Communication (03)
- 7Cs of Communication (1)
- principles of communication (01)

**IT and Medias of Communication (10)**
- Talex (01)
- Facsimile (01)
- Email (01)
- Voice mail (01)
- Internet Multimedia (01)
- Teleconferencing (01)
- Audio conferencing (01)
- Video Conferencing (01)
- SMS (01)
- Telephone Answering Machine (01)

**Communication for Administration of personal department (11)**
- Types of Application letters- Solicited and Unsolicited (01)
- The form & Content of an application letters, bio-data (02)
- Specimen application letters (02)
- Interview Letters, Reference Letter, Testimonials Letter, Letter of appointment (03)
- Letters of confirmation, Promotion & Retirement, Resignation letters, Leave Application, etc. (03)

**Selected Short Stories (09)**
- A cup of Tea – Katherine Mansfield (03)
- The Post Master – Rabindranath Tagore (03)
- How much Land Does a Man Need? Leo Tolstoy (03)
Text & Reference Books:

1. C. S. Sharma-Twelve Short-Stories, OUP
3. Rhoda Doctor -Principles and Practice of Business Communication-Sheath publishers.
9. Rogets Thesaurus

Note for Examiners:

Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given

Paper Structure:

Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
  Questions must be covered all possible section.
Q-2 Must be from topics: Enrich vocabulary: (04 marks)
Q-3 Must be from topics: Introduction to Communication: (06 marks)
Q-4 Must be from topics: IT and Medias of Communication: (06 marks)
Q-5 Must be from topics: Communication for Administration of personal department: (08 marks)
Q-6 Must be from topics: Selected Short Stories: (06 marks)
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FACULTY OF COMPUTER APPLICATIONS
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TEACHING SCHEME

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GANPAT UNIVERSITY
FACULTY OF COMPUTER APPLICATIONS
B.C.A. SEMESTER-II
U32A1LDP: LOGIC DEVELOPMENT WITH PROGRAMMING-II

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Objective: The objective of this course is to learn advance knowledge about C Programming.

Total Sessions: (60 Theory + 90 Practical)

Details(no of session(hrs))

Arrays (08)
- Introduction to Array and Dimensions in array (02)
- Concept of One Dimensions array and initialization of values in one dimension array (02)
- Concept of Two Dimensions array and initialization of values in two dimension array (02)
- Overflow and Underflow in arrays (01)
- Concepts of Multidimensional Array (01)

Character Arrays & strings (08)
- Introduction of character arrays, Declaring and initializing string variables (02)
- Reading string from terminal and Writing string to screen (01)
- Arithmetic operations on characters (01)
- String Operations with string Handling functions (03): String Copy, String Compare, String Concatenation And String Length
- Table of strings (01)

User-Defined Functions (13)
- Introduction of UDF and Need for user-defined functions (01)
- The form of c function and Return values and their types (02)
- Calling a function (01)
- Category of functions (04): no arguments and no return values, arguments with return values
- Handling of non-integer functions (01)
- Nesting of functions (01)
- Recursion (01)
- Functions with arrays (01)
- The scope visibility and lifetime of variables in functions (01)

Structures and Unions (08)
- Introduction to Structure, defining structure variable (01)
- Assigning values into members, structure initialization (01)
- Copy and comparison of structures(variables) (01)
- Structure and arrays: arrays of structures, arrays within structures (02)
- Structures within structures, Structure and function (02)
- Introduction to union (01)

Pointers (10)
- Introduction of pointers, Declaring and initializing pointers (01)
- Accessing the address of variable and variable through its pointer (01)
- Pointer expressions, incrementing a pointer and scale factor (01)
- Pointers and arrays (02)
- Pointers and character strings (02)
- Pointers and Functions (02)
- Pointers and structures (01)

File Management in C (08)
- Introduction, Defining files (01)
- File Operations (02)
- Error handling during I/O operations (01)
- Random access files (02)
- Command line arguments (02)
The Preprocessors (05)
- Introduction of Preprocessors (01)
- Macro Substitution (1.5)
- File Inclusion (01)
- Compiler control Directives (1.5)

Reference Book:
1. Programming in ANSI-C By E. Balagurswami, TMH Publication
2. Programming in C By Pradip dey and Manash Ghosh
3. Let us C By Yashwant Kanetkar, BPB Publication

Note for Examiners:
Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given.

