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Subject Name	L	T	P	Credits
Business Communication	3	1	-	4

Course Objective: - Communication skills are important for many professions but are crucial for students to develop their personality. They must be able to adapt their methods of communication to all regardless of ability or learning style.

- Students will demonstrate competency in communication skills related to production and presentation of messages in multiple formats.

- Students will demonstrate competency in critical thinking skills related to the analysis, interpretation, and criticism of messages.

- Students will demonstrate an understanding of multiple theoretical perspectives and diverse intellectual traditions in Communication.

- Students will demonstrate competency in human relational interaction.

- Students will demonstrate competency in the analysis and practice of ethical communication.

- Students will demonstrate an understanding of the importance of free expression and the responsibilities it entails.

Unit - I Fundamentals of Language & Vocabulary

Applied Grammar and usages - Parts of Speech, Determiners, Tenses, Subject-Verb Agreement, Prepositions, Active and Passive Voice, **Reported Speech**: Direct and Indirect, Sentence Structure, Punctuations.

Vocabulary: Origin of words, affixation, Antonyms, Synonyms, one-word substitute, phrasal verbs, idioms, proverbs and jargons.

Unit – II Application of Linguistic ability

Linguistic techniques, English phonetic symbols or signs, Phonetic Transcription, Writing of Definitions of Related terms, objects, processes and principles, Paragraph writing, Precise writing and noting.

Unit – III Skills of Communication

Scope and Significance of Communication Skills, Process of Communication in an Organisation, Types of Communication: Verbal and Non-Verbal Communication, Formal and Informal Channels of Communication, Barriers to communication, Measures to overcome Barriers, Need for Effective Communication, Listening skills.

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Unit – IV Developing Writing Skills

Business Letters: Parts & Layouts of Business Letters, Calling/ Sending Quotations/ Tenders/Orders/ Complaints, Report Writing (Progress, Observation, Survey, Project and Laboratory).

Unit – V Employability And Corporate Skills

Interview skills, Group Discussion, Job Application, CV Writing, Memos and Email writing, Time management and Effective Planning, Negotiation skills, Teamwork, leadership.

References:

- A.J. Thomson and A.V. Martinet, A Practical English Grammar,

- Business Correspondence and Report Writing - By Sharma; TMH.

- Living English Structure – By W.S. Allen; Longmans

- English Grammar – Ehrlich, Schaum Series; TMH.

- Spoken English for India – By R.K. Bansal and IB Harrison Orient Longman.

- New International Business English – by Joans and Alexander; OUP.

- Communication Skills – Dr Neeta Sharma, Effective Technical Communication – Rizvi; TMH.

- Communication for Science & Engineering, by Dr Binod Mishra,

- Business Communication by Dr R.C. Sharma.

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Subject Name	L	T	P	Credit
Mathematics & Statistics	3	1	-	4

Unit I: SETS AND RELATIONS

Set Theory: Definition of sets, countable and uncountable sets, Venn Diagrams, proofs of some general identities on sets. Relation: Definition, types of relation, composition of relations, Pictorial representation of relation, Equivalence relation, Partial ordering relation.

Unit II: GRAPH THEORY

Introduction and basic terminology of graphs, Planer graphs, Multi graphs and weighted graphs, Isomorphic graphs, Paths, Cycles and connectivity, Shortest path in weighted graph, Introduction to Eulerian paths and circuits, Hamiltonian paths and circuits, Isomorphism and Homomorphism of graphs.

Unit III: ERRORS AND SOLUTION OF TRANSCENDENTAL EQUATIONS

Errors & Approximations, Solution of Algebraic & Transcendental Equations: Regular Falsi, Newton- Raphson, Solution of simultaneous linear equations by Gauss Elimination, Gauss Jordan, and Gauss- Siedel Iterative methods.

Unit IV: PROBABILITY

Significant digits and rounding of numbers, data collection, Measures of central tendency, measures of dispersion, Mean, Median, Mode, Range, Standard deviation, Mean deviation, Quartile deviation, Coefficient of Range, Coefficient of QD & QV, Coefficient of Variation, Skewness, Dispersion.