Paper Structure:
Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
Questions must be covered all possible section.

Q-2 Must be From topics: Arrays, Character Arrays & Strings: (05 marks)
Q-3 Must be From topics: User-Defined Functions: (06 marks)
Q-4 Must be From topics: Structures and Unions: (06 marks)
Q-5 Must be From topics: Pointers: (06 marks)
Q-6 Must be From topics: File Management in C and The Preprocessors: (07 marks)
GANPAT UNIVERSITY  
FACULTY OF COMPUTER APPLICATIONS  
B.C.A. SEMESTER-II  
U32A2BWP: BASIC WEB PROGRAMMING

Teaching Scheme (Hrs Per Week)  

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Examination Scheme (Marks)  

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<tr>
<td>40</td>
<td>20</td>
<td>60</td>
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Objective: The objective of this course is to learn Web and HTML concept and develop websites using different tools.

Total Sessions: (45 Theory + 60 Practical)

Details (no of session (hrs))

Internet Concepts (10)  
- A brief Introduction to the Internet (02)  
- Internet Address, Uniform Resource Locator, Internet Service Provider (02)  
- Intranet, Extranet, Working of Internet (1.5)  
- Hypertext Transfer Protocol, Introduction to World Wide Web, Search Engines (1.5)  
- Introduction to web server and web browser, E-mail (02)  
- File Transfer Protocol (01)

Introduction to HTML (11)  
- Understanding HTML, Create a Web Page (01)  
- Custom Backgrounds and Colors, Linking to other Web Pages, Publishing HTML Pages (02)  
- Basic Tags and attributes (02)  
- Formatting, Tags (1.5)  
- List Tags (1.5)  
- Email Links and link within a Page (01)  
- Creating Web Page Graphics, Putting Graphics on a Web Page (01)  
- Audio & Video in HTML (01)

Advanced HTML and JavaScript (14)  
- Advanced Layout with Tables (1.5)  
- Working with Frame (1.5)  
- Creating HTML Forms (1.5)  
- Cascading Style Sheet (1.5)  
- Class and External Style Sheet (01)  
- Introduction to JavaScript, Variables (01)  
- Using Operators (01)  
- Control Statements (01)  
- JavaScript Loops (02)  
- JavaScript Functions (02)

Macro-Media Dreamweaver (10)  
- Introduction to Dream weaver (01)  
- Site Management, Designing Page Layout (02)  
- Accessing Menus (1.5)  
- Inserting and Formatting Text, Inserting Images (01)  
- Inserting Tables (1.5)  
- Inserting Frames (1.5)  
- Working with Forms (1.5)
Reference Books:
1. SAMS Teach Yourself HTML in 24 hours, Techmedia.
2. Introduction to Internet and HTML Scripting, Bhaumik Shroff
3. Dreamweaver MX Bible, Joseph W. Lowery
4. The complete reference dreamweaver 4, Jennifer Ackerman Ketteell

Note for Examiners:
Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given

Paper Structure:

Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
   Questions must be covered all possible section.
Q-2 Must be from topics: Internet Concepts: (06 marks)
Q-3 Must be from topics: Introduction to HTML: (08 marks)
Q-4 Must be from topics: Advanced HTML: (10 marks)
Q-5 Must be from topics: Macro-Media Dreamweaver: (06 marks)
GANPAT UNIVERSITY  
FACULTY OF COMPUTER APPLICATIONS  
B.C.A. SEMESTER-II  
U32A3ITM: INFORMATION TECHNOLOGY AND SYSTEM MAINTENANCE

<table>
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<th>Teaching Scheme (Hrs Per Week)</th>
<th>Examination Scheme (Marks)</th>
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**Objective:** The objective of this course is to learn about information Technology, computer Peripherals and Computer Maintenance.