Unit V:

Probability and events, probability distributions, Elements of binomial and poisson distribution, Normal distribution curve and properties, Karl Pearson Coefficients of Correlation or covariance, Rank Correlation Methods, Regression, Properties of Regression Coefficients, Curve Fitting (Method of Least Square).

Reference Books:

1. Advance Engg. Mathematics. By Ramana, Tata McGraw hill.
2. Higher Engineering Mathematics by BS Grewal, Khanna Publication.
3. Advance Engineering Mathematics by D. G. Guffy.
4. Engineering Mathematics by S S Sastri. P.H.I.
5. Mathematics for Engineers by S.Arumungam, SCITECH Publuication.
6. Advanced Engineering Mathematics by Erwin Kreyszig, Wiley India.
7. Deo, Narsingh, "Graph Theory With application to Engineering and Computer Science.", PHI

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Subject Name	L	T	P	Credits
Computer Fundamentals	3	1	4	6

Course Objectives:

- Give students an in-depth understanding of why computers are essential components in business, education and society.

- Gain in-depth knowledge about the general features of a computer

- Learn various types of memory &I/O management schemes.

- Provides knowledge about fundamentals of organization of a computer

- To study different OS and compare their features.

Unit I
Introduction to Computers: Introduction, Characteristics of Computers, Block diagram of computer, Generation of Computers, Types of computers, Mini Computers, Micro Computers, Mainframe Computers, Super Computers etc., Applications of Computers. **Computer Software**: Introduction, Software: Definition, Relationship between Software and Hardware, Software Categories, System Software, Application Software**. Number System**: Decimal, Binary, Octal, Hexadecimal, Conversions of number systems.

Unit II
Basic computer organization: Block diagram of computer, **Input devices**: classification of input devices, **Output devices**: classification of output devices, Printer, types of printers, **Central Processing Unit (CPU)**, Introduction, Elements of CPU: Control Unit (CU), Arithmetic Logical Unit (ALU), Registers, Instruction format Instruction set, Processor Speed, **Memory**: Introduction, memory measuring units, main memory, types of primary memory chips, Secondary storage: Introduction, types of secondary storage devices.

Unit III
SDLC: Software development life cycle, Algorithm: Definition, Characteristics, Advantages and disadvantages, Flowchart: Definition, Define symbols of flowchart, Advantages and disadvantages. **Programming Logic Buildings:** Introduction, Logic Buildings using flowchart and algorithms.

Unit IV
Computer Languages: Machine language, Assembly language, High level language, Program Language Translators: Assembler, Compiler, Interpreter, **Programming Languages**: Introduction, Evolution of Programming Languages, Classification of Programming Languages, Generations of Programming Languages, Features of a Good Programming Language, What are the characteristics of a good program, Top-down design, Bottom-up design.

Unit V
Operating System: Introduction, Operating System, Evolution of Operating System, Types of Operating System, Functions of an Operating System, **Dos**–History, Files and Directories, Internal and External Commands, Batch Files, etc. **Networking Basics:** Introduction, Types

of Networks, Topology, Client-Server Concepts.

Reference Books:

1. Computer Fundamental Organization, B. Ram
2. Computer Fundamentals, Anita Goel, Pearson, 2010.
3. Fundamental of Computers – By V.Rajaraman B.P.B. Publications
4. Fundamental of Computers – By P.K. Sinha
5. Computer Today- By Suresh Basandra
6. Computer Networks- By Andrew S. Tanenbaum

Course Outcomes:

- Bridge the fundamental concepts of computers with the present level of knowledge of the students.
- Familiarise operating systems, programming languages, peripheral devices, networking, multimedia and internet
- Understand binary, hexadecimal and octal number systems and their arithmetic.
- Understand how logic circuits and Boolean algebra forms as the basics of digital computer.
- At the completion of this course students will be introduced to the basics of networking and Logic Building concepts of programming.

List of Experiments

1. Study of Hardware devices like keyboard, Mouse, Monitor, CD –ROM etc.
2. Study of Motherboard and its components.
3. Assembling and disassembling a computer.
4. Study of BIOS settings.
5. Formatting and partitioning Hard disk.
6. Installation of Windows Operating system.
7. Installation of Linux Operating system.
8. Installation of various device drivers like printer, scanner, webcam and motherboard etc.
9. How to create virtual machine and dual boot.
10. Installation of utility software like MS-Office, Photoshop, PDF Readers.
11. Study of Computer Network LAN, MAN, WAN and various networking cables and networking devices.

12. Study of IP-Addressing Schemes.

13. Creating LAN using crossover cable and straight through cable.

14. Sharing and Mapping printer, drives and folders in computer network.

15. Making image of a system.

16. Making bootable pen drive.

17. How to extend the RAM space using pen drive.

18. Accessing Remote Computer using team weaver and windows remote desktop.

19. Study of troubleshooting of hardware and software generated problems.

20. Some Dos (Internal & External commands) and Net Commands.

21. Perform these commands internal commands.

    DIR,TYPE,DEL,ERASE,MD,CD,COPY,RMDIR,VER,DATE,TIME,PAT
    H,CLS,RMDIR,VER,DATE,TIME,PATH,CLS,BREAK, SET,EXIT.

22. Perform external commands. APPEND, CHKDISK,ATTRIB,SYS,EDIT.

23. Write an algorithm for adding 2 no.

24. Write an algorithm for swapping two no using third variable.

25. Write an algorithm for swapping two no without using third variable.

26. Write an algorithm for finding simple interest.

27. Write an algorithm for finding area of circle.

28. Write an algorithm for finding whether a given no is even or odd.

29. Write an algorithm for finding largest no among two no.

30. Draw a flowchart for adding 2 no.

31. Draw a flowchart for swapping two no using third variable.

32. Draw a flowchart for swapping two no without using third variable.

33. Draw a flowchart for finding simple interest.

34. Draw a flowchart for finding area of circle.

35. Draw a flowchart for finding whether a given no is even or odd.

36. Draw a flowchart for finding largest no among two no.

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Subject Name	L	T	P	Credits
Business Automation Tools	3	1	4	6

Course Objectives:

- To study of basic features of windows operating system.
- Use of MS-Word for office documentation both in online and offline mode.
- Use of MS-Excel and its features in office environment to access sharable files.
- Use of PowerPoint and its features for expansion of business and group seminars.
- To work on Google office and permissions.

Unit I
MS Windows: Introduction to windows, Version of windows, Features of windows, My computer and various icons and their use, Working procedure of windows, Tool bars and dialog boxes, Creating files and folders, shutting down computer, Changing desktop background, Setting screen saver, Control panel and various icons, Internet setting, Installation procedure of new hardware or software, Uninstall an existing program, Accessories, Shortcut keys for various operations.

Unit II
MS Word- Introduction, Various features, Shortcuts, menus and all options of each menu, MS Word toolbars and commands, Text editing tools, Formatting tools, Image drawing tools, Table creation, Header and Footer, Find and replace, spell check, Mail merge, Bullets, Numbering, Hyperlinks, Page formatting and styles, Different Page views and page break, Writing in columns, Printing commands, Print preview, Shortcuts of various commands.

Unit III
MS Excel- Introduction, Excel spreadsheet, Cell, Row and Column formatting, menus and all options of each menu, Working with data and range, borders and shading, Various Formulas and calculations, conditions, loops, Filter, Freezing a cell, sorting a column or row data, working with charts, Printing of workbook and worksheets etc.

Unit IV
MS PowerPoint- Introduction, Area of use, Various menus and their options, Adding a new slide, working with slides, Slide layout, Design, Creating a new presentation, Different layouts, Adding Sound to presentation, Movie presentation, Applying animation to a slide, Adding diagrams and pictures to slide, Slide show and various views, Printing a presentation, Preparing handouts.

Unit V
Introduction to Google Office- Working with Docs, Sheets, Slides, Forms, Google Doc Creation, editing, sharing and permission, Google Sheet creation, editing, sharing and permission, Google Slides creation, editing, sharing and permission, Google Form creation, editing, sharing and permission.

Reference Books:

1. Windows XP Complete reference, BPB publications.

2. MS Office XP Complete reference, BPB publications.

3. Office management Tata McGraw-Hill Education, 2009

Course Outcomes:

- Use current and emerging word processing technologies to produce organizational documents and presentation materials.
- Perform the current speed and accuracy requirements for typing and 10-key operation in a business environment.
- Compose business correspondence and create graphics and electronic presentations.
- Perform basic office functions.