**Total Sessions:** (45 Theory + 60 Practical)

**Details(no of session(hrs))**

**Introduction to information technology (08)**
- Data and Information, Features of Information (01)
- Types of Languages, Low level V/s High level languages (01)
- Generations of Programming Language (03)
- Introduction Of Machine Language (01)
- Introduction of Assembly Language (01)
- Fourth Generation Language (01)

**Computer Peripherals (13)**
- Primary Memory : RAM and it’s types (DDRAM, RDRAM, SDRAM) (02)
- Secondary Storage Devices: Floppy Disk, Hard Disk, CD-ROM, DVD (Above all topics Include only principles, types, data storage and Application) (03)
- Input Devices: Key Board, Mouse, Touch screen, Scanner (Above all topics Include only principles, types and Application) (03)
- Output Devices: VDU (Computer Graphics, Working of CRT, Resolution of different VDU), Printer (Characteristic, Classification, Working, principle, Uses) (03)
- Communication Devices: MODEM, NIC (Network Interface Card) (Principles, Baud rate, Application) (02)

**Introduction to language processor, software and communication methods (12)**
- Language Processor: Compilers, Interpreter, Assemblers. (02)
- Difference between Compiler-Assembler-Interpreter (02)
- Types of Software: System Software, Application Software(01)
- I/O Communication Methods: Programmed I/O, Interrupts, Direct Memory Access (DMA) (03)
- Flow Of Control - Types of Instructions : Arithmetic Instruction, Logical Instruction, Branch Instruction (02)
- Instruction Execution (01)
- Sequential Flow of Control and Branches (01)

**System Maintenance & Support (12)**
- PC Assembling and Disassembling
- Configuring and Troubleshooting BIOS Settings
- Installation of Windows XP Professional
- Configuring Windows XP Desktop and Display Settings
- Application Software Installation
- Working with User accounts and Password
- Hardware Device Driver Installation
- Setting up a Network Connection
- Configuring IE, Pop-up blocker, IE security and privacy options
- Working on NTFS permission
- Installing and managing Local and Network printer
- Data Backup and Restore & System Restore
- Disk and Storage Management, Create/Manage Partition using Disk Mgmt Utility (compmgmt.msc)
- Optimizing system Performance using Check Disk, Defragmentation and Disk Cleanup
- Managing services
- Troubleshooting with common issues and Problem Troubleshooting using internet
Reference Book:
1. 'O' Level Simple: Information Technology by Satish Kumar-BPB Publications

Note for Examiners:
Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given.

Paper Structure:
Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
    Questions must be covered all possible section.
Q-2 Must be from topics: Introduction to information technology: (06 Marks)
Q-3 Must be from topics: Computer Peripherals: (08 Marks)
Q-4 Must be from topics: Introduction to language processor, software and communication methods: (09 Marks)
Q-5 Must be from topics: System Maintenance & Support: (07 Marks)
GANPAT UNIVERSITY
FACULTY OF COMPUTER APPLICATIONS
B.C.A. SEMESTER-II
U32A4DM: DISCRETE MATHEMATICS

Teaching Scheme (Hrs Per Week)

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Examination Scheme (Marks)

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Objective: The objective of this course is to learn Discrete mathematics.

Total Sessions: (45 Theory)

Details (no of session (hrs))

Set Theory (09)
- Introduction, Representation of sets, Types of sets (01)
- Venn Diagram, Operations on sets (01)
- Algebra of sets with proof (02)
- Cardinality of sets, Addition theorem and its examples (02)
- Examples on set theory (03)

Function (08)
- Introduction, Definition, Domain, Co-domain and Range of a Function (01)
- Types of Function-Into Function, On To Function, One to one function, Many to One Function, One to One Correspondence and its examples (03)
- Classification of Function-Algebraic Functions, Composite, Identity and Inverse functions, Transcendental Functions, exponential functions and logarithmic functions (04)

Boolean Algebra (09)
- Introduction, Basic Definitions (01)
- Duality, Basic Theorems (03)
- Boolean Algebras as lattices (01)
- Kinds of Lattices (01)
- Representation Theorem, Sum-of-product form for sets, Sum-of-products form for Boolean Algebras (03)