List of Experiments

1. Study of all the versions of windows.

2. Shortcut keys of various operations.

3. Steps to change desktop background and screen saver.

4. Study of advance features of MS word.

5. Prepare Time-table in Ms-Word.

6. Prepare Application, Letter, Book cover page in MS-Word.

7. Steps of Mail Merge.

8. Shortcut for various commands.

9. Study about macros and use.

10. Study of MS Excel.

11. Excel function and their use.

12. Creating Excel sheet to find students total marks and their percentage.

13. Create dropdown list in MS-Excel.

14. Freezing a cell in MS Excel.

15. Sorting column or row data.

16. Difference between worksheet and workbook.

17. Insert chart in Excel.

18. Creating new power point presentation.

19. Adding sound to presentation.

20. Applying animation to the slide.

21. Creating Google doc and share it with different people with different access permissions.

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Subject Name	L	T	P	Credits
Introduction to Web Designing Lab	-	-	8	4

Course Objectives:

- To introduce basics of internet and www.

- To learn basic HTML Tags.

- To learn to make table and list in HTML.

- To understand basic concepts of CSS.

- To learn various elements of HTML form.

Unit-I
Concept of WWW, Internet and www, HTTP protocol, difference between HTTP and HTTPS, Web Browser, Browser architecture, Concepts of effective web design, what is client and server? Difference between Server-Side Scripting and Client-Side Scripting.

Unit-II
HTML: Introduction to HTML, Basic structure of HTML, Body Tag, Body tag attribute, HTML Coding Style, HTML Formatting tag, **List tag-** Ordered, Unordered, Anchor tag, attribute of Anchor tag, Linking one page to another page, Image tag, attributes of image tag, Figure and Figcaption tag.

Unit-III
Table Tag: Working with **Table**- Basic structure of Table, Attributes of Table, **Table Row and Column:** tr, td and th tag, Difference between th and td tag, Table Cell Attributes, Table Row Attributes, Table Inside Table, Form using Table.

Unit-IV
Style Sheets: Introduction to CSS, basic syntax and structure using CSS, Type of CSS-Internal, External and Inline CSS, **properties of CSS:** background images, colors, margins, padding using CSS. HTML table using CSS.

Unit-V
Form Tag: Working with Form tag- Basic structure of Form tag, property/attribute of Form tag, Difference between Get and Post method, fieldset and legend tag.
Elements of Form tag: input tag, **property of input tag:** type, name, value, placehold, maxlength, minlength. checkbox, radio button, difference between radio button and checkbox, select tag, button tag, HTML form using CSS.
Real implementation of project using HTML and CSS.

Reference Books:

1. HTML and Web designing - Kris Jamsa and Konrad King
2. Web Technology - N.P. Goplan, J.Akilandeswari
3. Internet Technology and Web Design - ISRD Group

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Course Outcomes:

- Student will be able to understand basic concept of WWW and internet.
- Student will learn basic HTML Tags.
- Student will be able to create table and list in HTML.
- Will be able to apply CSS to make web page more attractive.
- Student will be able to make forms in HTML.

List of Experiments

1. Create a webpage with HTML describing your department. Use paragraph and list tags.
2. Create links on the words e.g. "Wi-Fi" and "LAN" to link them to Wikipedia pages.
3. Insert an image and create a link such that clicking on image takes user to other page.
4. Change the background color of the page. At the bottom create a link to take user to the top of the page.
5. Create a table to show your class time-table.
6. Use tables to provide layout to your HTML page describing your university infrastructure.
7. Use <span> and <div> tags to provide a layout to the above page instead of a table layout.
8. Embed Audio and Video into your HTML web page.
9. Apply in-line CSS to change colors of certain text portion, bold, underline and italics certain words in your HTML web page. Also change background color of each Paragraph using in-line CSS.
10. Write all the above styling in CSS in different file (.css) and link it to your webpage such that changes made in CSS file are immediately reflected on the page. Group Paragraphs into single class and add styling information to the class in CSS.
11. Create a simple form to submit user input like his name, age, address and favorite subject, movie and singer.
12. Add form elements such as radio buttons, check boxes and password field. Add a submit button.