Graph Theory (09)
- Introduction and Data Structures, Kinds of graph, Degree of a vertex (03)
- Complete graph, Regular graph, Cycle, Pendant vertex (02)
- Definitions, Paths Connected Graphs, graph isomorphism, Sub graph, Walks (02)
- Trees, Spanning Trees, Directed graphs (02)

Matrix Algebra (10)
- Determinant, Rules of determinant with examples (01)
- Meaning and Definition of Matrix, Types of Matrices (01)
- Addition and Subtraction of Matrices, Scalar Product of a Matrix with examples (02)
- Multiplication of two Matrices with Examples, Transpose of a matrix, Adjoint matrix (02)
- Inverse of a matrix, Solution of simultaneous equations using matrix, Laws of Matrix Algebra, Examples (04)

Reference Book:
1. Advance Mathematics, Ravi Gor, Nirav Prakashan
2. Advance Mathematics, Prof. H.R. Vyas and Others, B.S. Shah Prakashan
5. Schaum’s outlines Discrete Mathematics Graph Theory, Narsingh Deo

Note for Examiners:
Q-1 Must be common from any topics from syllabus.  
Q-2 And onwards must be from specific topics and internal choice or option can be given.

**Paper Structure:**
Q-1 Attempt any Six Out of Nine: each questions must be 5 marks: (30 Marks)  
Questions must be covered all possible section.  
Q-2 Must be from topics: Set Theory: (06 marks)  
Q-3 Must be from topics: Function: (05 marks)  
Q-4 Must be from topics: Boolean Algebra: (05 marks)  
Q-5 Must be from topics: Graph Theory: (07 marks)  
Q-6 Must be from topics: Matrix Algebra: (07 marks)
Objective: The objective of this course is to learn Business Correspondence, Advance Communication skill and Language Skills.

Total Sessions: (45 Theory)

Details (no of session(hrs))

Flow of Communication (09)

- Channels of Communication (01)
- Vertical – Upward, Downward (02)
- Horizontal- Grapevine, Consensus (Informal Communication)(02)
- With other Organizations – Inward, Out ward (01)
- Communication Networks (01)
- Barriers to Communication (02)

Business Correspondence (09)

- Need, Functions & Kinds of Business Letter (02)
- Essentials of an effective Business letter (01)
- The Layout (03)
- Planning the letters (01)
- Selected Business Terms (02)

Internal Communication (09)

- Office Memorandums (01)
- Office Orders (01)
- Office Circulars (01)
- Report Writing, Individual & Group (03)
- Agenda & minutes of meeting (03)

External Communication (Manufacturing and Service type Business) (09)

- Bank correspondence, correspondence with customers, head office and other bank (02)
- Insurance correspondence, life insurance, fire insurance (02)
- Enquires & Relies, Orders & Their Execution (03)
- Credit & Adjustment (01)
- Collection letters (01)
Selected Short Stories (09)
- A True Story – Mark Twain (03)
- Blow up with the ship – Wilkie Collins (03)
- The Mother – Somerset Maugham (03)

Text & Reference Books:
1. C. S. Sharma-Twelve Short-Stories, OUP
3. By Rajendra Paul - Essentials of Business Communication -Sultan Chand & Sons Publisher
4. By Rhoda Doctor -Principles and Practice of Business Communication-Sheath publishers
5. Business communication-R.C bhatiya
7. Resumes and Interviews by M Ashraf Rizvi- Tata Mc Graw hill

Note for Examiners:
Q-1 Must be common from any topics from syllabus.
Q-2 And onwards must be from specific topics and internal choice or option can be given

Paper Structure:
Q-1 Attempt any Six Out of Nine: each question must be 5 marks: (30 Marks)
    Questions must be covered all possible section.
Q-2 Must be from topics: Flow of communication: (06 marks)
Q-3 Must be from topics: Business correspondence: (06 marks)
Q-4 Must be from topics: Internal communication: (06 marks)
Q-5 Must be from topics: External communication: (06 marks)
Q-6 Must be from topics: Selected Short Stories: (06 marks)