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Subject Name	L	T	P	Credit
Bridge Course – I(Mathematics)	3	1	-	4

Unit I: Differential Calculus

Concept of real function, its domain and range, modulus function, greatest integer, function and signup function, the graphs of functions, composite functions. Meaning of limit, existence theorem for limits, fundamental theorems on limits (statements only). Continuity, differentiability, Exponential and logarithmic functions, Logarithmic differentiation, Derivative of functions in parametric forms, Second order derivatives.

Unit II: Integral Calculus

Integration as the inverse of differentiation, indefinite integral or anti-derivative, properties of integrals. Fundamental integrals involving algebraic, trigonometric, exponential and logarithmic functions, integration by, substitution, integration by parts, Definite integral, definition as the limit of a sum, fundamental theorem of integral calculus, evaluation of definite integrals. Transformation of definite integrals by substitution, improper integral of the first and second kind and their evaluation.

Unit III: Differential Equations

Definition order and degree, general and particular solution, formation of a differential equation whose general solution is given, solution of differential equation by the method of separation' of variables, homogeneous differential equations, linear differential equations.

Unit IV: Matrices and Determinants

Matrices: Matrix as a rectangular arrangement of numbers, types of matrices, equality of matrices. Addition, scalar multiplication and multiplication of matrices, statement and of non -commutatively and associativity of matrix multiplications (no proof). **Determinants:** Expansion rule, minors and cofactors of a determinant, determinant of a matrix, singular and non-singular matrices, application of determinants in the solution of equation and areas of triangle Cramer's rule, adjoint, and inverse of matrices in Solving Simultaneous equations in two or three variables, consistency and inconsistency of equations.
Note : In the treatement, upto 3x3 determinantand matrices should be considered

Unit V: Probability and Statistics

Bivariate frequency distribution, marginal and conditional frequency distribution, relationship between two variable, Scattet diagram, covariance, Karl Pearson's coefficient of correlation, its interpretation and limits, linear regression, relation between regression and correlation, least squares method of equations of lines of regression, point of intersection of lines of regression. **Probability Theory:** Multiplications theorem on probability, Conditional probability, Independent events, Baye's theorem. Random variable and its probability distribution, Bernoulli trials and Binomial distribution.

Reference Books:

1. Mathematics by R. D. Sharma

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Subject Name	L	T	P	CREDIT
Information and Communication Technology-1	-	-	2	0

Course Objectives:-
The course is designed to aim at imparting a basic level programme for students.After completing the course students will be able to use computer technology.

Contents:
Unit-1
Knowing computer:
What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software , Types of software, Concept of Computing,Computer program, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.

Unit-2
Operating Computer using GUI Based Operating System:
What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Shortcuts, Basics of O.S Setup; Common utilities.

Unit-3
Understanding Word Processing:
Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document.

Using Spreadsheet:
Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of SpreadSheet, printing of SpreadSheet.

Unit-4
Google Classroom:
First Login: Go to classroom.google.com , Join a Class with the Class Code , The Stream , Add a Student Post to the Stream , Announcements & Questions , Assignments , Turn In Assignments ,Assignment Details , Unsubmit Assignments , Google Calendar Integration , Google Drive Folders , Google Classroom Navigation.

Course Outcome:-
At the end of course, students will be able to
1. **Operate the personal computer system**
2. **Use the various hardware devices**
3. **Use the various features of operating system for effective utilization of computer system**
4. **Use the various applications to prepare the documents**
5. **Use google classroom.**

Activities:

SN	Activity
1.	Identification of various computer hardware
2.	Connection of CPU , monitor , printer.
3.	Booting of operating system
4.	Understand drives in window operating system
5.	Create and manage files and folder tree use accessories utilities of windows os
6.	● Entering and editing text in a document file. ● Apply formatting features on text like bold, italics, underline, font type, colour and size. apply features like bullet, numbering ● Create documents, insert images, format tables ● Create and manipulate tables
7.	● Entering and editing data in worksheet

	● Apply formula and functions in the sheet ● Use graphics and auto shapes in excel sheet ● Create and manipulate excel charts create pay bills, pay slips, electricity bills using excel ● Print sheet using print area
9.	Join A google classroom and submit an assignment.